CORRECTIVE ACTION PROCESS REPORT/PLAN COVER SHEET

CHAPTER 245 - STORAGE TANK AND SPILL PREVENTION ACT

Storage Tank Facility ID #: 51-33620

Consultant Name: Terraphase Engineering

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Responsible Party Name: Bellwether District Holdings, LLC

Responsible Party Mailing Address:
3144 West Passyunk Ave, Philadelphia, Pennsylvania 19153

Responsible Party Email Address: apiccone@hilcoglobal.com

Media of Concern: [X] **Soil** [ ] **Groundwater**

Contaminant(s) (*e.g. unleaded gasoline*)**:** petroleum products

(check <u>all</u> that apply to the enclosed submission)

[ ] **Remedial Action Progress Report**

[ ] **Risk Assessment Report** ***(e.g. vapor intrusion, ecological, or human health risk calculations)***

[ ] **Site Characterization Report – Section 245.310(b)**
- [ ] Residential [ ] Nonresidential

[X] **Site Characterization Report – Statewide Health or Background Standard**
- [ ] Residential [X] Nonresidential

[ ] **Site Characterization Report – Site Specific Standard**
- [ ] Residential [ ] Nonresidential

[ ] **Remedial Action Plan – Statewide Health or Background Standard**
- [ ] Residential [ ] Nonresidential

[ ] **Remedial Action Plan – Site Specific Standard**
- [ ] Residential [ ] Nonresidential

[ ] **Remedial Action Completion Report – Statewide Health or Background Standard**
- [ ] Residential [ ] Nonresidential

[ ] **Remedial Action Completion Report – Site Specific Standard**
- [ ] Residential [ ] Nonresidential

[ ] **Post Remediation Care Report**

[ ] **Environmental Covenant**
- [ ] Draft [ ] Final

[ ] **Other:** ____________________

FINAL

Site Characterization Report - Tank Group 02

Former Philadelphia Energy Solutions Refinery
3144 West Passyunk Avenue
Philadelphia, Pennsylvania
Incident #56377

Prepared for

Bellwether District Holdings, LLC
3144 West Passyunk Avenue
Philadelphia, Pennsylvania

Prepared by

Terraphase Engineering Inc.
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REVISED
July 2024

Project Number P044.001.002

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Acronyms and Abbreviations

12DBA	1,2-dibromoethane
12DCA	1,2-dichloroethane
124TMB	1,2,4-trimethylbenzene
135TMB	1,3,5-trimethyl benzene
25 Pa. Code	Title 25 Pennsylvania Code
Act 2	Pennsylvania Land Recycling and Environmental Remediation Standards Act
Act 32	Storage Tank and Spill Prevention Act
ANT	apparent NAPL thickness
AOI	Area of Interest(s)
AOI 1 RIR	Remedial Investigation Report, Area of Interest 1
AOI 2 RIR	Remedial Investigation Report, Area of Interest 2
AST	aboveground storage tank(s)
BCH	Blending Control House
BDH	Bellwether District Holdings, LLC
bgs	below ground surface
BaA	benzo(a)anthracene
BaP	benzo(a)pyrene
BbF	benzo(b)fluoranthene
BghiP	benzo(g,h,i)perylene
CO&A	Consent Order & Agreement
COC	constituent(s) of concern
DC	direct contact
ENTACT	ENTACT, LLC
Evergreen	Evergreen Resources Group, LLC; includes Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC and Evergreen collectively referred to as "Evergreen"
Facility	former Philadelphia Energy Solutions refinery facility
ft	feet or foot
I123-cdP	indeno(1,2,3-cd)pyrene
JD2	JD2 Environmental, Inc.
LEL	lower explosive limit
LNAPL	light non-aqueous phase liquid
mg/kg	milligram(s) per kilogram
MSC	medium-specific concentration(s)
MTBE	methyl tert-butyl ether
NOC	Notification of Contamination

Non-Res	non-residential
NorthStar	Northstar Contracting Group, Inc.
NWI	National Wetlands Inventory
PA	Pennsylvania
PADEP	Pennsylvania Department of Environmental Protection
PESRM	Philadelphia Energy Solutions Refining and Marketing LLC
PID	photoionization detector
PNDI	Pennsylvania Natural Diversity Inventory
PAH	polycyclic aromatic hydrocarbon(s)
Ransom	Ransom Consulting, LLC
RAP	Remedial Action Plan
RACR	Remedial Action Completion Report
Report	*Site Characterization Report – Tank Group 02*
RI	remedial investigation
RL	reporting limit(s)
RPD	relative percent difference(s)
SGW	soil-to-groundwater
SHS	Statewide Health Standard
the Site	Tank Group 02 location within the former Philadelphia Energy Solutions refinery facility
South Yard	Point Breeze Refinery South Yard
SCR	Site Characterization Report
SSS	Site-Specific Standard
SVOC	semi-volatile organic compound(s)
TDS	total dissolved solids
Terraphase	Terraphase Engineering Inc.
TPI	TPI Environmental, LLC
USEPA	United States Environmental Protection Agency
VISL	vapor intrusion screening level(s)
VOC	volatile organic compound(s)
VMS	vapor mitigation system(s)
Work Plan	*Aboveground Storage Tank Closure Work Plan*
WWTP	wastewater treatment plant

Certification

Pursuant to the requirements of the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2), adopted May 19, 1995, which states:

Interpretation of geologic and hydrogeologic data shall be prepared by a professional geologist licensed in this Commonwealth.

I hereby attest that, as a Professional Geologist licensed in the Commonwealth of Pennsylvania, I am familiar with, and have reviewed and/or prepared the interpretation of the geology and hydrogeology presented in the attached report entitled, *Site Characterization Report – Tank Group 02, Former Philadelphia Energy Solutions Refinery, 3144 West Passyunk Avenue, Philadelphia, Pennsylvania*, dated July 2024.

Based on the available data represented in the report, I believe that the geologic and hydrogeologic interpretations made herein are reasonable and accurate.

July 22, 2024

Christopher Voci, PG
Principal Geologist

Date

1 Introduction

Terraphase Engineering Inc. (Terraphase) has prepared this *Site Characterization Report* (the "Report"), on behalf of Bellwether District Holdings, LLC (BDH), formerly known as Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), to detail the results of Site Assessment and Site Characterization activities performed at Tank Group 02 (the "Site") which is located within the Former Philadelphia Energy Solutions refinery facility (the "Facility"). The Facility, which is undergoing closure activities and redevelopment, is located at 3144 West Passyunk Avenue, Philadelphia, Pennsylvania (**Figure 1**). Remediation activities are being conducted at the Facility under the Pennsylvania Land Recycling and Environmental Remediation Standards Act (Act 2) by both BDH and Evergreen Resources Group, LLC (Evergreen)[1] in accordance with the Consent Order and Agreement (CO&A) among Pennsylvania Department of Environmental Protection (PADEP), Sunoco, Inc. (R&M) n/k/a Sunoco (R&M), LLC, and PESRM dated August 14, 2012 and the 2020 First Amendment to that Agreement (2020 Amendment). In accordance with the CO&A, Sunoco/Evergreen is responsible for addressing contamination at the Facility resulting from release(s) which occurred before September 8, 2012, i.e., "Pre-Existing Contamination", and PESRM, now known as BDH, is responsible for addressing contamination at the Facility resulting from release(s) which occurred after September 8, 2012, i.e., "Post-September 2012 Contamination."

The Site Assessment and Site Characterization activities described in this Report were performed in accordance with the applicable provisions of The Storage Tank and Spill Prevention Act (Act 32), Title 25 of the Pennsylvania Code (25 Pa. Code) Chapter 245 (Subchapter D), and Terraphase's (2021) *Aboveground Storage Tank Closure Work Plan* (Work Plan), which was approved by the PADEP on April 23, 2021. As discussed in the Work Plan, closure of the aboveground storage tanks (AST) under Act 32 is being pursued through a group closure process, in which AST in the same general area (e.g., tank farm) have been demolished, removed, investigated, and evaluated at about the same time. Demolition of the tanks has been proceeding in phases from the north to the south with nine Tank Groups in all. The data collected as part of the Site Assessment and Site Characterization activities have been evaluated in the context of other information and environmental sampling data for the Facility to determine whether contamination detected during Site Assessment and Site Characterization sampling is (1) Pre-Existing Contamination, (2) Post-September 2012 Contamination associated with a release from an AST, or (3) Post-September 2012 Contamination not associated with a release from an AST. Pre-Existing Contamination will be addressed by Evergreen under its sitewide Act 2 case. Post-September 2012 Contamination associated with a release from an AST will be addressed by BDH under Act 32. Post-September 2012 Contamination not associated with a release from an AST will be addressed by BDH under Act 2.

[1] Evergreen Resources Management Operations, a series of Evergreen Resources Group, LLC, is managing the legacy remedial work for Philadelphia Refinery Operations, a series of Evergreen Resources Group, LLC ("Evergreen") and Sunoco (R&M), LLC. For clarity, Sunoco, Inc. n/k/a ETC Sunoco Holdings LLC, Sunoco, Inc. (R&M) f/k/a Sunoco (R&M), LLC n/k/a Energy Transfer (R&M), LLC effective 4/19/2021 and Evergreen shall be referred to collectively as "Evergreen" in this Report.

The Work Plan also detailed a tank category system, in which tanks are classified into one of the following three categories:

- **Category 1.** Tanks less than or equal to 21,000 gallons and have no evidence of a release to the environment.
- **Category 2.** Tanks greater than 21,000 gallons and have no evidence of a release to the environment.
- **Category 3.** Tanks that have evidence of a release to the environment identified during infrastructure removal or sampling.

Tanks were initially classified as Categories 1 or 2. Category 1 tanks were inspected visually during demolition for release(s) to the environment. Category 2 tanks were inspected visually, and a Site Assessment sampling program was initiated at each tank. If indications of a release were identified through visual observation or sampling, the tank was reassigned to Category 3. Category 3 tank areas were sampled to characterize the nature and extent of contaminants and assess the need for remedial or interim actions.

Tank Group 02 (**Figure 2**) is located within a larger area of the Facility formerly referred to as the Point Breeze Refinery South Yard (South Yard). Evergreen is currently engaged in characterization and remediation work at the Facility under the Pennsylvania One Cleanup Program under the oversight of the PADEP and the United States Environmental Protection Agency (USEPA; eFACTS PF No. 778374 and 778376). In its associated documentation, Evergreen has identified the Tank Group 02 portions of the South Yard as Areas of Interest (AOI) 1 and 2. The 24 AST addressed in this Report are shown on **Figure 3** and listed in **Table 1**.

Four tanks were initially categorized as Category 1 (i.e., PB 3V 37, PB 14V 403, PB 89A, and PB 7316). These tanks showed no signs of release and remain classified as Category 1. The Site Assessment outcome category for these four tanks is "No Obvious Contamination – Sample Results Meet Action Levels." This Report presents the results of the Site Assessment and Site Characterization activities performed for the remaining 20 tanks following the identification of potential releases to the environment during demolition and removal. It identifies those AST where potential releases to the environment were (and were not) identified based upon a comparison of the soil sampling results to the following Non-Residential (Non-Res) Statewide Health Standard (SHS) Medium-Specific Concentration (MSC) numeric values for soil:

- Non-Res MSC for Direct Contact (DC) Exposure to Surface Soil (0-2 feet [ft])
- Non-Res MSC for DC Exposure to Subsurface Soil (2-15 ft)
- Non-Res MSC for Soil to Groundwater (SGW) (Used Aquifer, Total Dissolved Solids [TDS] ≤ 2,500)

The two AST (i.e., PB 26 and PB 43) for which soil concentrations of regulated substances were not greater than these applicable SHS MSC were concluded to have "No Obvious Contamination – Sampling Results Meet Standards/Levels" and are considered closed in accordance with Act 32. For the remaining 18 AST (i.e., PB 27, PB 28, PB 29, PB 36, PB 37, PB 38, PB 39, PB 33, PB 34, PB 35, PB 40, PB 42, PB 83, PB 84, PB 85, PB 128, PB 129, and PB 204) in Tank Group 02, soil concentrations of regulated substances were greater than these applicable SHS MSC and therefore the conclusion for these tanks was "No

Obvious Contamination – Sample Results Do Not Meet Action Levels," and notification was made to PADEP of potential releases to the environment.

For the 18 AST where potential releases to the environment were identified, Site Characterization was completed to determine the sources of contamination (per 25 Pa. Code § 245.309(a)(4)) and to determine the extent of migration of regulated substances in soil and groundwater (per 25 Pa. Code § 245.309(b)(4)). For these AST, the extent of soil and groundwater concentrations of regulated substances have been delineated to the following Non-Res SHS MSC numeric values:

<u>Soil</u>

- Non-Res MSC for DC Exposure to Surface Soil (0-2 ft)
- Non-Res MSC for DC Exposure to Subsurface Soil (2-15 ft)
- Non-Res MSC for SGW for Used Aquifers (TDS ≤ 2,500)

<u>Groundwater</u>

- Non-Res MSC for Groundwater Exposure for Used Aquifers (TDS ≤ 2,500)

The current extent of light non-aqueous phase liquid (LNAPL) in the area has also been defined based upon measurements collected during recent gauging events for monitoring wells within, and in the vicinity of, Tank Group 02.

Based on the Site Assessment and Site Characterization data collected by BDH and data collected by Evergreen near Tank Group 02, the contamination identified in the area of Tank Group 02 represents Pre-Existing Contamination and Post-September 2012 Contamination not associated with a release from an AST. No evidence of Post-September 2012 Contamination associated with a release from an AST has been identified during the Site Assessment and Site Characterization sampling.

As discussed in this Report, sufficient physical data has been collected to:

- Characterize the sources of contamination identified in the area and the extent of regulated substances in soil and groundwater associated with releases to the environment from AST;
- Allow for a selection of a Standard for attainment; and
- Determine the need for remedial action and select a remedial alternative.

Because the contamination identified in the area represents either Pre-Existing Contamination or Post-September 2012 Contamination not associated with a release from an AST, the contamination will be addressed by Evergreen and BDH under Act 2, and BDH will not be issuing a Remedial Action Plan (RAP) per 25 Pa. Code § 245.311. **Appendix A** provides the Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) for each of the AST.

Section 2 includes a description of the Site, operational/usage history of the AST, and information regarding site topography, geology, hydrogeology, and surface water. This section also includes a summary of known past releases to the environment in the area.

Section 3 discusses the tank infrastructure and removal activities.

Section 4 discusses the results of the Site Assessment and Site Characterization. It documents how adequate characterization has been performed to determine the sources of contamination, the extent of migration of regulated substances in soil and groundwater and provides the ecological screening evaluation. Finally, this section explains the lines of evidence considered in evaluating whether contamination identified in the area is Pre-Existing Contamination or Post-September 2012 Contamination.

Section 5 provides why a specific Standard for attainment has not been identified.

Section 6 provides the conceptual site model which discusses the current and reasonably anticipated future land and groundwater use at and in the vicinity of the Site, provides the scenarios for potential human exposure (i.e., receptors, exposure media, exposure routes), describes the review for the potential presence of threatened and endangered species and/or special concern species, describes the fate and transport of contaminants, and presents the institutional and engineering controls that may be utilized in the future to manage vapor intrusion exposure.

Section 7 provides a summary of this Report and the conclusions of the Site Assessment/Site Characterization for this Tank Group.

Section 8 presents a listing of the documents referenced in this Report.

2 Background

The Facility, a former 1,300-acre refinery, is being redeveloped. The Site[2] is 40 acres in size and is located within an area formerly referred to as the Point Breeze South Yard – parts of the Site area are also referred to as AOI 1 or AOI 2 by Evergreen as part of their One Cleanup Program effort. The Site is located south of Passyunk Avenue, between South 26th Street and Schuylkill Avenue. Prior to demolition, Tank Group 02 consisted of three separate areas containing tanks located in the northern portion of the South Yard. The areas were separated by buildings, large piping structures, parking lots, and plant access roadways. Except for the asphalt roadways and parking areas that cut through portions of Tank Group 02, and the tank foundations themselves, the area was not covered by hardscape.

The 24 AST addressed in this Report are listed in **Table 1**. Eleven other AST, not subject to this closure effort, were previously located within Tank Group 02. These 11 AST were previously closed (i.e., PB 30, PB 44, PB 67, PB 201, and PB 7312) or were associated with the Wastewater Treatment Plant (WWTP) (i.e., PB 117, PB 7300, PB 7305, PB 7306, PB 7307, and PB 7308). **Figure 3** provides a layout of Tank Group 02.

2.1 Operational History/Usage of the Tanks

The Facility operated as a petroleum refinery between 1860 and 2019. The refinery ceased operations in 2019. The demolition and decommissioning of the subject AST began in December 2020. Prior to demolition, the primary products held within these tanks were: ethanol (PB 26), gasoline components (PB 27, PB 37, and PB 128), alkylate (PB 28), heavy reformate (PB 29 and PB 129), gasoline (PB 33, PB 34, PB 35, PB 36, PB 38, PB 39, and PB 40), No. 2 fuel oil (PB 42), recovered oil (PB 204), 15MV1 distillate (PB 43, PB 83, PB 84, and PB 85), phosphoric acid (PB 7316), methanol (PB 14V 403 and PB 3V 37), and sodium hypochlorite (PB 89A). Additional details regarding the size, contents, and construction of the tanks are provided in **Table 1**.

2.2 Topography

Topography at the Site is generally flat except for containment berms constructed around the tank areas to provide containment in the event of a release. Regional topography slopes gently to the west towards the Schuylkill River, the nearest water body to the Site. The ground surface elevation at the Site is approximately 25 ft above mean sea level.[3]

2.3 Regional Geology and Hydrogeology

The Facility is located within the Atlantic Coastal Plain Physiographic Province of Pennsylvania. The Atlantic Coastal Plain is a physiographic province that is defined as having a flat topography, underlain

[2] Tank Group 02 consists of a tank farm referred to by the Facility as the No. 2 Tank Farm, as well as a few smaller tanks to the west.

[3] North American Vertical Datum of 1988.

by unconsolidated sediments that thicken to the southeast. The Coastal Plain deposits are sand, gravel, silt, and clay which drape over crystalline igneous and metamorphic rocks. In general, the resulting sediments are approximately 250 ft thick along the Delaware River. These sediments unconformably overlie much older, very complexly deformed rocks of the Piedmont physiographic province. The Coastal Plain deposits in the vicinity of the Facility consist of anthropogenic fill underlain by quaternary deposits.

Much of the Facility and surrounding area is underlain by fill material, which was placed for the purpose of reclaiming lowlands along the banks of the tidal Delaware and Schuylkill Rivers during industrialization. Below the fill material, sediments consist of gray, muddy deposits with occasional sand, gravel, and organic-rich lenses. These sediments were deposited in floodplain, channel, and marsh environments through the Holocene. The most recent deposits are poorly consolidated and below the water table, as a result of their relatively young geologic age and position along the Schuylkill River (tributaries and creeks). Below the Holocene deposits is Pleistocene glacial outwash, commonly referred to as the "Trenton Gravel" along the Delaware River valley. Cretaceous-age sand and clay units making up the Potomac-Raritan-Magothy aquifer system underly the Pleistocene deposits.

The sedimentary record near the Facility consists of a complex series of water-bearing sand units which can comprise one or more hydrostatic units. Previous investigations conducted at the Facility have identified two saturated zones – specifically, an unconfined shallow groundwater unit (occurring within the Holocene and Trenton Gravel deposits) and a deep groundwater unit known as the Farrington Sand, which is part of the Potomac-Raritan-Magothy aquifer system. The deeper groundwater unit is separated by a clay unit; as such, the deeper groundwater has been classified as a semi-confined aquifer.

Appendix B provides select figures from the *Remedial Investigation Report, Area of Interest 1* (AOI 1 RIR; Stantec 2016a) and *Remedial Investigation Report, Area of Interest 2* (AOI 2 RIR; Langan 2017) for reference. This includes Figure 5-1 which provides a detailed cross section of the subsurface in this area from north to south.

2.4 Local Geology and Hydrogeology

During the Site Assessment and Site Characterization, soil at the Site was primarily investigated within the upper 5 ft, although certain borings installed during Site Characterization were advanced to depths as much as 30 ft in order to vertically characterize the extent of constituents of concern (COC) in soil. During Site Characterization, monitoring wells were also installed to depths of up to 35 ft below ground surface (bgs). Except for the soil borings installed along the berm in the southwest portion of the Site, anthropogenic fill up to 20 ft thick was encountered in each of the soil borings. Soil beneath the fill layer generally consists of reddish brown to gray gravelly sand, sand, clay, and silt. In accordance with 25 Pa. Code § 245.310(a)(14), boring and well construction logs for soil borings and monitoring wells installed by BDH during Site Assessment and Site Characterization are provided in **Appendix C**.

Groundwater in the unconfined aquifer has generally been first encountered in Tank Group 02 at depths of approximately 18 to 30 ft bgs. During Site Characterization activities conducted by BDH, unconfined aquifer groundwater was encountered between approximately 19 and 29 ft bgs. Perched groundwater has also been observed in the anthropogenic fill layers at the Facility, causing mounding and irregular depressions. This has also been identified during groundwater investigations conducted by Evergreen in the central, western, and the southeast portions of Tank Group 02 (Stantec 2016a, Langan 2017) with groundwater identified as shallow as 5.25 ft bgs. Mounded groundwater was also identified in the southeast portion of Tank Group 02 with groundwater identified as shallow as 17.5 ft bgs in Site Characterization monitoring wells installed by BDH. The AOI 1 RIR (Stantec 2016a) indicates that the groundwater mound in this area has been historically attributed to a persistent leak from a high-pressure underground water line. The mounding in the southeast portion of Tank Group 02 causes an artificial localized groundwater depression to the north. Monitoring wells installed into interpreted perched groundwater layers have been excluded from unconfined aquifer groundwater surface elevation contouring by both BDH and Evergreen.

Groundwater at the refinery has historically been interpreted to flow to the south toward the convergence of the Delaware and Schuylkill Rivers. However, based on Figure 5-5 of the AOI 1 RIR (Stantec 2016a; included in **Appendix B**), groundwater flow in the unconfined aquifer in the eastern portion of Tank Group 02 is generally southeast. In addition, based on Figure 8 of the AOI 2 RIR (Langan 2017; included in **Appendix B**), groundwater flow in the unconfined aquifer in the central and western portions of Tank Group 02 has been interpreted by Evergreen to be to the south. Their interpretation does include an area of mounding which causes some radial groundwater flow.

Based on gauging events performed by Terraphase on December 19 and 20, 2022 and January 26, 2023 (see Section 4.2.2), consistent with Evergreen's gauging data and interpretation (Stantec 2016a; 2022), groundwater flow in the unconfined aquifer in the eastern portion of Tank Group 02 is generally directed to the south/southeast. In accordance with 25 Pa. Code § 245.310(a)(16), **Figure 4** provides an illustration of the interpreted groundwater flow regime in the unconfined aquifer. As shown, due to the influence of the 26th Street North Remediation System, the sewer system along 26th Street, and the natural gradient, groundwater along the eastern boundary of the Tank Group is not anticipated to flow off-facility to the east across 26th Street, Route 76, or onto the CSX property. This is consistent with PADEP's (2020) prior conclusions which noted that "*impacted groundwater beneath AOI 1 is not likely to migrate under nearby residential areas*" in the future. Evergreen plans to continue the operation and maintenance of the 26th Street North Remediation System indefinitely in the future.

2.5 Surface Water

As described in Section 2.4, AOI 1 RIR (Stantec 2016a), and AOI 2 RIR (Langan 2017), unconfined aquifer groundwater flow in the eastern portion of Tank Group 02 is generally southeast and predominately flows to the 26th Street Intercepting Sewer, while unconfined aquifer groundwater flow in central and western portions flows south. In accordance with 25 Pa. Code § 250.309 and § 250.406, as referenced by 25 Pa. Code § 245.310(a)(29), and as discussed in detail in Section 4.3.1.2, groundwater contamination has been delineated to Non-Res MSC and the extent of LNAPL has been defined in the area of Tank Group 02. As such, groundwater contamination associated with potential release(s) from AST in Tank Group 02 does not impact the Schuylkill River.

2.6 Known Past Releases to the Environment

Contamination is known to be present in this area of the Facility and must be considered when interpreting the Site Characterization and Site Assessment results for Tank Group 02. This section provides a discussion of past releases and potential other sources of contamination in the Tank Group 02 area.

The AOI 1 RIR (Stantec 2016a), *Site Characterization/Remedial Action Completion Report for AST PB 101, PB 119, PB 128, PB 174, PB 181, PB 182, PB 30, PB 36, PB 38, and PB 39* (SCR/RACR; Stantec 2016b), AOI 2 RIR (Langan 2017), and the *SCR/RACR for PB 33 Tank Release* (PB 33 SCR/RACR; Stantec 2019) prepared on behalf of Evergreen, note prior investigations relating to releases of petroleum products in the vicinity of Tank Group 02. In some cases, these releases have resulted in contamination of groundwater (including the identification of LNAPL) that is present or that has migrated to within the bounds of Tank Group 02.

The AOI 1 RIR identified six potential prior releases from AST in the area of Tank Group 02 (Incident Nos. 45896 [PB 36], 45948 [PB 30], 45964 [PB 38], 45971 [PB 39], 45967 [PB 128], and 6095 [PB 129]). A SCR for AOI 1 was submitted by Evergreen for these prior releases, allowing them to be addressed under Act 2. Additional releases regulated under Act 2 have been identified in the AOI 1 RIR in the vicinity of tanks PB 42 and PB 129. PADEP approved the AOI 1 and AOI 2 RIRs in 2016 and 2017, respectively. These releases will be closed by Evergreen following the approval of an Act 2 Final Report.

In addition, the AOI 1 RIR and SCR/RACR describe historical activities immediately north of PB 29 and PB 30, east of former the Point Breeze Blending Control House (BCH), where a suspected release of a xylene-based additive (i.e., DCI-6A 80/20) from AST PB 101 was identified in 2007 (Incident No. 38360). The location of the BCH is shown on **Figure 3**. Soil sampling conducted in the area of the 2007 release around PB 101 at the time identified elevated concentrations of ethyl benzene and xylenes (total) following the initial removal of approximately 30,000 pounds of contaminated soil. The SCR/RACR including AST PB 101 was submitted and subsequently PADEP approved attainment of the Site-Specific Standard (SSS) for the AST on August 8, 2008 (Stantec 2016a, Stantec 2016b).

The PB 33 SCR/RACR describes a past release from PB 33 (Incident No. 53425). The incident, which was reported to PADEP on May 13, 2019, involved the identification of high Lower Explosive Limit (LEL) levels observed during an out-of-service inspection of the tank. Soil sampling conducted around the perimeter of PB 33 at the time identified elevated concentrations of benzene. Additionally, samples collected as part of this investigation also detected methyl tert-butyl ether (MTBE; Stantec 2019).

The AOI 1 SCR/RACR also describes a prior release near PB 36, where a suspected release of gasoline from the AST was identified in 2012 (Incident # 45896). Soil sampling conducted around the perimeter of PB 36 at the time identified elevated levels of benzene. As stated in the AOI 1 RIR, it was determined at that time that additional characterization field work was not needed (Stantec 2016a). PB 36 was returned to service after modifications were made within the tank berm area to meet permeability requirements (Stantec 2016b).

The Belmont Terminal property is located to the north of Tank Group 02 and has been used historically for petroleum product distribution (**Figure 2**). Prior releases of petroleum products have been identified at the property since at least 1995. The identified LNAPL at the property has been described as gasoline and middle distillate. The Belmont Terminal property contains one active groundwater remediation system, the Loading Rack Remediation System, which is located in the central portion of the property. In the AOI 1 RIR, Evergreen concluded that the groundwater beneath the Belmont Terminal is a stable but continuous source of groundwater contamination to the downgradient area (i.e., Tank Group 02).

In addition to the prior releases identified above, two additional potential releases in the vicinity of Tank Group 02, unrelated to releases from regulated storage tank systems, are being investigated by BDH and Evergreen under Act 2. The first potential release involves the same area noted above, east of the Point Breeze BCH. Evergreen suspected a potential recent release may have occurred based upon increasing levels of apparent NAPL thickness (ANT) in Evergreen's monitoring well S-77. S-77 was located immediately north of Tank Group 02. This contamination is not related to releases from an AST. A second potential release located between former AST PB 40 and PB 84 was identified by Evergreen due to an increase in LNAPL thickness in well S-203 in 2019. Neither Evergreen nor BDH have identified evidence that this contamination is related to a release from an AST. Evergreen and BDH are working together to determine whether this contamination east of the former BCH and between former Tanks PB 40 and PB 84 is Pre-Existing, Post-September 2012, or some combination thereof. This contamination will be addressed under Act 2 by Evergreen and/or BDH.

Appendix D provides tables of soil sampling results from investigations conducted prior to Site Assessment and Site Characterization sampling by BDH.

In addition to these known and suspected discrete releases, the Facility was used for petroleum storage and refining for over a century, and both localized and diffuse contamination is present throughout the Facility associated with this past industrial use and with land filling activities (i.e., historic fill[4]). It is important to consider the presence of this contamination in interpreting the Site Characterization and Site Assessment results for Tank Group 02.

[4] "Historic fill", which is defined by PADEP in their (2021c) *Management of Fill Policy*, is material, excluding material disposed in landfills, waste piles and impoundments, used to bring an area to grade prior to 1988, and consisting of a conglomeration of soil and residuals, such as ashes from the residential burning of wood and coal, incinerator ash, coal ash, slag, dredged material and construction and demolition waste.

3 Tank Infrastructure and Removal

In accordance with the Work Plan, Northstar Contracting Group, Inc. (NorthStar) and its subcontractors, JD2 Environmental, Inc. (JD2) and AST Construction, Inc., PADEP-certified Aboveground Field Constructed Storage Tank System Removal contractors, were retained by BDH to perform tank demolition and handling, including (1) hazard recognition and abatement; (2) removal and handling of vapors, product, wastewaters, and accumulated sludges; (3) overseeing or verifying cleaning of the storage tank system; (4) dismantling the AST; and (5) removal of ancillary equipment and piping.

The demolition of the 24 Tank Group 02 AST began in December 2020 and was completed in January 2022:

- PB 26 (PADEP No. 001A)
- PB 27 (PADEP No. 019A)
- PB 28 (PADEP No. 020A)
- PB 29 (PADEP No. 021A)
- PB 33 (PADEP No. 002A)
- PB 34 (PADEP No. 022A)
- PB 35 (PADEP No. 023A)
- PB 40 (PADEP No. 026A)
- PB 128 (PADEP No. 032A)
- PB 129 (PADEP No. 033A)
- PB 3V 37 (PADEP No. 014A)
- PB 14V 403 (PADEP No. 061A)
- PB 204 (PADEP No. 041A)
- PB 36 (PADEP No. 087A)
- PB 37 (PADEP No. 024A)
- PB 38 (PADEP No. 003A)
- PB 39 (PADEP No. 025A)
- PB 42 (PADEP No. 027A)
- PB 43 (PADEP No. 028A)
- PB 83 (PADEP No. 004A)
- PB 84 (PADEP No. 029A)
- PB 85 (PADEP No. 030A)
- PB 7316 (PADEP No. 071A)
- PB 89A (PADEP No. 089A)

During the removal, it was determined that tanks PB 28, PB 34, PB 35, PB 36, PB 37, PB 43, PB 83, PB 84, PB 85, PB 128, and PB 129 had double bottoms. Double bottoms are forms of secondary containment located under the tanks that allow for visual inspection and potential repair to any observed leaks. BDH retained ENTACT, LLC (ENTACT) to remove the double bottoms. Removal was completed in January 2022, overseen by JD2.

JD2 identified evidence of releases to the environment during the AST removal in the vicinity of tank PB 83 (i.e., the identification of free product). PADEP was notified by JD2 via telephone of this release on June 10, 2021. Interim Remedial Actions were implemented, including the recovery of water with sheen and free product. Further details are provided in Section 4.1. Based on Site Assessment sampling results from across the Site, five additional notifications of release were reported by Terraphase to PADEP for the Site on, July 13 (PB 27, PB 28, PB 29, and PB 33), August 3 (PB 34, PB 35, PB 40, PB 42, PB 84, PB 128, and PB 129), August 12 (PB 38, PB 39, and PB 85), August 20 (PB 37), and October 27, 2021 (PB 36 and PB 204). PADEP assigned the releases in Tank Group 02 to Incident No. 56377. Copies of notification documents are included in **Appendix E**.

On behalf of BDH, JD2 submitted to PADEP the required tank registration amendments, copies of which are provided as **Appendix F**.

In accordance with 25 Pa. Code § 245.309(a) and (b)(3), as referenced by 25 Pa. Code § 245.310(a), the Aboveground Storage Tank System Closure Report forms (2630-FM-BECB0514) were previously submitted on September 26, 2022 and are included as **Appendix A**.

Pursuant to 25 Pa. Code Section 245.310(a)(11), field personnel involved with AST closure activities described in this Report have completed work in accordance with site-specific plans which were implemented in accordance with Occupational Safety and Health Administration requirements in 29 Code of Federal Regulations 1910.120. Each consultant, contractor, subcontractor, and third-party company performing fieldwork associated with the AST closure activities was required to prepare its own site-specific health and safety plan.

4 Site Assessment and Site Characterization

This section discusses the results of the Site Assessment and Site Characterization activities performed following the identification of potential releases to the environment during the demolition and removal of the Tank Group 02 AST.

Section 4.1 describes the Site Assessment sampling and analysis methods that were performed by BDH. Section 4.2 discusses the subsequent Site Characterization sampling. Section 4.3 discusses the soil sampling results and documents the approach to allocate soil and groundwater contamination (including LNAPL) to (1) Pre-Existing Contamination, (2) Post-September 2012 Contamination associated with a release from an AST, or (3) Post-September 2012 Contamination not associated with a release from an AST.

4.1 Site Assessment

The Site Assessment soil sampling was performed by Ransom Consulting, LLC (Ransom) and their subcontractor TPI Environmental, LLC (TPI). In total, the effort involved the installation of 338 soil borings and the collection of 351 soil samples. Prior to the initiation of the sampling activities, the Pennsylvania One Call System (811 Dig Safe) was contacted to identify underground utilities at the Site. In addition, a review of available information provided by facility representatives regarding the presence/absence of underground utilities was used in the selection of sampling locations. Finally, a private utility locater was retained to use geophysical and electromagnetic techniques to identify potential utilities or subsurface structures at proposed drilling locations.

As discussed in the Work Plan, when no evidence of a release to the environment was identified during tank removal, AST were subject to Site Assessment sampling using a grid-based approach with additional samples biased toward the locations of pipe connections or other key infrastructure. The Site Assessment sampling was conducted between June 7, 2021 and February 16, 2022.

In accordance with the approved Work Plan, soil borings were completed using direct-push (i.e., Geoprobe) drilling or hand auger methods and advanced through the top 5 ft of soil. Continuous soil cores were collected, and field screened using a photoionization detector (PID) to identify potentially impacted zones. Soil sampling intervals were selected based on the results of field screening (i.e., staining, odors, and elevated PID readings)[5]. Where potentially impacted materials were not encountered, discrete samples were collected at a depth of 3.0-3.5 ft bgs consistent with the Confirmatory Sampling Protocol detailed in PADEP's (2021b) *Closure Requirements for Aboveground Storage Tank Systems* which requires sampling "*at least one foot below underground product piping,*

[5] During the Site Assessment, PID readings were taken from every 6-inch interval to help select an appropriate interval for sampling (i.e., the interval exhibiting the highest PID reading). With the exception of the PID readings at the depths from which the soil samples were collected (which are recorded on the boring logs), the field sampling contractor neglected to record the PID readings at each depth. This deficiency was addressed during Site Characterization during the installation of monitoring wells at each AST where soil contamination was observed. During their installation PID and visual observations were taken and recorded from the surface to the depth of the well's installation.

two feet below product dispensers, remote fills or containment structures and aboveground product lines for AST, and three feet below the tank." Where fill was observed, samples of the fill were collected if it consisted of soil or soil-like material. Groundwater was not encountered during the installation of any of these soil borings.

During the Site Assessment, petroleum sheen (on pooled water) and visibly contaminated soil were observed beneath the northwest tank wall of PB 83, which previously contained 15MV1, distillate. This tank was re-classified as Category 3 and the investigation process immediately moved to the Site Characterization sampling as described in Section 4.2. Interim Remedial Actions were implemented, including the recovery of impacted pond water and free product via vacuum truck upon discovery on June 10, 2021 and June 11, 2021. An estimated 3,000 gallons, 95 percent of which was water, was removed and discharged to the sewer leading to the Point Breeze Bio plant for treatment. Two locations (i.e., PB-83-01 and PB-83-02) exhibited benzene concentrations in soil above the MSC; however, they are delineated by other BDH or previous sample locations and the tank berm boundary. Additionally, the benzene concentrations were characterized to the water table. The interim response actions and the subsequent Site Assessment and Site Characterization sampling performed in the vicinity of PB 83 indicated the release area has been adequately characterized relative to applicable MSC.

Per 25 Pa. Code § 245.310(a)(14), **Figure 5** shows the location of the Site Assessment soil borings which were installed as part of this effort. **Appendix C** provides copies of the boring logs.

The analysis selected for each soil sample was based on the AST contents as prescribed by PADEP's Short List of Petroleum Products inventory (Table III-5 of the *Land Recycling Program Technical Guidance Manual* [PADEP 2021a]). As shown in **Table 1**, for the 20 AST subject to this closure effort, analytes included one or a combination of the following short lists, based on historical tank contents:

- **Short List 1**. *Leaded Gasoline, Aviation Gasoline and Jet Fuel*: benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-timethylbenzene (124TMB), 1,3,5-trimethylbenzene (135TMB), 1,2-dichloroethane (12DCA), 1,2-dibromoethane (12DBA), and lead.
- **Short List 2**. *Unleaded Gasoline*: benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether (MTBE), naphthalene, 124TMB, and 135TMB.
- **Short List 3**. *Kerosene, Fuel Oil No. 1*: benzene, toluene, ethyl benzene, cumene, MTBE, naphthalene, 124TMB, and 135TMB.
- **Short List 4**. *Diesel Fuel and Fuel Oil No. 2*: benzene, toluene, ethyl benzene, cumene, MTBE, naphthalene, 1,2,4-TMB, and 135TMB.
- **Short List 5**. *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids*: benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene (BaA), chrysene, benzo(b)fluoranthene (BbF), benzo(a)pyrene (BaP), and benzo(g,h,i)perylene (BghiP).
- **Short List 6**. *Waste Oil:* benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, BaA, chrysene, BbF, BaP, indeno(1,2,3-cd)pyrene (I123-cdP), BghiP, and lead.

Volatile organic compounds (VOC) were analyzed via USEPA Method 8260D. Samples for semivolatile organic compounds (SVOC) were analyzed via Method 8270E. Samples for ethanol were analyzed via

USEPA Method 8015D. Samples for lead were analyzed via USEPA Method 6010D. Laboratory analytical services were provided by Alpha Analytical, Inc. (now Pace Analytical) of Westborough, Massachusetts and SGS North America, Inc. of Dayton, New Jersey, both of which are PADEP-certified laboratories. Soil samples submitted for analyses were placed directly into laboratory provided glassware and stored on ice in a cooler under appropriate chain of custody protocol.

Copies of the laboratory reports are included as **Appendix G**.

4.2 Site Characterization

When Site Assessment sampling indicated a potential release in Tank Group 02 (Section 4.1), a Site Characterization plan was developed. In total, the Site Characterization plan included the installation of 43 additional soil borings and the collection of 76 additional soil samples. It also included the installation of 18 groundwater monitoring wells, each sampled over two sampling events. **Figure 6a** shows the locations of the additional soil borings installed during Site Characterization. **Figure 6b** shows the locations of the groundwater monitoring wells installed and sampled during Site Characterization. This section discusses how the Site Characterization plan was developed, the methods used during the sampling, and the evaluation of the results following characterization.

4.2.1 Site Characterization Soil Sampling

In accordance with 25 Pa. Code § 245.309(b)(4), the Site Characterization scope for soil, conducted between February 7, 2022 and January 4, 2023, included the installation of 37 soil borings and the collection of 73 soil samples. The samples were collected at shallower (i.e., 0-0.5 ft bgs) and deeper (i.e., various 6-inch intervals from 3 to 26 ft bgs) soil depths than samples collected during the Site Assessment as necessary to vertically characterize the extent of COC concentrations in soil, as required by 25 Pa. Code § 245.309(c)(9). The sample collection protocols, and the sampling analyses used during the Site Characterization were consistent with those used during the Site Assessment. A portion of the sampling was completed by Ransom. Additionally, sampling was completed by Terraphase and TPI in conjunction with monitoring well installation activities as discussed in Section 4.2.2.

Releases to soil from the AST and associated soil contamination would have been confined to the secondary containment berms. As a result, the horizontal extent of soil contamination associated with the AST would be limited to an extent no greater than the berms (except for where piping traverses through the berms). Where space existed between locations of identified soil contamination and the berms, horizontal step out sampling was considered to characterize soil contamination horizontally to within the containment areas.

The Site Assessment sampling methodology included visual inspection and field screening of soil during the installation of the soil borings. This allowed the field team to identify the interval with the greatest potential for contamination. If samples were collected at a depth greater than 0-0.5 ft bgs, it was either because PID readings were greater than those observed from 0-0.5 ft bgs, or PID readings indicated no evidence of VOC, and samples were then collected from 3.0-3.5 ft bgs per PADEP (2021b). For these situations, shallow soil delineation sampling was unnecessary to determine the extent of concentrations greater than MSC. Instead, the Site Characterization assumes that the concentrations observed in these subsurface samples also exist at the surface (i.e., 0-0.5 ft bgs). Site Characterization samples were collected from the depth corresponding to the highest indication of contamination between the Site Assessment sample depth and the water table based upon field screening. Also, in order to determine the extent of COC concentrations in soil which are greater than MSC, prior soil sampling results from Evergreen's remedial investigation (RI) activities were also used, as needed.

Soil boring logs[6] are provided in **Appendix C**, in accordance with 25 Pa. Code § 245.309(c)(9) and 245.310(a)(14)**.**

4.2.2 Site Characterization Groundwater Sampling

In addition to soil characterization and in accordance with 25 Pa. Code § 245.309(b)(4), groundwater monitoring wells were installed in the vicinity of tanks PB 27, PB 28, PB 29, PB 33, PB 34, PB 35, PB 36, PB 37, PB 38, PB 39, PB 40, PB 42, PB 83, PB 84, PB 85, PB 128, PB 129, and PB 204, as depicted in **Figure 6b**. The wells were installed to fully characterize the extent of contamination identified in the vicinity of the tanks, as required by 25 Pa. Code §245.309(c)(10).

The locations of the monitoring wells were selected with three objectives in mind: (1) to evaluate groundwater in the vicinity of each tank with suspected release to the environment, (2) to bias monitoring well locations toward areas where higher concentrations have been detected in soil, and (3) to obtain spatial coverage to better understand the nature and extent of COC concentrations in groundwater across the Tank Group. The data from these wells supplement the extensive groundwater sampling data which, as noted by Evergreen in their RIR (Stantec 2022), PADEP considered complete and sufficient to assess risks to human and ecological receptors.

Terraphase and TPI installed the wells using 4.25-inch direct hollow stem augers to depths between 25 and 35 ft bgs. The monitoring wells were constructed with 10 to 15 ft of 2-inch diameter Schedule 40 PVC well screens with 0.010-inch slotted screen. A #1 sand filter pack was installed to fill the remaining annular space around the screen to 2 ft above the screened interval. A #00 fine sand seal was placed above the pack and the remaining annular space was filled with hydrated bentonite chips. Monitoring well construction logs[7] are provided in **Appendix C**.

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[6] During the Site Characterization, PID readings were taken from every 6-inch interval to help select an appropriate interval for sampling (i.e., the interval exhibiting the highest PID reading). With the exception of the PID readings at the depths from which the soil samples were collected (which are recorded on the boring logs), the field sampling contractor neglected to record the PID readings at each depth. This deficiency was addressed during Site Characterization during the installation of monitoring wells at each AST where soil contamination was observed. During their installation, PID and visual observations were taken and recorded from the surface to the depth of the well's installation.

[7] As noted in Sections 4.1 and 4.2.1, during the Site Assessment and Site Characterization soil sampling, the field sampling contractor neglected to record the PID readings at each depth. This deficiency was addressed during Site Characterization during the installation of monitoring wells at each AST where soil contamination was observed. During their installation, PID and visual observations were taken and recorded from the surface to the depth of the well's installation.

The monitoring wells were installed and developed between November 18 and December 9, 2022. Well development was conducted by over pumping to remove multiple well volumes with a submersible pump. The submersible pump was surged up and down along the well screen to loosen sediment from the formation into the well. Well development continued until the water was clear and free of sediment. Water produced by development of all wells was containerized and treated at the on-site wastewater treatment plant.

Prior to groundwater sample collection, Terraphase collected groundwater level and LNAPL thickness measurements from newly-installed monitoring wells TG02-MW-01 through TG02-MW-18. In addition, Terraphase utilized access to certain pre-existing monitoring wells located in the Tank Group for gauging and sampling purposes (i.e., S-125, S-198, S-199, S-200, S-202, S-203, S-206, S-207, S-261, S-269, S-271, S-273, S-277, S-294, S-397, S-400, S-401, S-403, S-417, S-77P, S-78, and S-85). Gauging was performed using an electronic oil/water interface probe. The results of the gauging are provided in **Tables 2a** and **2b.** To characterize unconfined groundwater conditions in proximity to Tank Group 02's AST, samples were collected from TG02-MW-01, TG02-MW-02, TG02-MW-07, TG02-MW-13, TG02-MW-14, TG02-MW-16, TG02-MW-18[8], and existing monitoring wells S-200, S-206, S-207, S-271, and S-77P.

All permanent monitoring wells were purged and sampled following established low flow protocols outlined in the PADEP Groundwater Monitoring Guidance (Appendix A of the *Land Recycling Program Technical Guidance Manual* [PADEP 2021a]). Sampling was conducted on December 20 through 22, 2022; 2 weeks following well development. A second sampling event was conducted approximately 30 days later on January 23 through 26, 2023. The wells were purged using a stainless-steel positive displacement submersible pump. Purging continued until groundwater indicator parameters (i.e., water temperature, pH, conductivity, turbidity, and oxygen reduction potential) had stabilized as measured using a properly calibrated Horiba U-52 water quality meter equipped with a flow-through cell (**Appendix C**). Following sample collection, the bottles were packaged in coolers with bagged ice. A custody record for each sample was documented using a chain of custody form, which accompanied the sample containers during sample collection at the Site, transport to the lab, and analysis. The groundwater samples collected from the wells were analyzed for Short List 1-6 parameters.

LNAPL characterization samples were collected from wells where LNAPL was encountered (i.e., TG02-MW-03, TG02-MW-04, TG02-MW-05, TG02-MW-06, TG02-MW-08, TG02-MW-09, TG02-MW-10, TG02-MW-11, TG02-MW-12, TG02-MW-15, and TG02-MW-17[9]) using a disposal Teflon bailer. The LNAPL characterization samples were analyzed for PIANO VOC (8260B, VOC by GC/MS), polycyclic aromatic hydrocarbons (PAH)/Biomarkers (8270D-SIM), Organic Lead (8270D-SIM), Density (ASTM D1475), and Saturated Hydrocarbons (8015D by GC-FID).

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[8] Groundwater samples were not collected from monitoring wells TG02-MW-03, TG02-MW-04, TG02-MW-05, TG02-MW-06, TG02-MW-08, TG02-MW-09, TG02-MW-10, TG02-MW-11, TG02-MW-12, TG02-MW-15, and TG02-MW-17 due to the presence of LNAPL. Instead, LNAPL characterization samples were collected and analyzed as discussed.

[9] Due to an insufficient amount of LNAPL in TG02-MW-17 for the lab to analyze as a product sample during the first sampling event, the sample was analyzed as a groundwater sample for PIANO VOC (8260B, VOC by GC/MS), PAH/Biomarkers (8270E-SIM), and Saturated Hydrocarbon (8015D by GC-FID). The results presented for the VOC and PAH are qualified due to sampling, handling, and analysis protocols.

For these wells where groundwater samples were not collected due to the presence of LNAPL, it is assumed that concentrations in groundwater exceed the MSC.

4.3 Sampling Results

Soil sampling results were compared to the following Non-Res SHS MSC numeric values to help identify potential releases to the environment and determine if releases of regulated substances from the AST, and their associated piping, could have resulted in contamination (per 25 Pa. Code § 245.309(a)(4)):

- Non-Res MSC for DC Exposure to Surface Soil (0-2 ft)[10]
- Non-Res MSC for DC Exposure to Subsurface Soil (2-15 ft)
- Non-Res MSC for SGW for Used Aquifers (TDS ≤ 2,500)

Where the soil data suggest potential releases of regulated substances from the AST, soil and groundwater concentrations were compared to the following Non-Res SHS MSC numeric values to determine the extent of migration of regulated substances in soil and groundwater (per 25 PA Code § 245.309(b)(4)):

Soil

- Non-Res MSC for DC Exposure to Surface Soil (0-2 ft)
- Non-Res MSC for DC Exposure to Subsurface Soil (2-15 ft)
- Non-Res MSC for SGW for Used Aquifers (TDS ≤ 2,500)

Groundwater

- Non-Res MSC for Groundwater Exposure for Used Aquifers (TDS ≤ 2,500)

As discussed further in Section 6.1, soil and groundwater sampling results were not compared to PADEP's Vapor Intrusion Screening Levels (VISL) as part of this evaluation since there is currently no vapor intrusion exposure in the area (i.e., vapor intrusion pathway is incomplete). Future buildings at the Facility will be subject to vapor intrusion investigation and evaluation to determine if conditions could pose a potential unacceptable risk to future occupants. Similarly, as discussed further in Section 6.1, the comparison to non-residential numeric values is appropriate since the future land use in the area of Tank Group 02 is commercial/industrial.

[10] As described in Section 4.2.1, soil sampling intervals were based on the results of field screening (i.e., staining, odors, and elevated PID readings). Where potentially impacted materials were not encountered, discrete samples were collected from native soil at a depth of 3.0-3.5 ft bgs, in accordance with PADEP's (2021b) *Closure Requirements for Aboveground Storage Tank Systems*. Since only subsurface (>2 ft bgs) soil samples were collected from some locations during the Site Assessment, the comparison of the resulting concentrations to MSC conservatively disregard the surface/subsurface soil designation reflected in the Non-Res Soil DC MSC (i.e., results were compared to the Non-Res DC MSC for surface soil). This approach was used to evaluate potential releases from tanks within Tank Group 02.

The following sections provide a more detailed discussion of the results of sampling conducted in proximity to each of the 18 AST where the Site Assessment soil sampling indicated potential releases to the environment.

4.3.1 Defining the Extent of Contamination

Through the Site Assessment sampling results, Site Characterization sampling results, and Evergreen's existing data set, we were able to delineate the extent of concentrations exceeding MSC in soil and groundwater in the area of Tank Group 02. For both soil and groundwater, the extent of concentrations exceeding MSC extends laterally outside the tank group area. Tables with the Site Assessment and Site Characterization soil and groundwater results are provided in **Appendix H**.

4.3.1.1 Soil

As shown in **Table 3**, the following constituents were detected in soil samples from Tank Group 02 at concentrations greater than applicable MSC:

- Non-Res MSC for DC Exposure to Surface Soil: lead and naphthalene
- Non-Res MSC for DC Exposure to Subsurface Soil: naphthalene
- Non-Res MSC for SGW for Used Aquifers (TDS ≤ 2,500) MSC: benzene, 12DBA, ethyl benzene, lead, MTBE, naphthalene, toluene, 124TMB, 135TMB, and xylenes (total)

Figures 7a and **7b** present the horizontal extent of COC in surface and subsurface soil, respectively, at concentrations greater than applicable Non-Res SHS MSC.

4.3.1.2 Groundwater

As shown in **Table 4**, in accordance with 25 Pa. Code § 245.309(c)(10)(iv), benzene, ethyl benzene, MTBE, toluene, 124TMB, anthracene, BaA, BaP, BbF, BghiP, chrysene, I123-cdP, naphthalene, pyrene, and lead were detected in groundwater in Tank Group 02 at concentrations greater than the Non-Res MSC for Groundwater Exposure (Used Aquifer). **Figures 8a** and **8b** present the horizontal extent of COC in groundwater in the area of Tank Group 02[11] and more broadly across the Facility, respectively, at concentrations greater than the applicable Non-Res SHS MSC.

4.3.1.3 LNAPL

As depicted on **Figure 9,** the horizontal extent of LNAPL has been delineated in the vicinity of Tank Group 02 based on data collected during the Site Characterization gauging events, or the most recent Evergreen gauging data collected from previously existing wells.[12] **Table 5** provides a summary of the characterization results for LNAPL samples collected by BDH. As shown on **Figure 9**, seven distinct LNAPL

[11] The maximum concentration from the two most recent groundwater sampling events at each location with sample dates ranging from September 8, 2012 to July 20, 2023 were considered when defining the extent of groundwater contamination.

[12] The current estimated extent of LNAPL is based upon the most recent gauging event at each location, which ranged from November 8, 2000 to January 26, 2023.

plumes have been identified in or in proximity to Tank Group 02. The current aerial extent of each LNAPL plume has been defined.

4.3.2 Allocating Contamination

Several lines of evidence have been used to determine if the contamination identified within the aerial extents, as noted in Sections 4.3.1.1 (Soil), 4.3.1.2 (Groundwater), and 4.3.1.3 (LNAPL), is indicative of (1) Pre-Existing Contamination, (2) Post-September 2012 contamination that is likely from AST releases, or (3) Post-September 2012 Contamination related to release(s) from sources other than AST. This evaluation included consideration for (1) whether the constituents exceeding MSC are consistent with the product(s) stored in the tank, (2) whether the spatial distribution suggests the source of the contamination is near an AST, (3) whether the magnitude of the exceedances is consistent with levels observed from other sources in Evergreen's AOI, (4) whether the spatial distribution is consistent with other sources in the area or if there are outliers, (5) whether the data are consistent with previously characterized contamination known to have existed in the area due to releases prior to September 8, 2012, (6) where there are indicator chemicals present in soil, groundwater, or LNAPL (e.g., gasoline additives) which were not used after September 8, 2012, and/or (7) whether LNAPL analytical results and forensic evaluations suggest that contamination resulted from release(s) prior to September 8, 2012.

In order to explore these lines of evidence, the soil, groundwater, and LNAPL sampling and analytical data available for the Tank Group 02 area was considered. This includes data generated by Evergreen during their RIR and by BDH during sampling performed for AST Closure purposes as well as for the investigation of release(s) in the area unrelated to AST. Overall, the following sets of supplemental figures were developed:

- **Figures 10a** through **10r** present all of the soil sampling results available in proximity to each AST and how the concentrations compare to applicable SHS MSC. Databoxes are provided for each soil boring and allow for a detailed review of the soil characterization results in and around each AST. These figures help to identify whether the concentrations of certain COC indicative of Pre-Existing Contamination (e.g., MTBE, 12DBA, 12DCA, lead) are spatially correlated with other COC which would not be exclusive to older release(s) to the environment.
- **Figures 11a** through **11j** present a generalized illustration of the spatial distribution of the 10 constituents that exceed MSC in soil samples collected from the Tank Group 02 area by BDH and Evergreen: benzene, 12DBA, ethyl benzene, MTBE, toluene, 124TMB, 135TMB, xylenes (total), naphthalene, and lead.
- **Figure 12** presents the groundwater sampling results for those wells specifically installed and/or sampled by BDH during Site Characterization. Databoxes are provided for each well and allow for a review of the groundwater characterization results from each sampling event. The concentrations are compared to applicable SHS MSC. Finally, the figure also illustrates the current estimated extent of LNAPL and includes the LNAPL fingerprinting determined from sampling and analysis performed during the Site Characterization.

Lead in soil and groundwater at the Site is likely related to either historic fill or releases of gasoline containing tetraethyl lead. Tetraethyl lead was phased out of use in 1996 and historic fill would have been placed prior to September 2012. Accordingly, the presence of lead in soil and groundwater (including in LNAPL) is Pre-Existing Contamination.

4.3.2.1 PB 27 Area

This AST contained gasoline components. Analytical results for soil samples collected near this AST are depicted on **Figure 10a**. As shown on **Figures 11a** through **11j**, there were limited soil analytical results in the PB 27 area from the Evergreen data set. The Site Assessment and Site Characterization provides a much more detailed understanding of the distribution of constituent concentrations in soil.

At PB 27, nine constituents (i.e., benzene, ethyl benzene, MTBE, toluene, 124TMB, 135TMB, xylenes [total], naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As shown on **Figure 11a**, the benzene concentrations detected during Site Assessment and Site Characterization sampling near PB 27 are generally consistent with Evergreen's data set; accordingly, based on the range and spatial distribution of benzene concentrations, the presence of benzene in soil near PB 27 is Pre-Existing Contamination.

As shown in the **Figure 11 series**, compared to the Evergreen data set near PB 27, higher concentrations of the other seven constituents (i.e., ethyl benzene, MTBE, toluene, 124TMB, 135TMB, naphthalene, and xylenes [total]) were detected during Site Assessment and Site Characterization soil sampling near piping on the northwestern side of tank PB 27 and beneath the tank. Evergreen's data set does not include samples in these specific areas. The range and spatial distribution of these concentrations indicates potential tank-related contamination. Because MTBE, a gasoline additive which was phased out of use in 2006, is one of the constituents that follows this similar spatial distribution, this potential tank-related contamination appears to be Pre-Existing Contamination. In the areas where Evergreen had sampled previously for these seven constituents, concentrations detected during Site Assessment and Site Characterization sampling were generally consistent with Evergreen's data set, also indicating contamination consistent with Pre-Existing Contamination.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-05). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 27 indicates the presence of leaded gasoline and MTBE. The organic lead concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. Similarly, the presence of MTBE in the LNAPL suggests that the release occurred prior to 2006. Additionally, LNAPL of similar material has been known to exist in proximity to this AST area since at least 2005 (Stantec 2016a). These lines of evidence indicate that LNAPL contamination is Pre-Existing Contamination. Copies of the laboratory reports and LNAPL forensic analysis are included as **Appendix G**.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, by extension dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.2 PB 28 Area

This AST contained alkylates. Overall, at PB 28, seven constituents (i.e., benzene, ethyl benzene, toluene, 124TMB, 135 TMB, xylenes [total], and lead) were detected at concentrations in soil above the applicable MSC; however, most sampling locations had no MSC exceedances or exceedances for only benzene and/or lead. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination.

As shown on **Figure 10b**, the highest concentrations in soil were detected at PB-28-19, which is located north of the tank footprint. COC detected at PB-28-19 were detected at concentrations orders of magnitude higher than those measured at locations within the tank footprint. Specifically, benzene was detected at PB-28-19 at a concentration more than 20 times higher than the concentration at PB-28-05. Other samples collected from more than 20 other locations associated with this tank do not exhibit similarly high concentrations as observed at PB-28-19. The distribution of COC concentrations in soil near this tank (i.e., higher concentrations farther away from the tank) indicates that the contamination is not tank-related. While samples had not been previously collected near this tank by Evergreen, as shown on **Figures 11a** through **11j**, concentrations near PB 28 are consistent with the range of COC concentrations characterized in AOI 1 by Evergreen. Therefore, the contamination appears to be Pre-Existing Contamination.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-04). As presented in **Table 5**, the forensic analysis of LNAPL which has been identified in proximity to PB 28 indicates the presence of leaded gasoline. The organic lead concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1982. Additionally, LNAPL of similar material has been known to exist in proximity to this AST since at least 2005 (Stantec 2016a). These lines of evidence indicate LNAPL contamination is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.3 PB 29 Area

This AST contained heavy reformate. Analytical results for soil samples collected near this AST are depicted on **Figure 10c**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 29 area from the Evergreen data set, so the Site Assessment and Site Characterization provides new information about the nature and extent of contamination in soil in this area.

At PB 29, nine constituents (i.e., benzene, ethyl benzene, MTBE, toluene, 124TMB, 135TMB, xylenes [total], naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As discussed in Section 2.6, a suspected release of a xylene-based additive (i.e., DCI-6A 80/20) from AST PB 101 was identified in 2007 (Incident No. 38360) east of the former Point Breeze BCH. The BCH is to the north of PB 29, as shown on **Figure 3**. Limited soil sampling conducted in the area of the 2007 release around PB 101 identified elevated concentrations of ethyl benzene and xylenes (total) following the initial removal of approximately 30,000 pounds of contaminated soil (Stantec 2016a, Stantec 2016b). As shown on **Figure 10c**, the highest concentrations in soil samples collected near PB 29 were detected to the north, near where this 2007 release occurred, and not beneath the tank or its associated piping. As shown on **Figures 11a** through **11j**, a continuous area of localized soil contamination appears to be present from the former Point Breeze BCH area to the southeast into the PB 29 area. The distribution of COC concentrations in soil (i.e., higher concentrations farther away from the tank) in proximity to the area where a release occurred in 2007 indicates that the contamination is not tank-related and is likely Pre-Existing Contamination associated with the 2007 release or other releases near the former Point Breeze BCH.

As also discussed in Section 2.6, Evergreen suspected a potential recent release may have occurred near the former Point Breeze BCH based upon increasing levels of ANT in Evergreen monitoring well S-77, located immediately north of PB 29. Like the contamination from the 2007 release, this contamination is not related to releases from PB 29. Evergreen and BDH are working together to determine whether this contamination east of the former BCH and near former Tank PB 84 is Pre-Existing, Post-September 2012, or a combination. This contamination will be addressed under Act 2 by Evergreen, BDH, or both parties.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-03). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 29 indicates the presence of leaded gasoline and MTBE. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1982. This line of evidence, as well as the presence of MTBE in the LNAPL, indicates the LNAPL is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination and may also be co-located with Post-September 2012 Contamination not associated with a release from an AST.

4.3.2.4 PB 33 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10d**. As shown on **Figures 11a** through **11j**, there were limited soil analytical results in the PB 33 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 33, four constituents (i.e., benzene, ethyl benzene, toluene, and MTBE) were detected at concentrations in soil above the applicable MSC. Since MTBE would not have been in use at the facility after September 2012, the presence of MTBE in soil is Pre-Existing Contamination.

As discussed in Section 2.6, a prior release was documented in this area and characterized by Evergreen in the PB 33 SCR/RACR (Stantec 2019). An incident (Incident # 53425) associated with this AST was reported to PADEP on May 13, 2019 regarding high LEL levels during an out-of-service inspection. Soil samples collected as part of this investigation also identified detected concentrations of MTBE. As shown on **Figure 10d**, the highest concentrations of benzene, ethyl benzene, and toluene were detected at PB-33-05, which is located on the north side of the tank near former tank piping. The exceedances in the samples collected under the piping may be related to this prior known release; the Evergreen data set did not include any samples in this area. The prior release at this tank and the presence of MTBE in soil in this area indicates that the soil concentrations above the applicable MSC near PB 33 are Pre-Existing Contamination.

As shown on **Figure 12**, three constituents (i.e., benzene, MTBE, and naphthalene) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-02. Since MTBE would not have been in use at the facility after September 2012, the presence of MTBE in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank, and because benzene and naphthalene are known to be present in groundwater in this area through Evergreen's Act 2 work, the presence of benzene and naphthalene in groundwater is also assumed to be Pre-Existing Contamination. LNAPL was not identified in TG02-MW-02.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.5 PB 34 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10e**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 34 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 34, six constituents (i.e., benzene, ethyl benzene, 124TMB, 135TMB, naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As shown on **Figures 11a** through **11j**, the highest concentrations of benzene, ethyl benzene, 124TMB, 135TMB, and naphthalene were detected at location PB-34-11. PB-34-11 is a step out location installed to delineate low-level benzene concentrations at PB-34-12 (within the tank footprint). The surface sample at PB-34-11 had a higher benzene concentration compared to PB-34-12, and the highest concentrations at PB-34-11 were detected at 14 ft bgs. The distribution of concentrations near this location (i.e., higher concentrations farther from the tank and higher concentrations at depth than in surface samples) indicates that the contamination is not tank-related.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-06). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 34 indicates the presence of leaded gasoline. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. Therefore, this indicates LNAPL contamination and the soil contamination at the adjacent soil boring (i.e., PB-34-11) is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.6 PB 35 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10f**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 35 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 35, two constituents (i.e., benzene and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As shown on **Figure 11a**, the benzene concentrations detected during Site Assessment and Site Characterization sampling near PB 35 are generally consistent with Evergreen's data set across AOI 1, and the benzene concentrations above the applicable MSC are similarly distributed spatially to the lead concentrations in soil. Accordingly, based on the range and spatial distribution of benzene and lead concentrations, the presence of benzene and lead in soil near PB 35 is Pre-Existing Contamination.

As shown on **Figure 12**, two constituents (i.e., benzene and MTBE) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-07. The presence of MTBE in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank and because benzene is known to be present in groundwater this area through Evergreen's Act 2 work, the presence of benzene in groundwater is also assumed to be associated with the presence of MTBE and therefore is Pre-Existing Contamination. LNAPL was not identified in TG02-MW-07.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.7 PB 36 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10g**. As shown on **Figures 11a** through **11j**, there were some soil analytical results in the PB 36 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

At PB 36, seven constituents (i.e., benzene, ethyl benzene, toluene, 124TMB, 135TMB, xylenes [total], and naphthalene) were detected at concentrations in soil above the applicable MSC. As discussed in Section 2.6, a prior release near this tank was documented and characterized by Evergreen in the AOI 1 RIR (Stantec 2016a). This identified release was reported to PADEP on April 18, 2012 and assigned as Incident # 45896. As shown on **Figure 10g**, the highest concentrations of gasoline-related chemicals in soil were detected at PB-36-03 and PB-36-07, which are located adjacent to the tank footprint on the northwestern side of the AST near samples that were previously collected by Evergreen as part of the assessment of the prior known release. As shown on **Figures 11a** through **11j**, the area where concentrations were detected above the applicable MSC during Site Assessment and Site Characterization sampling is consistent with the area where Evergreen detected elevated concentrations previously. The distribution of COC concentrations in soil in proximity to the area where an AST release occurred previously indicates that the contamination is tank-related and Pre-Existing Contamination.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-08). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 36 indicates the presence of leaded gasoline and MTBE. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. This line of evidence, as well as the presence of MTBE in the LNAPL, indicates the LNAPL is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.8 PB 37 Area

This AST contained gasoline components. Analytical results for soil samples collected near this AST are depicted on **Figure 10h**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 37 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

As shown on **Figure 10h**, five constituents (i.e., benzene, ethyl benzene, toluene, naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. The four other constituents that were detected above the applicable MSC were detected above MSC infrequently, and the spatial distribution of the concentrations is not indicative of a discrete release. As shown on **Figures 11a** through **11j**, the concentrations detected in soil are within the range of concentrations observed in the area during Evergreen's AOI 1 RIR (Stantec 2016a). Accordingly, based on the range and spatial distribution of concentrations, the presence of benzene, ethyl benzene, toluene, naphthalene in soil near PB 35 is Pre-Existing Contamination.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-09). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 37 indicates the presence of leaded gasoline. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. Therefore, this indicates LNAPL contamination is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.9 PB 38 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10i**. As shown on **Figures 11a through 11j**, there were some soil analytical results in the PB 38 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

At PB 38, four constituents (i.e., benzene, 135TMB, naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As discussed in Section 2.6, a prior release in proximity to this area was documented by Evergreen in the AOI 1 RIR (Stantec 2016a) and AOI 1 SCR/RACR (Stantec 2016b). The identified release was reported to PADEP on January 18, 1995 and assigned as Incident # 45964. As shown on **Figures 11a** through **11j**, the area where concentrations were detected above the applicable MSC during Site Assessment and Site Characterization sampling is consistent with the area where Evergreen detected elevated concentrations previously. The distribution of COC concentrations in soil in proximity to the area where a release occurred previously indicates that the contamination is tank-related and is Pre-Existing Contamination.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-10). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 38 indicates the presence of MTBE. Therefore, this indicates LNAPL contamination is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.10 PB 39 Area

This AST contained vacuum gas oil. Analytical results for soil samples collected near this AST are depicted on **Figure 10j**. As shown on **Figures 11a through 11j**, there were some soil analytical results in the PB 39 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

Except for location PB-39-12, benzene was the only constituent detected at concentrations in soil above the applicable MSC in samples collected from this tank area. As discussed in Section 2.6, a prior release in proximity to this area was documented by Evergreen in the AOI 1 RIR (Stantec 2016a). A suspected release from PB 39 was reported in a Notification of Contamination (NOC) dated July 3, 2004 (Incident # 45971). As shown on **Figure 11a**, the benzene concentrations detected during Site Assessment and Site Characterization sampling near PB 39 are generally consistent with Evergreen's data set; accordingly, based on the range and spatial distribution of benzene concentrations, the presence of benzene in soil near PB 39 is Pre-Existing Contamination.

In addition to benzene, five other constituents (i.e., ethyl benzene, toluene, 124TMB, 135TMB, and naphthalene) were also detected at concentrations in soil above the applicable MSC at PB-39-12, which was the location of the highest benzene, toluene, ethyl benzene, 124TMB, 135TMB, and naphthalene concentrations. PB-39-12 was collected under a former pipe run on the northwest side of the AST. The concentrations in soil are consistent with a potential release from this AST and its associated piping. The contamination at PB-39-12 extends to the water table and appears to be associated with LNAPL identified in monitoring well TG02-MW-11.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-11). As presented in **Table 5**, the forensic analysis of the LNAPL from TG02-MW-11, which has been identified in proximity to PB 39, indicates the presence of leaded gasoline. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. Therefore, this indicates that the LNAPL contamination, and the related soil contamination identified at the adjacent boring (i.e., PB-39-12), is Pre-Existing Contamination.

As noted above, while BDH did not collect a groundwater sample at this AST due to the identification of LNAPL in TG02-MW-11, since the presence of LNAPL in the monitoring well has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.11 PB 40 Area

This AST contained gasoline. Analytical results for soil samples collected near this AST are depicted on **Figure 10k**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 40 area from the Evergreen data set. The Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 40, two constituents (i.e., benzene and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As shown on **Figure 11a**, the benzene concentrations detected during Site Assessment and Site Characterization sampling near PB 40 are generally low and consistent with Evergreen's data set across AOI 1. Accordingly, based on the range and spatial distribution of benzene and lead concentrations, the presence of benzene and lead in soil near PB 40 is Pre-Existing Contamination.

As shown on **Figure 12**, two constituents (i.e., benzene and MTBE) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-13. The presence of MTBE is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank, and because benzene is known to be present in groundwater this area through Evergreen's Act 2 work, the presence of benzene in groundwater is also assumed to be Pre-Existing Contamination. LNAPL was not identified in TG02-MW-13.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.12 PB 42 Area

This AST contained fuel oil #2. Analytical results for soil samples collected near this AST are depicted on **Figure 10l**. As shown on **Figures 11a** through **11j**, there were some soil analytical results in the PB 42 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

As shown on **Figure 10l**, benzene was the only constituent detected at concentrations in soil above the applicable MSC in samples collected near this AST. The benzene concentrations in soil at locations adjacent to and within the tank footprint are similar to the benzene concentrations located farther from the tank. This spatial distribution indicates that no release is likely to have occurred from this tank. As shown on **Figure 11a**, the benzene concentrations in soil are within the range of concentrations observed in the area during Evergreen's AOI 1 RIR and therefore, the contamination appears to be Pre-Existing.

As shown on **Figure 12**, six constituents (i.e., benzene, ethyl benzene, MTBE, toluene, 124TMB, and lead) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-16. As discussed in Section 4.3.2, tetraethyl lead in gasoline was phased out of use in 1996. The presence of MTBE and lead in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank, and because benzene, ethyl benzene, toluene, and 124TMB are known to be present in groundwater this area through Evergreen's Act 2 work, the presence of these constituents in groundwater is also assumed to be Pre-Existing Contamination. LNAPL was not identified in TG02-MW-16.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.13 PB 83 Area

This AST contained 15MV1, distillate. As discussed in Section 4.1, petroleum sheen (on pooled water) and visibly contaminated soil were observed beneath the northwest tank wall of PB 83. Interim Remedial Actions were implemented, including the recovery of impacted water and free product via vacuum truck. These actions did not include the removal of any contaminated soil.

Analytical results for soil samples collected near this AST are depicted on **Figure 10m**. As shown on **Figures 11a** through **11j**, there were some soil analytical results in the PB 83 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

As shown on **Figure 10m**, benzene was the only constituent detected at concentrations in soil above the applicable MSC in samples collected near this AST. Two locations (i.e., PB-83-01 and PB-83-02) located within the tank footprint and associated piping, exhibited concentrations of benzene slightly above the SGW MSC. PB-83-01 was collected inside the area where the liquid was recovered, and PB-83-02 was collected outside this area to the east.

As shown on **Figure 11a**, the benzene concentrations in soil are within the range of concentrations observed in the area during Evergreen's AOI 1 RIR. Therefore, the contamination appears to be Pre-Existing.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-15). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 83 indicates the presence of leaded gasoline and MTBE. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. This line of evidence, as well as the presence of MTBE in the LNAPL, indicates the LNAPL is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is associated with a release from the tank and represents Pre-Existing Contamination.

4.3.2.14 PB 84 Area

This AST contained 15MV1, distillate. Analytical results for soil samples collected near this AST are depicted on **Figure 10n**. As shown on **Figures 11a** through **11j**, there were some soil analytical results in the PB 84 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

At PB 84, two constituents (i.e., benzene and naphthalene) were detected at concentrations in soil above the applicable MSC at one location. As shown on **Figure 10n**, only one sample location (i.e., PB-84-04) exhibited concentrations of benzene and naphthalene above the applicable MSC. As shown on **Figures 11a** through **11j**, the concentrations of benzene and naphthalene are within the range of concentrations observed in the area during Evergreen's AOI 1 RIR. Accordingly, the contamination appears to be Pre-Existing Contamination.

As shown on **Figure 12**, two constituents (i.e., benzene and MTBE) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-14. The presence of MTBE in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank and because benzene is known to be present in groundwater this area through Evergreen's Act 2 work, the presence of benzene in groundwater is also assumed to be Pre-Existing Contamination.

Though LNAPL was not identified in TG02-MW-14, as discussed in Section 2.6, a potential release between PB 40 and PB 84 was identified by Evergreen due to an increase in LNAPL thickness in well S-203 in 2019. Monitoring well S-203 is located approximately 140 ft to the west of former Tank PB 84. TG02-MW-14, where LNAPL was not observed, is located between S-203 and PB 84. Neither Evergreen nor BDH have identified evidence that the LNAPL contamination observed at S-203 is related to a release from an AST. Evergreen and BDH are working together to determine whether this contamination near former Tank PB 84 is Pre-Existing, Post-September 2012, or a combination thereof. This contamination will be addressed under Act 2 by Evergreen, BDH, or both parties.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.15 PB 85 Area

This AST contained 15MV2, distillate. Analytical results for soil samples collected near this AST are depicted on **Figure 10o**. As shown on **Figures 11a** through **11j**, there were limited analytical results in the PB 85 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

At PB 85, two constituents (i.e., benzene and toluene) were detected at concentrations in soil above the applicable MSC. As shown on **Figure 10o**, benzene was detected at concentrations slightly above MSC at two locations (i.e., PB-85-09 and PB-05-06). Toluene was detected at concentrations above MSC at PB-85-06 only. The concentrations detected at locations adjacent to and within the tank footprint are similar to concentrations farther from the tank. This spatial distribution indicates that no release is likely to have occurred from this tank. As shown on **Figures 11a** and **11e**, the concentrations of benzene and toluene are within the range of concentrations observed in the area during Evergreen's AOI 1 RIR. Therefore, the contamination appears to be Pre-Existing.

BDH did not collect a groundwater sample at this AST as LNAPL was identified at its associated monitoring well (i.e., TG02-MW-12). As presented in **Table 5**, the forensic analysis of the LNAPL which has been identified in proximity to PB 85 indicates the presence of leaded gasoline. The organic lead isomer concentration measured in the LNAPL sample indicates that it is associated with a release which occurred before 1985. Therefore, this indicates LNAPL contamination is Pre-Existing Contamination.

Due to the presence of LNAPL in the monitoring well which has been determined to be Pre-Existing Contamination, dissolved phase groundwater contamination in the area surrounding the AST is also considered Pre-Existing Contamination.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.16 PB 128 Area

This AST contained gasoline components. Analytical results for soil samples collected near this AST are depicted on **Figure 10p**. As shown on **Figures 11a** through **11j**, there were some soil analytical results in the PB 128 area from the Evergreen data set. The Site Assessment and Site Characterization provides a more detailed understanding of the distribution of constituent concentrations in soil.

At PB 128, two constituents (i.e., benzene and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. Three locations (i.e., PB-128-01, PB-128-04, and PB-128-05) exhibited elevated concentrations of benzene and lead. As shown on **Figure 11a**, the benzene concentrations detected during Site Assessment and Site Characterization sampling near PB 128 are generally consistent with Evergreen's data set across AOI 1, and the benzene concentrations above the applicable MSC are similarly distributed spatially to the lead concentrations in soil. As discussed in Section 2.6, a prior release in proximity to this area was documented by Evergreen in the AOI 1 RIR (Stantec 2016a). The identified release was reported to PADEP on September 10, 2000 and assigned Incident # 45967. Though there is no documentation of soil sampling at the time of the release, sampling was eventually completed to investigate the release at AOI1_BH-14-011 (i.e., location of the release from the tank) and AOI1_BH-14-012 (i.e., located in expected flow path of the product), where lead was detected at concentrations exceeding the applicable MSC at both locations. Accordingly, based on the range and spatial distribution of benzene and lead concentrations and the identified previous release, the presence of benzene and lead in soil is Pre-Existing Contamination.

LNAPL was identified in TG02-MW-07 and a LNAPL sample was collected from this well. However, due to insufficient volume, the sample was analyzed as a water sample for PIANO VOC and PAH/Biomarkers.[13] As shown on **Figure 12**, three constituents (i.e., MTBE, BaP, and BghiP) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-17. The presence of MTBE in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank and because groundwater is known to be impacted this area through Evergreen's Act 2 work, the presence of BaP and BghiP in groundwater is also assumed to be Pre-Existing Contamination.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.17 PB 129 Area

This AST contained heavy reformate. Analytical results for soil samples collected near this AST are depicted on **Figure 10p**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 129 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 129, six constituents (i.e., benzene, toluene, 124TMB, 135TMB, xylenes [total], and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. As discussed in Section 2.6, a prior release in proximity to this area was documented by Evergreen in the AOI 1 RIR (Stantec 2016a). The identified release was reported to PADEP on August 8, 1995 and assigned Incident # 6095. Sampling at AOI1_BH-14-017, which is located at the release location, identified benzene, ethyl benzene, 124TMB, 135TMB, naphthalene, and lead concentrations above the applicable MSC. As shown on **Figure 10p**, the highest concentrations of toluene, xylenes (total), 124TMB, and 135TMB in soil were observed at PB-129-06 and PB-129-10, both of which are located within the tank footprint. Constituent concentrations at PB-129-06 and PB-129-10 are similar to concentrations documented by Evergreen at nearby locations in AOI 1 (i.e., AOI1_BH-14-017).

Additionally, soil saturated with LNAPL was identified in the shallow subsurface during earthwork in August 2023 located immediately to the east of PB 129 as shown on **Figure 10p**. This soil saturated with LNAPL is located above a deeper LNAPL body that is known to be Pre-Existing Contamination. The estimated extent of the deeper LNAPL plume is presented on **Figure 12**. As documented in the AOI 1 RIR,

[13] The groundwater results for this sample are qualified due to improper sampling, handling, and analysis protocols and may be biased low.

wells located within this plume, including S-205 and S-89, have been investigated and sampled for LNAPL as early as 2002, indicating LNAPL contamination is Pre-Existing Contamination (Stantec 2016a). Evergreen has accepted responsibility for cleanup of the soil saturated with oil east of PB 129. Based on the range and spatial distribution of concentrations, the identified previous release, and the known Pre-Existing Contamination in the area, the soil contamination measured during AST closure-related sampling in this area is concluded to be Pre-Existing Contamination.

As shown on **Figure 12**, one constituent (i.e., benzene) was detected at concentrations above the applicable MSC in groundwater at TG02-MW-18. Because of the presence of Pre-Existing LNAPL and other contamination in this area, and because there is no specific evidence of a Post-September 2012 release near this tank, the groundwater contamination is Pre-Existing Contamination. LNAPL was not identified in TG02-MW-18.

The soil, groundwater, and LNAPL contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.2.18 PB 204 Area

This AST contained recovered oil. Analytical results for soil samples collected near this AST are depicted on **Figure 10q**. As shown on **Figures 11a** through **11j**, there were no soil analytical results in the PB 204 area from the Evergreen data set, so the Site Assessment and Site Characterization data set provides new information about the nature and extent of contamination in soil in this area.

At PB 204, five constituents (i.e., benzene, 12DBA, MTBE, naphthalene, and lead) were detected at concentrations in soil above the applicable MSC. As discussed in Section 4.3.2, the presence of lead in soil is Pre-Existing Contamination. 12DBA was historically used as a lead scavenger in leaded gasoline. Since 12DBA and MTBE would not have been in use at the facility after September 2012, the presence of these constituents in soil is Pre-Existing Contamination.

As shown on **Figures 11a** and **11h**, the benzene and naphthalene concentrations detected during Site Assessment and Site Characterization sampling near PB 204 are generally consistent with Evergreen's data set across AOI 1 and show a similar spatial distribution to the 12DBA and MTBE concentrations near PB 204. Accordingly, based on the range and spatial distribution of benzene and naphthalene concentrations, the presence of benzene and naphthalene in soil near PB 204 is Pre-Existing Contamination.

As shown on **Figure 12**, three constituents (i.e., benzene, MTBE, and naphthalene) were detected at concentrations above the applicable MSC in groundwater at TG02-MW-01. The presence of MTBE in groundwater is Pre-Existing Contamination. Since there is no specific evidence of a Post-September 2012 release near this tank, and because groundwater is known to be impacted this area through Evergreen's Act 2 work, the presence of benzene and naphthalene in groundwater is also assumed to be Pre-Existing Contamination. LNAPL was not identified in TG02-MW-01.

The soil and groundwater contamination identified in proximity to this AST is Pre-Existing Contamination.

4.3.3 Allocation Summary

The data collected as part of the Site Assessment and Site Characterization activities have been evaluated in the context of other information and environmental sampling data for the Facility to determine whether contamination detected during Site Assessment and Site Characterization sampling is (1) Pre-Existing Contamination, (2) Post-September 2012 Contamination associated with a release from an AST, or (3) Post-September 2012 Contamination not associated with a release from an AST. As discussed in Section 4.3.2, Site Assessment and Site Characterization sampling has identified Pre-Existing Contamination and Post-September 2012 Contamination not associated with a release from an AST. Site Assessment and Site Characterization sampling has not identified Post-September 2012 Contamination associated with releases from AST. Accordingly, the contamination identified by the Site Assessment and Site Characterization sampling will be addressed under Act 2 by Evergreen (Pre-Existing) and BDH (Post-September 2012 contamination not associated with a release from an AST). Because none of the contamination in the area was determined to be Post-September 2021 and tank related, BDH will not be issuing a RAP per 25 Pa. Code § 245.311.

4.4 Ecological Screening Evaluation

Though the contamination identified in Tank Group 02 has been determined to be either Pre-Existing Contamination or Post-September 2012 Contamination not associated with a release from an AST, to satisfy the requirement for preparing an SCR in accordance with 25 Pa. Code § 245.310(a)(28), an ecological screening evaluation was performed and conducted at the Site. The regulatory framework for conducting an ecological screening evaluated under the SSS is comprised of eight steps (PADEP 2021a).

Under Step 1 of the Initial Screen, a preliminary evaluation was performed to determine whether there is potential for impact on species or habitats of concern at the Site. As part of the evaluation, a Pennsylvania Natural Diversity Inventory (PNDI) search was performed for the Site and also a conservative study area that consisted of the Site and areas within a 2,500-ft radius of the Site. The results of the PNDI search for the study area indicated that further review by the Pennsylvania (PA) Fish and Boat Commission was warranted. Based on further review by the PA Fish and Boat Commission, no potential impacts to species or habitats of concern were identified within the study area. The results of the PNDI searches and subsequent correspondence with the PA Fish and Boat Commission are provided as **Appendix I**.

BDH also conducted a review of the available United States Fish & Wildlife Service National Wetlands Inventory (NWI) Wetlands Mapper[14] data in and adjacent to Tank Group 02. No wetlands were identified within the bounds of, or adjacent to, Tank Group 02 (see Figure 1.3 in **Appendix I**).

In addition to the contamination identified in Tank Group 02 being unrelated to Post-September 2012 releases from AST, because species or habitats of concern were not identified, the completion of Step 2 and any subsequent steps in the ecological risk assessment process are not warranted. As such, no further ecological screening is required.

[14] https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/

4.5 Data Quality Assurance, Quality Control, and Usability

While the Site Assessment and Characterization sampling data were not subject to formal data validation, elements were included to help assess data quality and usability of the results to support the project objectives. This included the collection of quality assurance/quality control samples, general quality control checks on the field and laboratory information, and an assessment of the impact of elevated reporting limits (RL) due to sample-specific interferences.

4.5.1 Quality Assurance/Quality Control Samples

During the Site Assessment/Characterization field activities, one trip blank sample per sample cooler and approximately one field blank per 10 samples was submitted to the analytical laboratory to evaluate potential cross-contamination during sample container shipment and storage. Results of the quality assurance and quality control sample analyses are provided in **Appendix H**. COC were not detected in blank samples at concentrations greater than the laboratory RL. As such, there is no concern associated with laboratory cross-contamination and/or sampling-related cross-contamination for samples collected from the Site.

Approximately one field duplicate sample per every 20 soil samples was also collected to evaluate the variance in the sampling/analysis. Relative percent differences (RPD) for duplicate pairs were calculated and ranged from 0 to 199 percent with an average of 85 percent. Overall, RPD <50 percent generally represent the typical level of variability. Reasons for a higher RPD can include sample heterogeneity or samples with high concentrations. Given that the predominant soil type sampled is anthropogenic fill some additional variability is expected and reasonable.

Approximately one field duplicate sample per every 20 groundwater samples was also collected to evaluate the variance in the sampling/analysis. RPD for duplicate pairs were calculated and ranged from 0 to 199 percent with an average of 21 percent. Overall, RPD <50 percent generally represent the typical level of variability. Reasons for a higher RPD can include sample heterogeneity or samples with high concentrations.

4.5.2 General Quality Control Checks

General quality control checks were also performed on the field information and laboratory analytical deliverables. This included checking and reviewing laboratory logins and completed chains of custody, confirming that the requested analyte lists were reported, and that the sample nomenclature conformed to the proposed sampling scope of work. In some cases, multiple analyses were reported by the laboratory and a general review of elements such as surrogate recoveries, qualifiers, analytical limits, and laboratory narratives were performed to identify which results would be used for a given sample. A log of these general checks is provided in **Appendix H** along with the methodology used to select between multiple results when provided by the analytical laboratory.

4.5.3 Reporting Limits

For non-detect COC, RL were evaluated against the MSC. The maximum RL for four COC were above the MSC, as summarized in the table below.

Reporting Limits Greater than MSC

COC	Maximum Analytical Limits (mg/kg)	Non-Res Surface DC (0-2 ft) MSC (mg/kg)	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)
12DBA	3.8	3.7	0.005
12DCA	7.6	85	0.5
Benzene	1.5	280	0.5
MTBE	7	8,500	2

The maximum RL for 12DBA and 12DCA exceeded the applicable MSC, but detection rates were low (0.67 and 1.6 percent, respectively). The locations with elevated RL often coincide with concentrations exceeding the applicable MSC for other chemicals, indicating no impact on Site Characterization conclusions or associated cleanup decisions. Similarly, elevated benzene RL were identified alongside other VOC in sample PB-129-10-SS01, but these exceedances are delineated due to co-location with other chemicals or nearby samples exceeding applicable MSC. The same rationale applies to the MTBE RL exceedances in sample PB-37-05R-6.0-6.5, where elevated levels of benzene, ethyl benzene, and naphthalene were detected. These exceedances also do not impact Site Characterization or associated cleanup decisions.

5 Selection of Standard

As described in Section 4.3.2, the data collected as part of the Site Assessment and Site Characterization activities have been evaluated in the context of other information and environmental sampling data for the Facility. These sampling efforts have identified Pre-Existing Contamination and Post-September 2012 Contamination not associated with a release from an AST. These sampling efforts have not identified Post-September 2012 Contamination associated with a release from an AST. Accordingly, the contamination identified by the Site Assessment and Site Characterization sampling will be addressed under Act 2 by Evergreen (Pre-Existing) and BDH (Post-September 2012 contamination not associated with a release from an AST).

Because Post-September 2012 tank-related contamination has not been identified and because all of the contamination identified will be managed under Act 2, a specific Standard for attainment has not been identified and BDH will not be issuing a RAP per 25 Pa. Code § 245.311.

6 Conceptual Site Model

6.1 Land and Groundwater Use

The area encompassing Tank Group 02 is being redeveloped. Current and reasonably anticipated future land use in the area of Tank Group 02 is commercial/industrial.

Sampling and evaluation of the vapor intrusion pathway has not been conducted since there is no current vapor intrusion exposure in the area (i.e., vapor intrusion pathway is incomplete). In order to address the requirements under 25 Pa. Code § 245.309(c)(12), as referenced by 25 Pa. Code § 245.310(a) and 245.310(a)(32), BDH and Evergreen plan to establish institutional controls and, as needed, engineering controls, to ensure no unacceptable vapor intrusion exposure occurs to occupants of future buildings on the Facility.[15]

Stemming from several efforts to assess the potential for current and reasonably anticipated future use of groundwater at and in the vicinity of the Facility in accordance with 25 Pa. Code § 245.310(a)(27), Evergreen has documented no confirmed drinking water supply wells within 1-mile of the Facility. As a result, groundwater on-facility and off-facility is not a current or reasonably anticipated future source of potable or nonpotable water.

6.2 Scenarios for Potential Human Exposure

Though the contamination identified at the Site is determined as either Pre-Existing Contamination or Post-September 2012 Contamination not associated with a release from an AST, to satisfy the requirements for preparing a SCR specified in 25 Pa. Code § 245.309(c)(14), § 245.310(a)(23), this section identifies potentially exposed populations (receptors) and their potential exposure pathways.

6.2.1 Potential On-Site Exposures

The current on-site receptors include construction workers who may become exposed during site redevelopment or major construction activities and to a limited extent, trespassers, since access to the Facility is controlled with fencing and site security.

Reasonably anticipated future receptors at and in the immediate vicinity of the Site could include workers who may be exposed during the performance of typical or routine commercial activities (routine workers), maintenance workers who may become exposed during maintenance activities including minor subsurface repair/utility activities, construction workers, and trespassers.

[15] Prior to their construction and occupancy, on-facility buildings which could be occupied in the future will be subject to vapor intrusion investigation and evaluation to determine if conditions (i.e., volatilization of COC from soil, groundwater, and/or LNAPL) could pose a potential unacceptable risk to future occupants. Vapor mitigation systems (VMS) will be incorporated into the design and construction of such buildings where potentially unacceptable vapor intrusion risks are identified.

Routine workers and trespassers could be exposed to COC through incidental ingestion and dermal contact with COC in exposed surface soil, inhalation of COC in vapors and particulates from exposed surface soil, and inhalation of COC in vapors from subsurface soil. While exposure of maintenance and construction workers could include incidental ingestion and dermal contact with COC in exposed surface and subsurface soil, inhalation of COC in airborne particulates and vapors from exposed surface soil, and inhalation of COC in vapors from subsurface soil.

Additionally, potential vapor intrusion exposure of routine workers, maintenance workers, construction workers, and trespassers could include exposure to COC in vapors from both exposed surface soil and subsurface soil. However, such exposure is not currently a significant concern or anticipated to be one in the future, as BDH plans to address and eliminate potential risks via establishing environmental covenants and VMS as needed.

6.2.2 Potential Off-Site Exposures

Potential off-site receptors under current and future conditions may include receptors who are off-facility, or receptors who are off-site (i.e., located outside of the Tank Group), but still within other portions of the Facility. Off-site receptors could include off-facility residents, routine workers, construction workers, and maintenance workers. Potential exposure of off-facility residents could include inhalation of COC in airborne particulates and/or vapors from on-site soil.

6.3 Species and Habitats of Concern

In accordance with 25 Pa. Code § 245.309(c)(5) and § 250.311(a), a PNDI search was performed which included a conservative study area consisting of the Site and areas within a 2,500-ft radius of the Site. As discussed in Section 4.4, the results of the PNDI search indicated no known impacts to species or habitats of concern were identified within the study area. Additionally, a review of the United States Fish and Wildlife Service NWI data indicated there are no wetlands present within the bounds of, or adjacent to, Tank Group 02.

BDH also conducted a review of the available United States Fish & Wildlife Service NWI Wetlands Mapper data in and adjacent to Tank Group 02. No wetlands were identified within the bounds of, or adjacent to, Tank Group 02 (see Figure 1.3 in **Appendix I**).

6.4 Groundwater Contamination and the Significance of Fate and Transport

Though the contamination identified at the Site is determined as either Pre-Existing Contamination or Post-September 2012 Contamination not associated with a release from an AST, to satisfy the requirements for preparing an SCR in accordance with 25 Pa. Code §245.310(a)(23), the fate and transport of groundwater contamination in the Tank Group 02 area is discussed in this Section.

More than 50 groundwater monitoring or recovery wells have been installed within and near Tank Group 02 as part of prior sampling at the Facility. As discussed in the AOI 1 RIR (Stantec 2016a), the aerial extent of groundwater contamination in the unconfined aquifer, including along the eastern property boundary, has been the result of groundwater flow along hydraulic head gradients and through additional distribution from the operation of recovery wells in the area (e.g., along 26th Street North) or by historical pumping on or near the Facility. As part of remedial action, groundwater and LNAPL recovery systems have been installed by Evergreen/Sunoco to the north, east, and west of the Site and have been effective in reducing groundwater impacts and preventing the migration of contaminated groundwater off-facility.

Because of the complexity associated with comingled impacts from a variety of sources (including along the property boundary), and complicated hydrogeologic/groundwater flow conditions, Evergreen evaluated the nature and extent of groundwater contamination and its potential future fate and transport on a large scale in a *Sitewide Fate and Transport Remedial Investigation Report* in June 2022 (Fate and Transport Report; Stantec 2022). The fate and transport modeling supplemented the extensive groundwater sampling data which, as noted by Evergreen in their Fate and Transport Report (Stantec 2022), PADEP considered complete and sufficient to assess risks to human and ecological receptors.

The fate and transport assessment, which involved predictive 30-year simulations of dissolved phase indicator parameters[16] (i.e., benzene, MTBE, naphthalene, BaP, and lead) under the conservative assumptions (i.e., sources of contamination will remain, and assuming the remediation system wells are not pumping) demonstrates that the dissolved phase plumes will remain relatively stable or decrease in size and concentration over time through natural attenuation processes. This is consistent with PADEP's (2020) conclusions which noted that "*impacted groundwater beneath AOI 1 is not likely to migrate under nearby residential areas*" in the future.

[16] As discussed in the AOI 1 (Stantec 2016a), AOI 2 (Langan 2017), and the Sitewide Fate and Transport (Stantec 2022) RIR, of the list of site-related constituents identified in groundwater, benzene and MTBE were chosen as the primary chemicals (qualitative proxies for other constituents) because of their water solubility, potential to be mobile in groundwater, and their persistence in groundwater at and near the Facility. MTBE was phased out of use in the early 2000s. As of 2005, MTBE has not been used in significant quantities as an additive to gasoline. As a result, the presence of MTBE in soil and groundwater helps to identify contamination that is associated with historical releases (e.g., pre-2005).

7 Summary and Conclusions

Terraphase has prepared this Report, on behalf of BDH, to detail the results of the Site Assessment and Site Characterization activities and to provide the supporting information demonstrating that adequate characterization has been performed for a reliable determination of the need for remedial measures based on the selected standard.

The Site Assessment and Site Characterization activities described in this Report were performed in accordance with the applicable provisions of Act 32, 25 Pa. Code § 245 (Subchapter D), and Terraphase's Work Plan (2021). The 24 AST addressed in this Report are:

- PB 3V 37 (PADEP No. 014A)
- PB 7316 (PADEP No. 071A)
- PB 14V 403 (PADEP No. 061A)
- PB 89A (PADEP No. 089A)
- PB 26 (PADEP No. 001A)
- PB 27 (PADEP No. 019A)
- PB 28 (PADEP No. 020A)
- PB 29 (PADEP No. 021A)
- PB 33 (PADEP No. 002A)
- PB 34 (PADEP No. 022A)
- PB 35 (PADEP No. 023A)
- PB 36 (PADEP No. 087A)
- PB 37 (PADEP No. 024A)
- PB 38 (PADEP No. 003A)
- PB 39 (PADEP No. 025A)
- PB 40 (PADEP No. 026A)
- PB 42 (PADEP No. 027A)
- PB 43 (PADEP No. 028A)
- PB 83 (PADEP No. 004A)
- PB 84 (PADEP No. 029A)
- PB 85 (PADEP No. 030A)
- PB 128 (PADEP No. 032A)
- PB 129 (PADEP No. 033A)
- PB 204 (PADEP No. 041A)

Visual observations of the on-site AST revealed no indications of release in the Categories 1 or 2 tanks, with the exception of PB 83. A petroleum sheen on pooled water and visibly contaminated soil were observed beneath the northwest tank wall of PB 83. An estimated 3,000 gallons, 95 percent of which was water, were removed and discharged to the sewer leading to the Point Breeze Bio plant for treatment. The Site Assessment outcome category for this AST is "Obvious Contamination – Sample Results Do Not Meet Action Levels." Interim actions and soil and groundwater/LNAPL sampling indicate that the release identified at PB 83 has been characterized to applicable MSC.

Category 1 tanks showed no signs of release and remain classified as Category 1. The Site Assessment outcome category for tanks PB 3V 37, PB 7316, PB 14V 403, and PB 89A is "No Obvious Contamination – Sample Results Meet Action Levels."

Based on the results of soil samples collected during the Site Assessment of Category 2 AST and a comparison to MSC, no evidence of a release from PB 26 or PB 43 was identified. The Site Assessment outcome for PB 26 and PB 43 is "No Obvious Contamination – Sample Results Meet Action Levels." These tanks remain classified as Category 2.

Based on the results of soil samples collected during the Site Assessment of Category 2 AST and a comparison to applicable MSC, potential releases of regulated substances to the environment from tanks PB 27, PB 28, PB 29, PB 33, PB 34, PB 35, PB 36, PB 37, PB 38, PB 39, PB 40, PB 42, PB 84, PB 85, PB 128, PB 129, and PB 204 were identified. The Site Assessment outcome category for these AST is "No Obvious Contamination – Sample Results Do Not Meet Action Levels." Additional notifications of release were submitted to the PADEP under Incident No. 56377 on July 13 (PB 27, PB 28, PB 29, and PB 33), August 3 (PB 34, PB 35, PB 40, PB 42, PB 84, PB 128, and PB 129), August 12 (PB 38, PB 39, and PB 85), August 20 (PB 37), and October 27, 2021 (PB 36 and PB 204). The notifications indicated that unknown amounts of petroleum-related substances were potentially released in Tank Group 02 from these specific AST.

Site Characterization soil, groundwater, and LNAPL sampling was subsequently performed in Tank Group 02. The results of the investigation identified soil and groundwater COC at concentrations greater than applicable MSC. The results of the sampling have indicated that COC have been delineated to the applicable MSC in accordance with 25 Pa. Code § 245.309(c)(9) and (c)(10)(iv). The review of the gauging data and LNAPL characterization results indicates that the horizontal extent of LNAPL has been determined in accordance with 25 Pa. Code § 245.309(c)(10)(iii).

Evergreen and BDH are working together to determine whether the contamination east of the former BCH and between former Tanks PB 40 and PB 84 is Pre-Existing or Post-September 2012. Neither Evergreen nor BDH have identified evidence that this contamination is related to a release from an AST. This contamination will be addressed under Act 2 by Evergreen and/or BDH.

As discussed in Section 4.3.2, several lines of evidence have been used to determine contamination that is likely from releases of AST or related to contamination from other sources within the AOI. Additionally, several lines of evidence have also been used to further allocate contamination in these two groups on the basis of whether it represents, or does not represent, Pre-Existing Contamination. Site Assessment and Site Characterization sampling has not identified Post-September 2012 Contamination associated with releases from AST.

Because Post-September 2012 tank-related contamination has not been identified, and because all of the contamination identified will be managed under Act 2, a specific Standard for attainment has not been identified and BDH will not be issuing a RAP per 25 Pa. Code § 245.311.

8 References

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Tables

Table 1
Aboveground Storage Tank Details
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Facility	State Regulation Number	Tank Number	Design Capacity (gal)	Primary Product	Proposed Analyte List[x]	Regulatory Status	Facility ID	Status Modification Date	Tank Type	Double Bottom	Diameter (ft)	Height (ft)	Remaining Liquid (gal)	GPS Survey Complete	Demo Complete	Storage Tanks Reg./Permit App Form Submitted	Release Notification	Incident No.	Int. Remedial/ Corrective Action Required
Point Breeze	001A	PB 26	2,142,000	Ethanol	Ethanol	R	51-33620	12/31/2020	IFR	N	90	51.17		Y	Y	1/12/2021			
Point Breeze	019A	PB 27	3,410,400	Gasoline Components	Short List 1,2	R	51-33620	1/15/2021	EFR	N	110	48		Y	Y	1/15/2021	7/13/2021	56377	
Point Breeze	020A	PB 28	3,414,432	Alkylate	Short List 1-5	R	51-33620	1/25/2021	EFR	Y, Removed	110	49		Y	Y	1/26/2021	7/13/2021	56377	
Point Breeze	021A	PB 29	2,935,800	Heavy Reformate	Short List 1-5	R	51-33620	2/9/2021	EFR	N	102	49		Y	Y	2/9/2021	7/13/2021	56377	
Point Breeze	002A	PB 33	2,935,800	Gasoline	Short List 1,2	R	51-33620	5/21/2021	EFR	N	102	49		Y	Y	6/18/2021	7/13/2021	56377	
Point Breeze	022A	PB 34	3,285,996	Gasoline	Short List 1,2	R	51-33620	3/31/2021	EFR	Y, Removed	110	47		Y	Y	4/21/2021	8/3/2021	56377	
Point Breeze	023A	PB 35	3,410,400	Gasoline	Short List 1,2	R	51-33620	3/31/2021	EFR	Y, Removed	110	48		Y	Y	4/21/2021	8/3/2021	56377	
Point Breeze	026A	PB 40	5,527,200	Gasoline	Short List 1,2	R	51-33620	3/29/2021	EFR	N	140	48		Y	Y	4/20/2021	8/3/2021	56377	
Point Breeze	032A	PB 128	6,447,000	Gasoline Components	Short List 1,2	R	51-33620	3/11/2021	EFR	Y, Removed	140	55.75		Y	Y	3/11/2021	8/3/2021	56377	
Point Breeze	033A	PB 129	6,447,000	Heavy Reformate	Short List 1-5	R	51-33620	3/18/2021	EFR	Y, Removed	140	55.2		Y	Y	3/18/2021	8/3/2021	56377	
Point Breeze	041A	PB 204	340,200	Recovered Oil	Short List 1-6	R	51-33620	9/1/2021	IFR	N	40	36		Y	Y	9/23/2021	10/27/2021	56377	
Point Breeze	087A	PB 36	3,410,400	Gasoline	Short List 1,2	R	51-33620	9/7/2021	IFR	Y, Removed	110	47.5		Y	Y	9/23/2021	10/27/2021	56377	
Point Breeze	024A	PB 37	3,200,400	Gasoline Components	Short List 1,2	R	51-33620	6/25/2021	IFR	Y, Removed	110	48		Y	Y	7/2/2021	8/20/2021	56377	
Point Breeze	003A	PB 38	3,410,400	Gasoline	Short List 1,2	R	51-33620	9/3/2021	EFR	N	110	48		Y	Y	9/23/2021	8/12/2021	56377	
Point Breeze	025A	PB 39	3,410,400	Gasoline	Short List 1,2	R	51-33620	6/16/2021	EFR	N	110	48		Y	Y	6/18/2021	8/12/2021	56377	
Point Breeze	027A	PB 42	2,818,200	#2 Fuel Oil	Short List 4	R	51-33620	6/9/2021	Cone Roof	N	100	48		Y	Y	6/18/2021	8/3/2021	56377	
Point Breeze	028A	PB 43	3,385,200	15MV1, Distillate	Short List 4	R	51-33620	6/7/2021	Cone Roof	Y, Removed	120	40		Y	Y	6/18/2021			
Point Breeze	004A	PB 83	3,288,600	15MV1, Distillate	Short List 4	R	51-33620	6/10/2021	Cone Roof	Y, Removed	100	56		Y	Y	6/18/2021	6/10/2021	56377	Y
Point Breeze	029A	PB 84	3,288,600	15MV1, Distillate	Short List 4	R	51-33620	5/26/2021	Cone Roof	Y, Removed	100	56		Y	Y	6/18/2021	8/3/2021	56377	
Point Breeze	030A	PB 85	1,806,000	15MV2, Distillate	Short List 4	R	51-33620	4/15/2021	Cone Roof	Y, Removed	80	48		Y	Y	4/22/2021	8/12/2021	56377	
Point Breeze	014A	PB 3V 37	1,764	Methanol	N/A	R	51-33620	7/23/2021	Horiz, Elev	N	5	12			Y	8/26/2021			
Point Breeze	061A	PB 14V 403	700	Methanol	N/A	R	51-33620	8/18/2021	UNK	N	UNK	UNK			Y	9/29/2021			
Point Breeze	071A	PB 7316	3,990	Acid, Phosphoric	N/A	R	51-33620	7/23/2021	Dome Roof	N	7.75	11.25			Y	8/26/2021			
Point Breeze	089A	PB 89A	2500	Sodium Hypochlorite	N/A	R	51-33620	7/21/2021	UNK	N	UNK	UNK			Y	8/26/2021			

Abbreviations:
EFR -- External Floating Roof
IFR -- Internal Floating Roof
N -- No
N/A -- Not Applicable
R -- Removed
UNK -- Unknown
Y -- Yes

Table 2a
Monitoring Well Gauging Summary (December 2022)
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

			December 19-20, 2022					
Dataset	**Location ID**	**TOIC** (ft AMSL)	**Depth to Product** (ft below TOIC)	**Depth to Water** (ft below TOIC)	**LNAPL Density**	**Depth to Water (Corrected)** (ft below TOIC)	**Groundwater Elevation** (ft AMSL)	**Total LNAPL Thickness** (ft)
AST	TG02-MW-01	32.58	--	28.37	--	28.37	4.21	--
AST	TG02-MW-02	28.95	--	24.75	--	24.75	4.20	--
AST	TG02-MW-03	31.07	26.92	27.16	0.821	26.96	4.11	0.24
AST	TG02-MW-04	29.54	24.94	27.28	0.792	25.43	4.11	2.34
AST	TG02-MW-05	29.81	24.50	29.58	0.776	25.64	4.17	5.08
AST	TG02-MW-06	32.38	27.06	32.26	0.791	28.15	4.23	5.2
AST	TG02-MW-07	32.61	--	28.76	--	28.76	3.85	--
AST	TG02-MW-08	33.82	29.69	30.26	0.808	29.80	4.02	0.57
AST	TG02-MW-09	33.28	29.16	30.24	0.774	29.40	3.88	1.08
AST	TG02-MW-10	30.64	26.70	26.73	0.770	26.71	3.93	0.03
AST	TG02-MW-11	31.14	26.95	27.53	0.766	27.09	4.05	0.58
AST	TG02-MW-12	32.78	28.58	28.99	0.787	28.67	4.11	0.41
AST	TG02-MW-13	33.07	--	30.26	--	30.26	2.81	--
AST	TG02-MW-14	30.61	--	27.20	--	27.20	3.41	--
AST	TG02-MW-15	26.17	22.37	22.89	0.800	22.47	3.70	0.52
AST	TG02-MW-16	26.16	--	22.28	--	22.28	3.88	--
AST	TG02-MW-17	30.03	27.47	27.60	0.852	27.49	2.54	0.13
AST	TG02-MW-18	30.25	--	20.53	--	20.53	9.72	--
Evergreen	S-125	25.99	--	22.50	--	22.50	3.49	--
Evergreen	S-198	29.33	25.22	25.29	0.792	25.23	4.10	0.07
Evergreen	S-199	29.19	24.25	24.40	0.792	24.28	4.91	0.15
Evergreen	S-200	29.06	--	24.96	--	24.96	4.10	--
Evergreen	S-202	32.61	--	28.78	--	28.78	3.83	--
Evergreen	S-203	32.02	28.45	29.19	0.841	28.57	3.45	0.74
Evergreen	S-206	31.78	--	27.82	--	27.82	3.96	--
Evergreen	S-207	27.20	--	14.17	--	14.17	13.03	--
Evergreen	S-261	27.41	--	13.20	--	13.20	14.21	--
Evergreen	S-269	22.56	--	20.1	--	20.10	2.46	--
Evergreen	S-271	28.48	--	24.30	--	24.30	4.18	--
Evergreen	S-273	27.75	--	23.28	--	23.28	4.47	--
Evergreen	S-277	25.70	21.98	22.24	0.793	22.03	3.67	0.26
Evergreen	S-397	26.60	--	25.83	--	25.83	0.77	--
Evergreen	S-400	31.69	--	30.28	--	30.28	1.41	--
Evergreen	S-401	31.76	--	29.58	--	29.58	2.18	--
Evergreen	S-403	26.82	24.18	24.36	0.841	24.21	2.61	0.18
Evergreen	S-417	32.28	27.49	27.68	0.837	27.52	4.76	0.19
Evergreen	S-77P	33.04	--	28.88	--	28.88	4.16	--
Evergreen	S-78	30.93	--	26.79	--	26.79	4.14	--
Evergreen	S-85	25.13	--	23.63	--	23.63	1.50	--

Notes:
Depth to water In well TG02-MW-10 was corrected based on average LNAPL density in nearby wells of 0.770.
Depth to water in Evergreen wells and TG02-MW-17 were corrected based on historical LNAPL densities associated with other Evergreen wells in the vicinity, as presented in Stantec's AOI 1 RIR.
Vertical Datum is NAVD 1988.

Table 2b
Monitoring Well Gauging Summary (January 2023)
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

			January 26, 2023					
Dataset	**Location ID**	**TOIC** (ft AMSL)	**Depth to Product** (ft below TOIC)	**Depth to Water** (ft below TOIC)	**LNAPL Density**	**Depth to Water (Corrected)** (ft below TOIC)	**Groundwater Elevation** (ft AMSL)	**Total LNAPL Thickness** (ft)
AST	TG02-MW-01	32.58	--	28.16	--	28.16	4.42	--
AST	TG02-MW-02	28.95	--	24.33	--	24.33	4.62	--
AST	TG02-MW-03	31.07	26.77	26.83	0.821	26.78	4.29	0.06
AST	TG02-MW-04	29.54	24.70	26.88	0.792	25.15	4.39	2.18
AST	TG02-MW-05	29.81	24.74	27.77	0.776	25.42	4.39	3.03
AST	TG02-MW-06	32.38	26.48	32.59	0.791	27.76	4.62	6.11
AST	TG02-MW-07	32.61	--	28.44	--	28.44	4.17	--
AST	TG02-MW-08	33.82	29.50	29.94	0.808	29.58	4.24	0.44
AST	TG02-MW-09	33.28	28.78	29.51	0.774	28.94	4.34	0.73
AST	TG02-MW-10	30.64	25.76	26.30	0.770	25.88	4.76	0.54
AST	TG02-MW-11	31.14	26.11	27.02	0.766	26.32	4.82	0.91
AST	TG02-MW-12	32.78	28.29	28.72	0.787	28.38	4.40	0.43
AST	TG02-MW-13	33.07	--	29.83	--	29.83	3.24	--
AST	TG02-MW-14	30.61	--	26.60	--	26.60	4.01	--
AST	TG02-MW-15	26.17	22.09	22.24	0.800	22.12	4.05	0.15
AST	TG02-MW-16	26.16	--	21.92	--	21.92	4.24	--
AST	TG02-MW-17	30.03	26.54	28.34	0.852	26.81	3.22	1.8
AST	TG02-MW-18	30.25	--	19.99	--	19.99	10.26	--
Evergreen	S-125	25.99	--	21.80	--	21.80	4.19	--
Evergreen	S-198	29.33	24.97	25.05	0.792	24.99	4.34	0.08
Evergreen	S-202	32.61	--	28.46	--	28.46	4.15	--
Evergreen	S-206	31.78	--	27.54	--	27.54	4.24	--
Evergreen	S-207	27.20	--	13.82	--	13.82	13.38	--
Evergreen	S-271	28.48	--	24.11	--	24.11	4.37	--
Evergreen	S-273	27.75	--	23.16	--	23.16	4.59	--
Evergreen	S-277	25.70	--	21.55	--	21.55	4.15	--
Evergreen	S-294	34.47	--	29.93	--	29.93	4.54	--
Evergreen	S-77P	33.04	--	28.74	--	28.74	4.30	--
Evergreen	S-78	30.93	--	26.52	--	26.52	4.41	--
Evergreen	S-85	25.13	--	22.72	--	22.72	2.41	--

Notes:
Depth to water In well TG02-MW-10 was corrected based on average LNAPL density in nearby wells of 0.770.
Depth to water in Evergreen wells and TG02-MW-17 were corrected based on historical LNAPL densities associated with other Evergreen wells in the vicinity, as presented in Stantec's AOI 1 RIR.
Vertical Datum is NAVD 1988.

Table 3
Soil Screening Summary (Site Assessment, Site Characterization)
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Chem Group	Chemical	CASRN	Analyzed	Detected	Min Detected (mg/kg)	Mean Detected (mg/kg)	Max Detected (mg/kg)	Non-Res Direct Contact MSC for Surface Soil (0-2 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Surface Soil	Non-Res Direct Contact MSC for Subsurface Soil (2-15 ft) (mg/kg)	Ratio of Max Detect to Non-Res Direct Contact MSC for Subsurface Soil	Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC (mg/kg)	Ratio of Max Detect to Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSC
VOC	Benzene	71-43-2	386	272	0.00018	7.0	180	280	0.64	330	0.55	0.50	**360**
VOC	Cumene	98-82-8	380	330	0.00014	3.9	61	10000	0.006	10000	0.006	2500	0.024
VOC	1,2-Dibromoethane	106-93-4	298	2	0.043	0.062	0.080	3.7	0.022	4.2	0.019	0.0050	**16**
VOC	1,2-Dichloroethane	107-06-2	252	4	0.00025	0.046	0.078	85	0.0009	98	0.00080	0.50	0.16
VOC	Ethyl Benzene	100-41-4	385	285	0.00014	24	700	880	0.80	1000	0.70	70	**10**
VOC	Methyl tert-butyl ether	1634-04-4	380	114	0.00024	2.7	120	8500	0.014	9800	0.012	2.0	**60**
VOC	Toluene	108-88-3	385	226	0.00049	34	2000	10000	0.20	10000	0.20	100	**20**
VOC	1,2,4-Trimethylbenzene	95-63-6	379	281	0.00030	59	1000	4700	0.21	5400	0.19	300	**3.3**
VOC	1,3,5-Trimethylbenzene	108-67-8	380	254	0.00021	22	400	4700	0.085	5400	0.074	93	**4.3**
VOC	Xylenes (total)	1330-20-7	303	243	0.0010	140	3300	7900	0.42	9100	0.36	1000	**3.3**
SVOC	Anthracene	120-12-7	81	49	0.00088	0.093	2.7	190000	0.000014	190000	0.000014	350	0.0077
SVOC	Benzo(a)anthracene	56-55-3	81	54	0.00082	0.18	4.7	130	0.036	190000	0.000025	340	0.014
SVOC	Benzo(a)pyrene	50-32-8	81	33	0.0011	0.27	4.2	91	0.046	190000	0.000022	46	0.091
SVOC	Benzo(b)fluoranthene	205-99-2	81	40	0.00081	0.29	4.6	76	0.061	190000	0.000024	170	0.027
SVOC	Benzo(g,h,i)perylene	191-24-2	81	34	0.00069	0.23	3.5	190000	0.000018	190000	0.000018	180	0.019
SVOC	Chrysene	218-01-9	81	48	0.00061	0.29	9.0	760	0.012	190000	0.000047	230	0.039
SVOC	Fluorene	86-73-7	81	59	0.0011	0.19	2.4	130000	0.000018	190000	0.000013	3800	0.00063
SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	13	11	0.0012	0.029	0.10	76	0.0013	190000	0.00000051	18000	0.0000053
SVOC	Naphthalene	91-20-3	389	297	0.00053	6.7	170	66	**2.6**	77	**2.2**	25	**6.8**
SVOC	Phenanthrene	85-01-8	81	66	0.0011	0.41	12	190000	0.000063	190000	0.000063	10000	0.0012
SVOC	Pyrene	129-00-0	81	61	0.00080	0.28	9.8	96000	0.00010	190000	0.000052	2200	0.0045
INORG	Lead	7439-92-1	283	283	2.7	180	3900	1000	**3.9**	190000	0.021	450	**8.7**

Notes:
Only constituents detected are shown.
The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).
Ratios of concentration to the screening level greater than 1 are shaded in bold.
Chem Group - chemical group; INORG - metals; SVOC - semi-volatile organic compounds; VOC - volatile organic compounds

Table 4
Groundwater Screening Summary (Site Characterization)
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Wellzone	Chem Group	Chemical	CASRN	Meas Basis	Analyzed	Detected	Min Detected (mg/L)	Mean Detected (mg/L)	Max Detected (mg/L)	Non-Res GW Used Aquifer (TDS ≤ 2500) (mg/L)	Ratio of Max Detect to Non-Res GW Used Aquifer (TDS ≤ 2500)
Unconfined	VOC	Benzene	71-43-2	T	17	16	0.021	2.8	12	0.0050	**2400**
Unconfined	VOC	Cumene	98-82-8	T	17	15	0.027	0.066	0.15	3.5	0.043
Unconfined	VOC	Ethyl Benzene	100-41-4	T	17	16	0.0023	0.24	1.3	0.70	**1.9**
Unconfined	VOC	Methyl tert-butyl ether	1634-04-4	T	17	17	0.00077	0.77	6.0	0.020	**300**
Unconfined	VOC	Toluene	108-88-3	T	17	16	0.0013	0.43	4.8	1.0	**4.8**
Unconfined	VOC	1,2,4-Trimethylbenzene	95-63-6	T	17	16	0.0051	0.30	1.0	0.53	**1.9**
Unconfined	VOC	1,3,5-Trimethylbenzene	108-67-8	T	17	16	0.0012	0.090	0.27	0.53	0.51
Unconfined	VOC	Xylenes (total)	1330-20-7	T	17	16	0.011	1.7	7.5	10	0.75
Unconfined	SVOC	Anthracene	120-12-7	T	17	15	0.000030	0.00011	0.00021	0.066	0.0032
Unconfined	SVOC	Benzo(a)anthracene	56-55-3	T	17	13	0.000020	0.000079	0.00048	0.0039	0.12
Unconfined	SVOC	Benzo(a)pyrene	50-32-8	T	17	3	0.000020	0.00039	0.0011	0.00020	**5.5**
Unconfined	SVOC	Benzo(b)fluoranthene	205-99-2	T	17	4	0.000010	0.00029	0.0010	0.0012	0.87
Unconfined	SVOC	Benzo(g,h,i)perylene	191-24-2	T	17	3	0.000020	0.00038	0.0010	0.00026	**3.9**
Unconfined	SVOC	Chrysene	218-01-9	T	16	6	0.000020	0.000040	0.000090	0.0019	0.047
Unconfined	SVOC	Chrysene/Triphenylene	218-01-9_217-59-4	T	1	1	0.0036	0.0036	0.0036		
Unconfined	SVOC	Fluorene	86-73-7	T	17	17	0.000076	0.0016	0.0046	1.9	0.0024
Unconfined	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	17	3	0.000020	0.00027	0.00069	0.0023	0.30
Unconfined	SVOC	Naphthalene	91-20-3	T	17	16	0.00037	0.061	0.18	0.10	**1.8**
Unconfined	SVOC	Phenanthrene	85-01-8	T	17	17	0.000060	0.0011	0.0022	1.10	0.0020
Unconfined	SVOC	Pyrene	129-00-0	T	17	16	0.000030	0.00016	0.0017	0.13	0.013
Unconfined	INORG	Lead	7439-92-1	D	16	9	0.00080	0.0035	0.010	0.005	**2.0**

Notes:
Only chemicals detected in the area are shown.
The concentrations for the Xylene isomers (m/p and o) were summed before comparing to the criteria for Xylenes (total).
Ratios of concentration to the screening level greater than 1 are shaded in bold.
Chem Group - chemical group; INORG - metals; SVOC - semi-volatile organic compounds; VOC - volatile organic compounds
Meas Basis - measured basis; T = total, D = dissolved

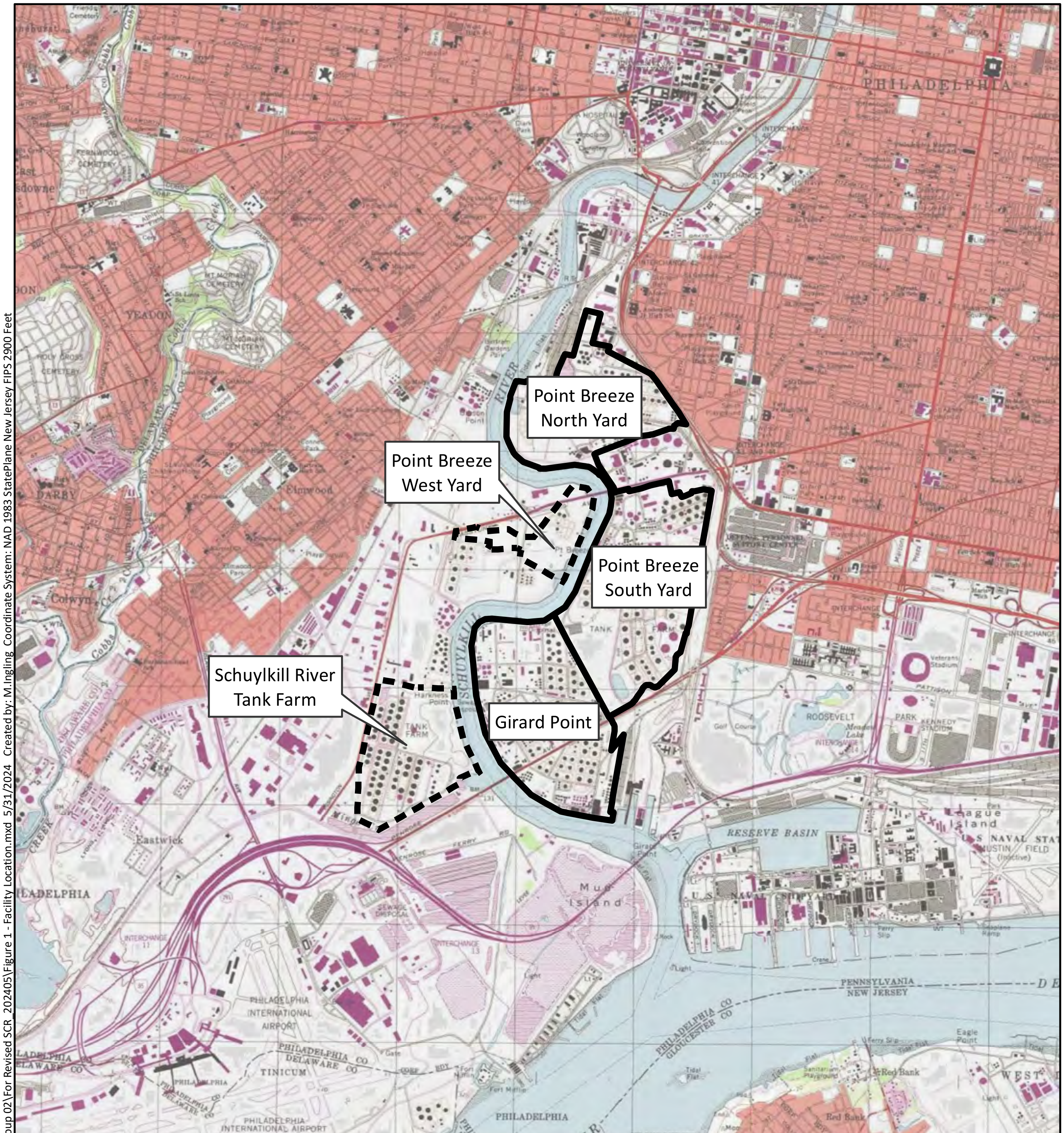
Table 5
LNAPL Characterization and Forensic Analysis Summary
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Tank	Tank Contents	Location ID	LNAPL Type*	% Components*	Notes*	Density (g/mL)	Release Date Estimate*	Sample Date	Thickness (ft)
PB 27	Gasoline Components	TG02-MW-05	Alkylate	**82.1**	Leaded Gasoline (C) Signature, MTBE, impacted by weathering	0.776	Before Sept 2012 (<1985)	December 19-20, 2022	5.08
			Gasoline	9.78					
			Naphtha/Light Distillate	0.4				January 26, 2023	3.03
			Middle Distillate	0.3					
PB 28	Alkylate	TG02-MW-04	Alkylate	**36.7**	Leaded Gasoline (A) Signature	0.792	Before Sept 2012 (<1982)	December 19-20, 2022	2.34
			Gasoline	**24.71**					
			Naphtha/Light Distillate	8.6				January 26, 2023	2.18
			Middle Distillate	0.4					
			Pyrogenic Residue	1.2					
PB 29	Heavy Reformate	TG02-MW-03	Alkylate	11.7	Leaded Gasoline (D) Signature, MTBE, impacted by weathering, severely weathered	0.821	Before Sept 2012 (<1982)	December 19-20, 2022	0.24
			Gasoline	**63.12**					
			Naphtha/Light Distillate	9.5				January 26, 2023	0.06
			Middle Distillate	0.3					
PB 34	Gasoline	TG02-MW-06	Alkylate	**26.3**	Leaded Gasoline (A) Signature	0.821	Before Sept 2012 (<1985)	December 19-20, 2022	5.2
			Gasoline	**24.43**					
			Naphtha/Light Distillate	13.8				January 26, 2023	6.11
			Middle Distillate	0.3					
PB 36	Gasoline	TG02-MW-08	Alkylate	**16.9**	Leaded Gasoline (C) Signature, MTBE, impacted by weathering	0.808	Before Sept 2012 (<1985)	December 19-20, 2022	0.57
			Gasoline	**40.74**					
			Naphtha/Light Distillate	**24.8**				January 26, 2023	0.44
			Middle Distillate	0.2					
PB 37	Gasoline Components	TG02-MW-09	Alkylate	**23.7**	Leaded Gasoline (C) Signature, slightly weathered gasoline aspects, more consistent with modern gasoline reference	0.774	Before Sept 2012 (<1985), may include a "more recent" release of gasoline	December 19-20, 2022	1.08
			Gasoline	**49.39**					
			Naphtha/Light Distillate	4.9				January 26, 2023	0.73
			Middle Distillate	0.1					
PB 38	Gasoline	TG02-MW-10	Alkylate	**27.3**	MTBE, impacted by weathering	0.770	Before Sept 2012	December 19-20, 2022	0.03
			Gasoline	**33.84**					
			Naphtha/Light Distillate	11.5				January 26, 2023	0.54
			Middle Distillate	0.6					
			Pyrogenic Residue	0.1					
PB 39	Vacuum Gas Oil	TG02-MW-11	Alkylate	14.4	Leaded Gasoline (B) Signature, slightly weathered gasoline aspects, more consistent with modern gasoline reference	0.766	Before Sept 2012 (<1985), may include a "more recent" release of gasoline	December 19-20, 2022	0.58
			Gasoline	**57.9**				January 26, 2023	0.91
			Naphtha/Light Distillate	4.3					
PB 85	15MV2, Distillate	TG02-MW-12	Alkylate	**24.7**	Leaded Gasoline (B) Signature	0.787	Before Sept 2012 (<1985)	December 19-20, 2022	0.41
			Gasoline	**47.92**					
			Naphtha/Light Distillate	7.3				January 26, 2023	0.43
			Middle Distillate	0.2					
PB 83	15MV1, Distillate	TG02-MW-15	Alkylate	**21.9**	Leaded Gasoline (B) Signature, MTBE, impacted by weathering	0.800	Before Sept 2012 (<1985)	December 19-20, 2022	0.52
			Gasoline	**49.21**					
			Naphtha/Light Distillate	7.3				January 26, 2023	0.15
			Middle Distillate	0.2					

Note:
*Based upon ChemQuants (2023) draft LNAPL forensics analysis. CQ Project #0290. 3144 W Passyunk Avenue, Philadelphia, PA.

Abbreviations:
(A) TEL Dominant >>> RM25 Dominant Gasoline in LPH Mixture
(B) TEL Dominant > RM25 Dominant Gasoline in LPH Mixture
(C) TEL Dominant ~= RM25 Dominant Gasoline in LPH Mixture
(D) RM25 Dominant > RM50 Dominant Gasoline in LPH Mixture

Figures



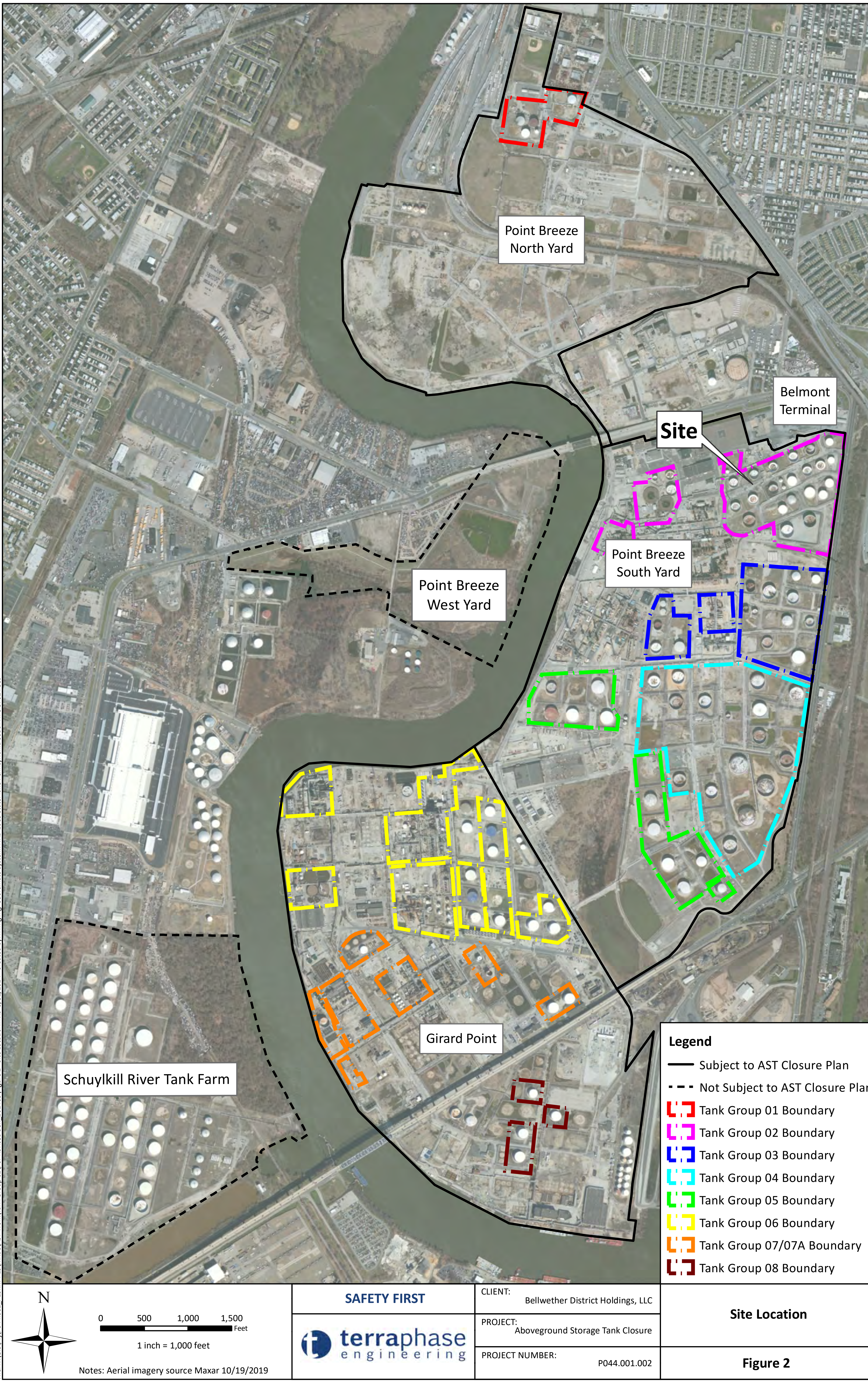
Legend

- Subject to AST Closure Plan
- Not Subject to AST Closure Plan

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC	**Facility Location**
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	**Figure 1**

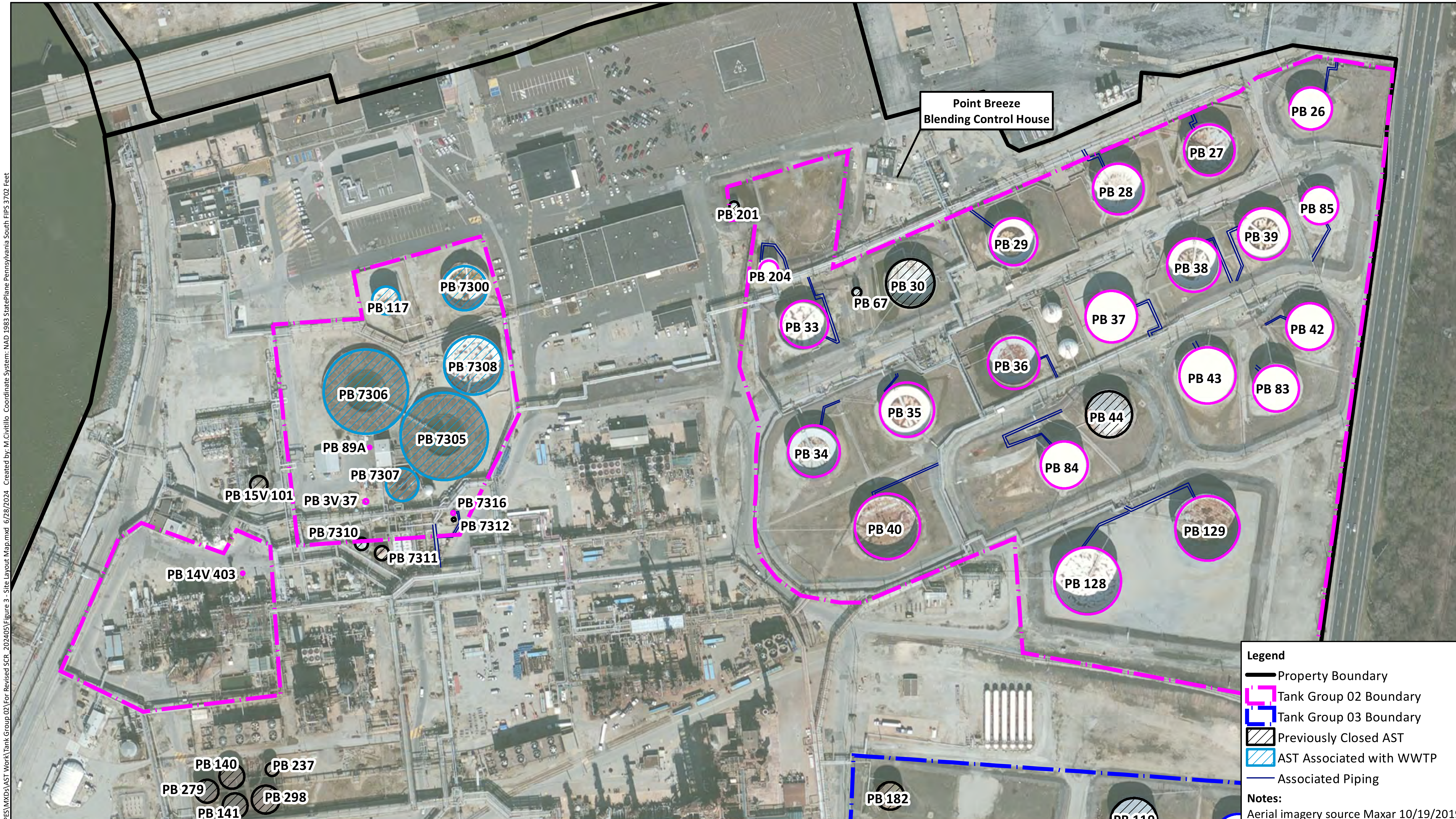
File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 1 - Facility Location.mxd 5/31/2024 Created by: M.Ingling Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



Notes: Aerial imagery source Maxar 10/19/2019

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC	Site Location	
terraphase engineering	PROJECT: Aboveground Storage Tank Closure		
	PROJECT NUMBER: P044.001.002	Figure 2	

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 2 - Site Location.mxd 5/31/2024 Created by: M.Ingling Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 3 - Site Layout Map.mxd 6/28/2024 Created by: M.Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC	Site Layout Map
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	Figure 3

File: N:\GIS\Pr\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 4 - Interpreted Unconfined GW Flow.mxd 5/31/2024 Created by: M.Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Notes:
Interpreted groundwater flow is primarily based on the water-table elevation data prepared by Stantec (2016; 2022) which also accounted for synoptic water level elevation measurements taken monitoring wells off-facility. The water level gauging data and interpreted elevations developed from the Site Characterization effort, while only based upon measurements from on-facility wells, are consistent with Stantec's.
Yellow highlighted BDH wells were only sampled for LNAPL and are assumed to have groundwater contamination.
Results shown for each well are the maximum concentrations from the two most recent groundwater sampling events from September 8, 2012 to July 20, 2023.
Yellow highlighted BDH wells were only sampled for LNAPL and are assumed to have groundwater contamination.

Legend
- Property Boundary
- Tank Group 02 Boundary
- Tank Group 03 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Remediation System
- GW Flow Direction
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

Color Scheme for Identifying GW Exceedances
- Exceeds Non-Res Used Aquifer MSC
- No Exceedances

SAFETY FIRST

terraphase engineering

CLIENT:	Bellwether District Holdings, LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Interpreted Unconfined GW Flow

Figure 4

SAFETY FIRST

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CLIENT: Bellwether District Holdings, LLC

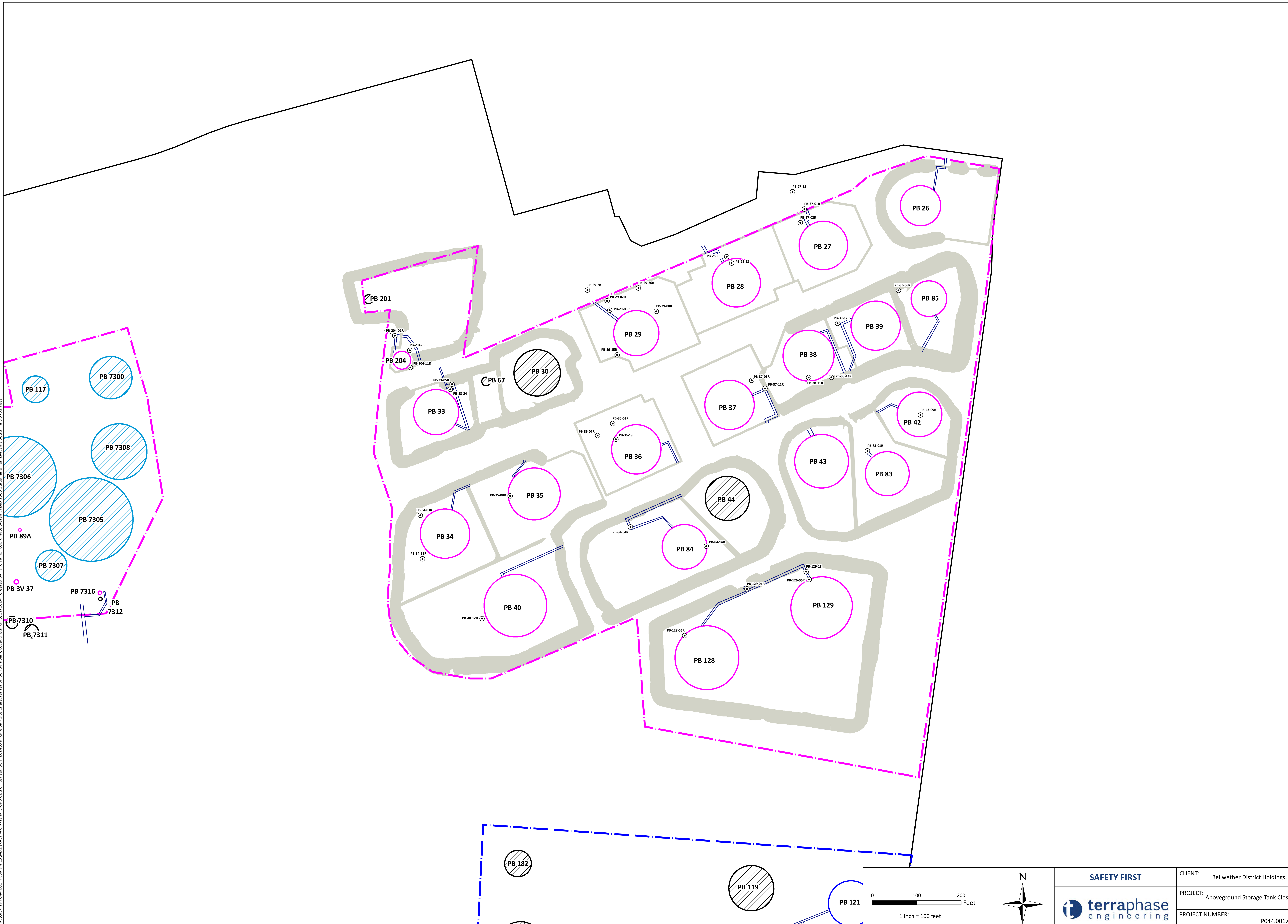
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Assessment Soil Sampling Locations

Figure 5

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 5 - Site Assessment Soil Sampling Locations.mxd 5/31/2024 Created by: M.Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

- Property Boundary
- Tank Group 02 Boundary
- Tank Group 03 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Site Characterization Soil Sample Location

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC
terraphase engineering	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

Site Characterization Soil Sampling Locations

Figure 6a

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Characterization Monitoring Well Locations

Figure 6b

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 6b - Site Characterization Monitoring Well Locations.mxd 5/31/2024 Created by: M.Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

PB 7306
PB 7305
PB 7308
PB 7300
PB 117
PB 7307
PB 89A
PB 15V 101
PB 3V 37
PB 7316
PB 7312
PB 7310
PB 7311
PB 14V 403
PB 279
PB 140
PB 237
PB 141
PB 298
PB 201
PB 204
PB 30
PB 67
PB 33
PB 34
PB 35
PB 36
PB 40
PB 29
PB 28
PB 27
PB 26
PB 85
PB 39
PB 38
PB 37
PB 42
PB 43
PB 83
PB 44
PB 84
PB 129
PB 128
PB 182
Legend
Property Boundary
Tank Group 02 Boundary
Tank Group 03 Boundary
Previously Closed AST
AST Associated with WWTP
Berm Boundary
Concrete Containment Wall
Horiz. Extent of Soil > MSC
Associated Piping
BDH Monitoring Well
BDH Soil Sample Location
No Exceedances
Exceeds S-GW MSC Only
Exceeds NonRes DC and S-GW MSC
Evergreen Soil Sample Location
No Exceedances
Exceeds S-GW MSC Only
Exceeds NonRes DC and S-GW MSC
Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentrations
S-GW -- Soil-to-Groundwater
0 100 200 Feet
1 inch = 100 feet
N
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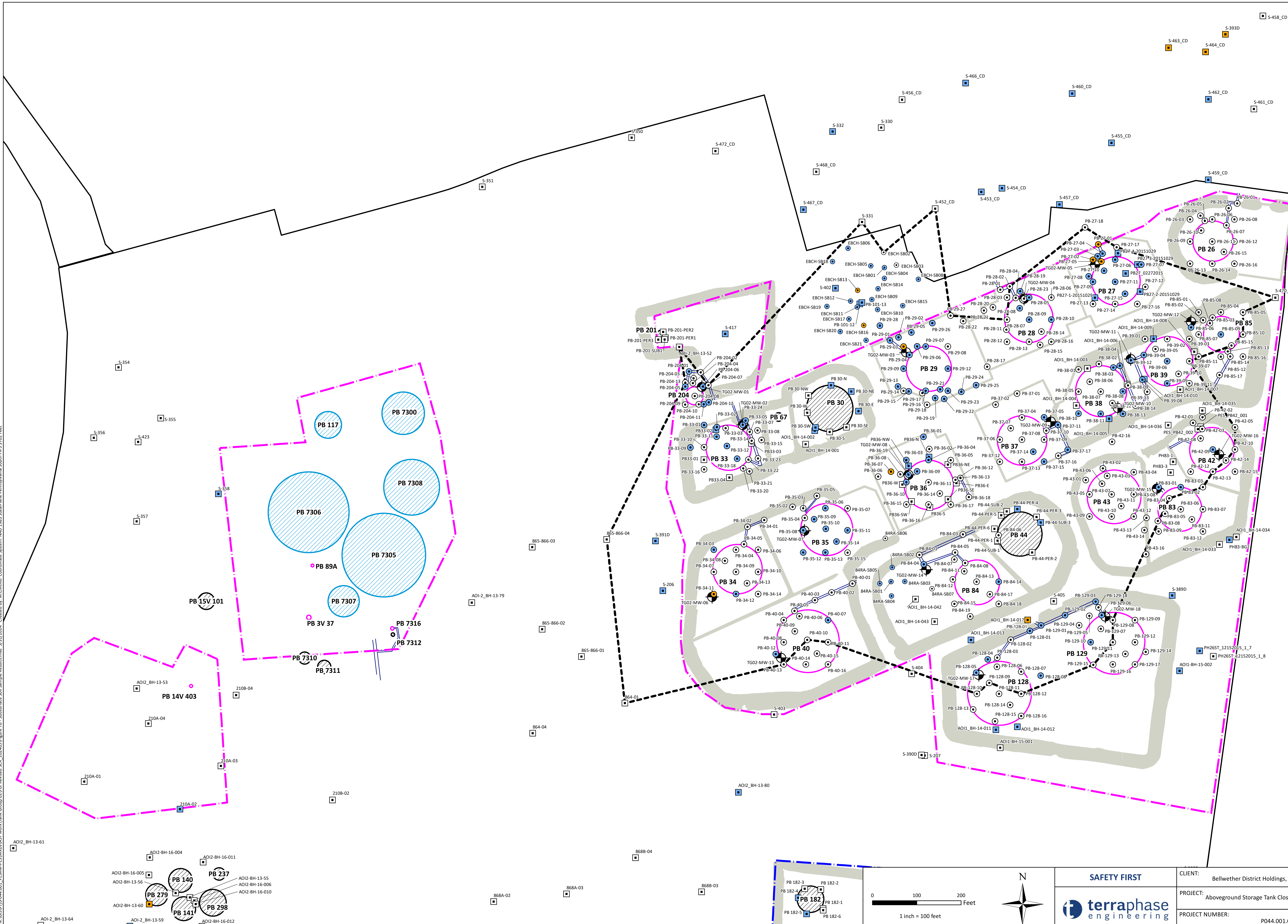
terraphase engineering
CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002
Surface Soil Sampling Results
Figure 7a
File: N:\GIS\Pr\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\Figure 7a - Surface Soil Sample Results.mxd 5/31/2024 Created by: M.Civitillo Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Legend

- Property Boundary
- Tank Group 02 Boundary
- Tank Group 03 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Horiz. Extent of Soil > MSC
- Associated Piping
- BDH Monitoring Well

BDH Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only
- Exceeds NonRes DC and S-GW MSC

Evergreen Soil Sample Location

- No Exceedances
- Exceeds S-GW MSC Only
- Exceeds NonRes DC and S-GW MSC

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentrations
S-GW -- Soil-to-Groundwater

0 100 200 Feet
1 inch = 100 feet

N

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CLIENT:	Bellwether District Holdings, LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Subsurface Soil Sampling Results

Figure 7b

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Legend

- Tank Group 02 Boundary
- Previously Closed AST
- Remediation Systems
- Berm Boundary
- Concrete Containment Wall
- Overall Horiz. Extent of Site-Related GW > MSC
- BDH Monitoring Well
- Evergreen Monitoring Well

GW Sample Results

- Exceeds Non-Res GW Used Aquifer (TDS ≤ 2500) MSC
- No Exceedances

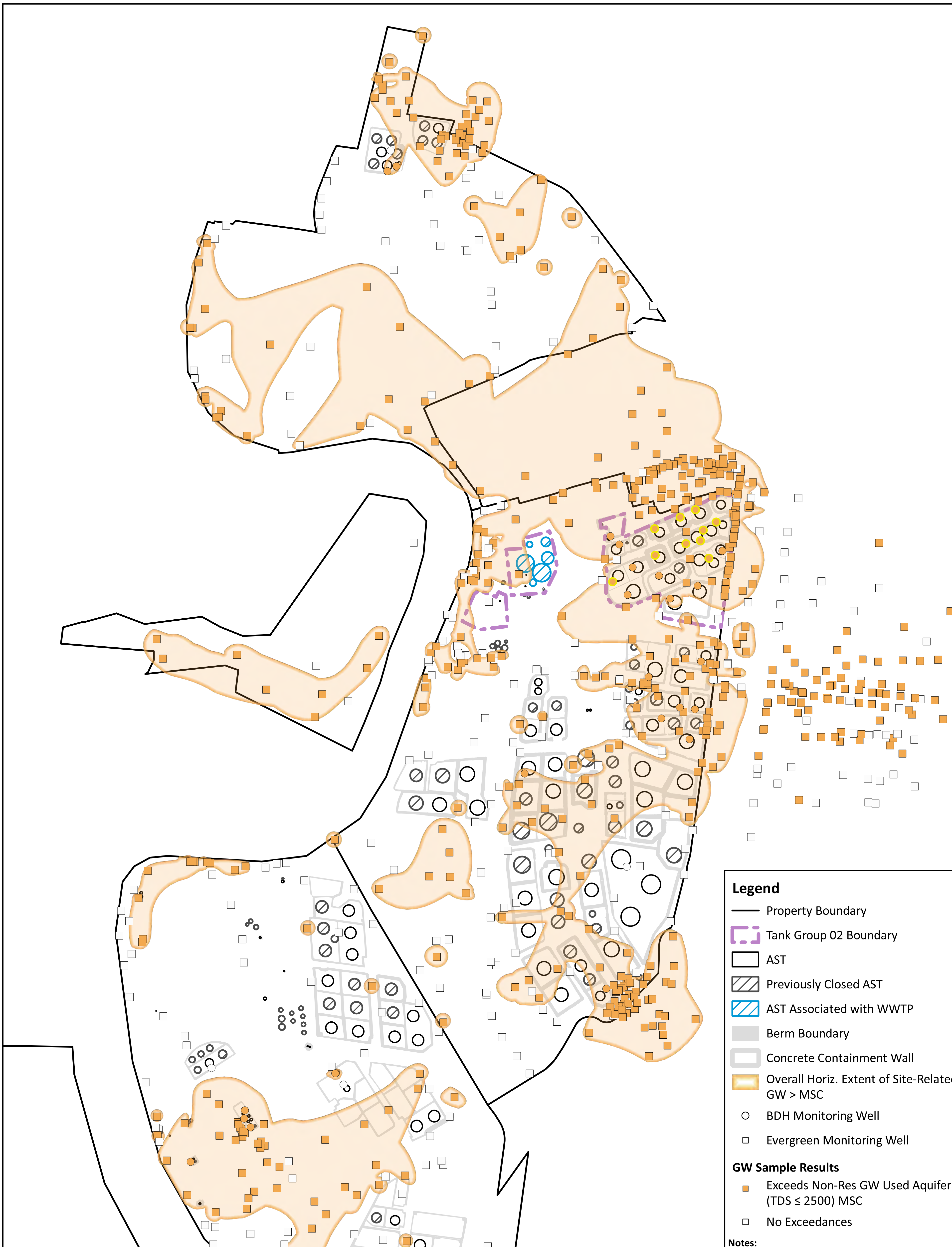
Notes:

Exceedances identified only reflect sampling results for benzene, ethyl benzene, MTBE, toluene, 1,2,4-trimethylbenzene, xylenes (total), benzo(a)pyrene, benzo(g,h,i)perlyene, naphthalene, and lead - constituents detects in Tank Group 02 > MSCs.

Yellow highlighted BDH wells sampled only for LNAPL are assumed to have groundwater contamination.

Results shown for each well are the maximum concentrations from the two most recent groundwater sampling events from September 8, 2012 to July 20, 2023.

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC	Extent of GW > MSC (Tank Group 02)
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	FIGURE 8a



Notes:
Exceedances identified only reflect sampling results for benzene, ethyl benzene, MTBE, toluene, 1,2,4-trimethylbenzene, xylenes (total), benzo(a)pyrene, benzo(g,h,i)perylene, naphthalene, and lead - the constituents detected in Tank Group 02 > MSCs.
Yellow highlighted BDH wells sampled only for LNAPL are assumed to have groundwater contamination.
Results shown for each well are from the two most recent groundwater sampling events from September 8, 2012 - July 20, 2023.

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Extent of GW > MSC (Facility-Wide)

Figure 8b

N:\GIS\Prj\P044.001_PESRM-PES\QGIS_QGZ and GPKG\Branch_AST\TG02\(20240426) QGZ328_P044.001_PESRM_AST_TG02_SMP.qgz AST - 20240426 Overall Plume Boundary 2021-03-26T15:56:13.000 Created By: MMI Checked by: RKW

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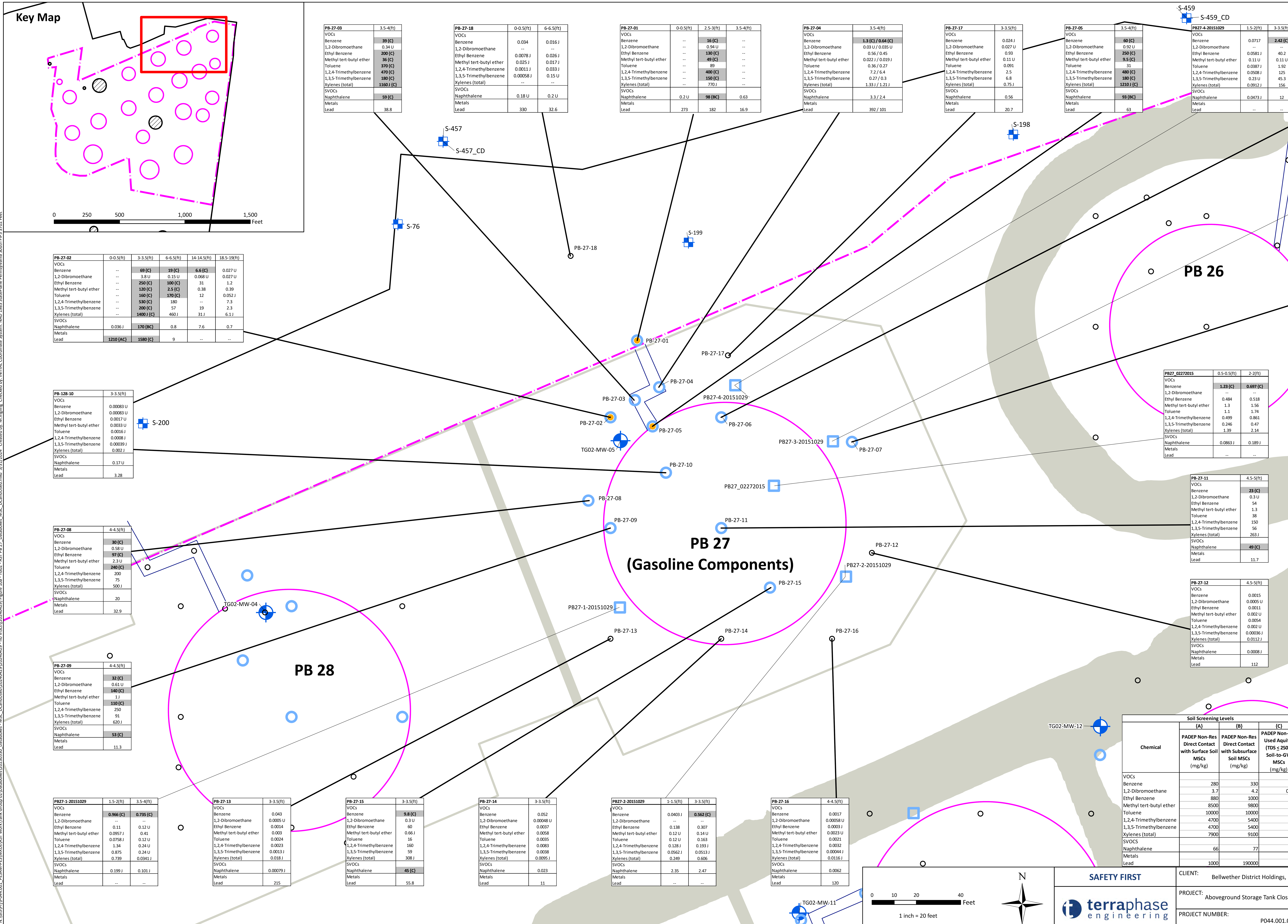
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Current Estimated Extent of LNAPL

Figure 9



PB-27-03	3.5-4(ft)
VOCs	
Benzene	39 {C}
1,2-Dibromoethane	0.34 U
Ethyl Benzene	200 {C}
Methyl tert-butyl ether	36 {C}
Toluene	370 {C}
1,2,4-Trimethylbenzene	470 {C}
1,3,5-Trimethylbenzene	180 {C}
Xylenes (total)	1160 J {C}
SVOCs	
Naphthalene	59 {C}
Metals	
Lead	38.8

PB-27-18	0-0.5(ft)	6-6.5(ft)
VOCs		
Benzene	0.034	0.016 J
1,2-Dibromoethane	--	--
Ethyl Benzene	0.0078 J	0.026 J
Methyl tert-butyl ether	0.025 J	0.017 J
1,2,4-Trimethylbenzene	0.0011 J	0.033 J
1,3,5-Trimethylbenzene	0.00058 J	0.15 U
Xylenes (total)	--	--
SVOCs		
Naphthalene	0.18 U	0.2 U
Metals		
Lead	330	32.6

PB-27-01	0-0.5(ft)	2.5-3(ft)	3.5-4(ft)
VOCs			
Benzene	--	16 {C}	--
1,2-Dibromoethane	--	0.94 U	--
Ethyl Benzene	--	130 {C}	--
Methyl tert-butyl ether	--	49 {C}	--
Toluene	--	89	--
1,2,4-Trimethylbenzene	--	400 {C}	--
1,3,5-Trimethylbenzene	--	150 {C}	--
Xylenes (total)	--	770 J	--
SVOCs			
Naphthalene	0.2 U	98 {BC}	0.63
Metals			
Lead	273	182	16.9

PB-27-04	3.5-4(ft)
VOCs	
Benzene	1.3 {C} / 0.64 {C}
1,2-Dibromoethane	0.03 U / 0.035 U
Ethyl Benzene	0.56 / 0.45
Methyl tert-butyl ether	0.022 J / 0.019 J
Toluene	0.36 / 0.27
1,2,4-Trimethylbenzene	7.2 / 6.4
1,3,5-Trimethylbenzene	0.27 / 0.3
Xylenes (total)	1.33 J / 1.21 J
SVOCs	
Naphthalene	3.3 / 2.4
Metals	
Lead	392 / 101

PB-27-17	3-3.5(ft)
VOCs	
Benzene	0.024 J
1,2-Dibromoethane	0.027 U
Ethyl Benzene	0.93
Methyl tert-butyl ether	0.11 U
Toluene	0.091
1,2,4-Trimethylbenzene	2.5
1,3,5-Trimethylbenzene	6.8
Xylenes (total)	0.75 J
SVOCs	
Naphthalene	0.56
Metals	
Lead	20.7

PB-27-05	3.5-4(ft)
VOCs	
Benzene	60 {C}
1,2-Dibromoethane	0.92 U
Ethyl Benzene	250 {C}
Methyl tert-butyl ether	9.5 {C}
Toluene	31
1,2,4-Trimethylbenzene	480 {C}
1,3,5-Trimethylbenzene	180 {C}
Xylenes (total)	1210 J {C}
SVOCs	
Naphthalene	93 {BC}
Metals	
Lead	63

PB27-4-20151029	1.5-2(ft)	3-3.5(ft)
VOCs		
Benzene	0.0717	2.42 {C}
1,2-Dibromoethane	--	--
Ethyl Benzene	0.0581 J	40.2
Methyl tert-butyl ether	0.11 U	0.11 U
Toluene	0.0387 J	1.92
1,2,4-Trimethylbenzene	0.0508 J	125
1,3,5-Trimethylbenzene	0.23 U	45.3
Xylenes (total)	0.0912 J	156
SVOCs		
Naphthalene	0.0473 J	12
Metals		
Lead	--	--

PB-27-06	4-4.5(ft)
VOCs	
Benzene	39 {C}
1,2-Dibromoethane	0.3 U
Ethyl Benzene	110 {C}
Methyl tert-butyl ether	11 {C}
Toluene	100
1,2,4-Trimethylbenzene	300
1,3,5-Trimethylbenzene	98 {C}
Xylenes (total)	650 J
SVOCs	
Naphthalene	27 {C}
Metals	
Lead	22.8

PB27-4-20151029	1.5-2(ft)	3-3.5(ft)
VOCs		
Benzene	0.0717	2.42 {C}
1,2-Dibromoethane	--	--
Ethyl Benzene	0.0581 J	40.2
Methyl tert-butyl ether	0.11 U	0.11 U
Toluene	0.0387 J	1.92
1,2,4-Trimethylbenzene	0.0508 J	125
1,3,5-Trimethylbenzene	0.23 U	45.3
Xylenes (total)	0.0912 J	156
SVOCs		
Naphthalene	0.0473 J	12
Metals		
Lead	--	--

PB-27-02	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)	18.5-19(ft)
VOCs					
Benzene	--	69 {C}	19 {C}	6.6 {C}	0.027 U
1,2-Dibromoethane	--	3.8 U	0.15 U	0.068 U	0.027 U
Ethyl Benzene	--	250 {C}	100 {C}	31	1.2
Methyl tert-butyl ether	--	120 {C}	2.5 {C}	0.38	0.39
Toluene	--	160 {C}	170 {C}	12	0.052 J
1,2,4-Trimethylbenzene	--	530 {C}	180	[illegible]	7.3
1,3,5-Trimethylbenzene	--	200 {C}	57	19	2.3
Xylenes (total)	--	1400 J {C}	460 J	31 J	6.1 J
SVOCs					
Naphthalene	0.036 J	170 {BC}	0.8	7.6	0.7
Metals					
Lead	1210 {AC}	1580 {C}	9	--	--

PB-128-10	3-3.5(ft)
VOCs	
Benzene	0.00083 U
1,2-Dibromoethane	0.00083 U
Ethyl Benzene	0.0017 U
Methyl tert-butyl ether	0.0033 U
Toluene	0.0016 J
1,2,4-Trimethylbenzene	0.0008 J
1,3,5-Trimethylbenzene	0.00039 J
Xylenes (total)	0.002 J
SVOCs	
Naphthalene	0.17 U
Metals	
Lead	3.28

PB-27-08	4-4.5(ft)
VOCs	
Benzene	30 {C}
1,2-Dibromoethane	0.58 U
Ethyl Benzene	97 {C}
Methyl tert-butyl ether	2.3 U
Toluene	240 {C}
1,2,4-Trimethylbenzene	200
1,3,5-Trimethylbenzene	75
Xylenes (total)	500 J
SVOCs	
Naphthalene	20
Metals	
Lead	32.9

PB-27-09	4-4.5(ft)
VOCs	
Benzene	32 {C}
1,2-Dibromoethane	0.61 U
Ethyl Benzene	140 {C}
Methyl tert-butyl ether	1 J
Toluene	110 {C}
1,2,4-Trimethylbenzene	250
1,3,5-Trimethylbenzene	91
Xylenes (total)	620 J
SVOCs	
Naphthalene	53 {C}
Metals	
Lead	11.3

PB27-1-20151029	1.5-2(ft)	3.5-4(ft)
VOCs		
Benzene	0.966 {C}	0.735 {C}
1,2-Dibromoethane	--	--
Ethyl Benzene	0.11	0.12 U
Methyl tert-butyl ether	0.0957 J	0.12 U
Toluene	0.0758 J	0.41
1,2,4-Trimethylbenzene	1.34	0.24 U
1,3,5-Trimethylbenzene	0.875	0.24 U
Xylenes (total)	0.739	0.0341 J
SVOCs		
Naphthalene	0.199 J	0.101 J
Metals		
Lead	--	--

PB-27-13	3-3.5(ft)
VOCs	
Benzene	0.043
1,2-Dibromoethane	0.0005 U
Ethyl Benzene	0.0014
Methyl tert-butyl ether	0.003
Toluene	0.0024
1,2,4-Trimethylbenzene	0.0023
1,3,5-Trimethylbenzene	0.0013 J
Xylenes (total)	0.018 J
SVOCs	
Naphthalene	0.00079 J
Metals	
Lead	215

PB-27-15	3-3.5(ft)
VOCs	
Benzene	9.8 {C}
1,2-Dibromoethane	0.3 U
Ethyl Benzene	60
Methyl tert-butyl ether	0.66 J
Toluene	16
1,2,4-Trimethylbenzene	160
1,3,5-Trimethylbenzene	39
Xylenes (total)	308 J
SVOCs	
Naphthalene	45 {C}
Metals	
Lead	55.8

PB-27-14	3-3.5(ft)
VOCs	
Benzene	0.052
1,2-Dibromoethane	0.00048 U
Ethyl Benzene	0.0037
Methyl tert-butyl ether	0.0058
Toluene	0.0035
1,2,4-Trimethylbenzene	0.0083
1,3,5-Trimethylbenzene	0.0038
Xylenes (total)	0.0095 J
SVOCs	
Naphthalene	0.023
Metals	
Lead	11

PB27-2-20151029	1-1.5(ft)	3-3.5(ft)
VOCs		
Benzene	0.0403 J	0.562 {C}
1,2-Dibromoethane	--	--
Ethyl Benzene	0.138	0.307
Methyl tert-butyl ether	0.12 U	0.14 U
Toluene	0.12 U	0.163
1,2,4-Trimethylbenzene	0.128 J	0.193 J
1,3,5-Trimethylbenzene	0.0562 J	0.0513 J
Xylenes (total)	0.249	0.606
SVOCs		
Naphthalene	2.35	2.47
Metals		
Lead	--	--

PB-27-16	4-4.5(ft)
VOCs	
Benzene	0.0017
1,2-Dibromoethane	0.00058 U
Ethyl Benzene	0.0003 J
Methyl tert-butyl ether	0.0023 U
Toluene	0.0021
1,2,4-Trimethylbenzene	0.0032
1,3,5-Trimethylbenzene	0.00044 J
Xylenes (total)	0.0116 J
SVOCs	
Naphthalene	0.0062
Metals	
Lead	120

PB-27-07	3-3.5(ft)
VOCs	
Benzene	3 {C}
1,2-Dibromoethane	0.066 U
Ethyl Benzene	1.5
Methyl tert-butyl ether	0.26 U
Toluene	1
1,2,4-Trimethylbenzene	0.59
1,3,5-Trimethylbenzene	1.2
Xylenes (total)	2.66 J
SVOCs	
Naphthalene	1.3
Metals	
Lead	224

PB27_02272015	0.5-0.5(ft)	2-2(ft)
VOCs		
Benzene	1.23 {C}	0.697 {C}
1,2-Dibromoethane	--	--
Ethyl Benzene	0.484	0.518
Methyl tert-butyl ether	1.3	1.56
Toluene	1.1	1.74
1,2,4-Trimethylbenzene	0.499	0.861
1,3,5-Trimethylbenzene	0.246	0.47
Xylenes (total)	1.39	2.14
SVOCs		
Naphthalene	0.0863 J	0.189 J
Metals		
Lead	--	--

PB-27-11	4.5-5(ft)
VOCs	
Benzene	23 {C}
1,2-Dibromoethane	0.3 U
Ethyl Benzene	54
Methyl tert-butyl ether	1.3
Toluene	38
1,2,4-Trimethylbenzene	150
1,3,5-Trimethylbenzene	56
Xylenes (total)	263 J
SVOCs	
Naphthalene	49 {C}
Metals	
Lead	11.7

PB-27-12	4.5-5(ft)
VOCs	
Benzene	0.0015
1,2-Dibromoethane	0.0005 U
Ethyl Benzene	0.0011
Methyl tert-butyl ether	0.002 U
Toluene	0.0054
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.00036 J
Xylenes (total)	0.0112 J
SVOCs	
Naphthalene	0.0008 J
Metals	
Lead	112

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet

N

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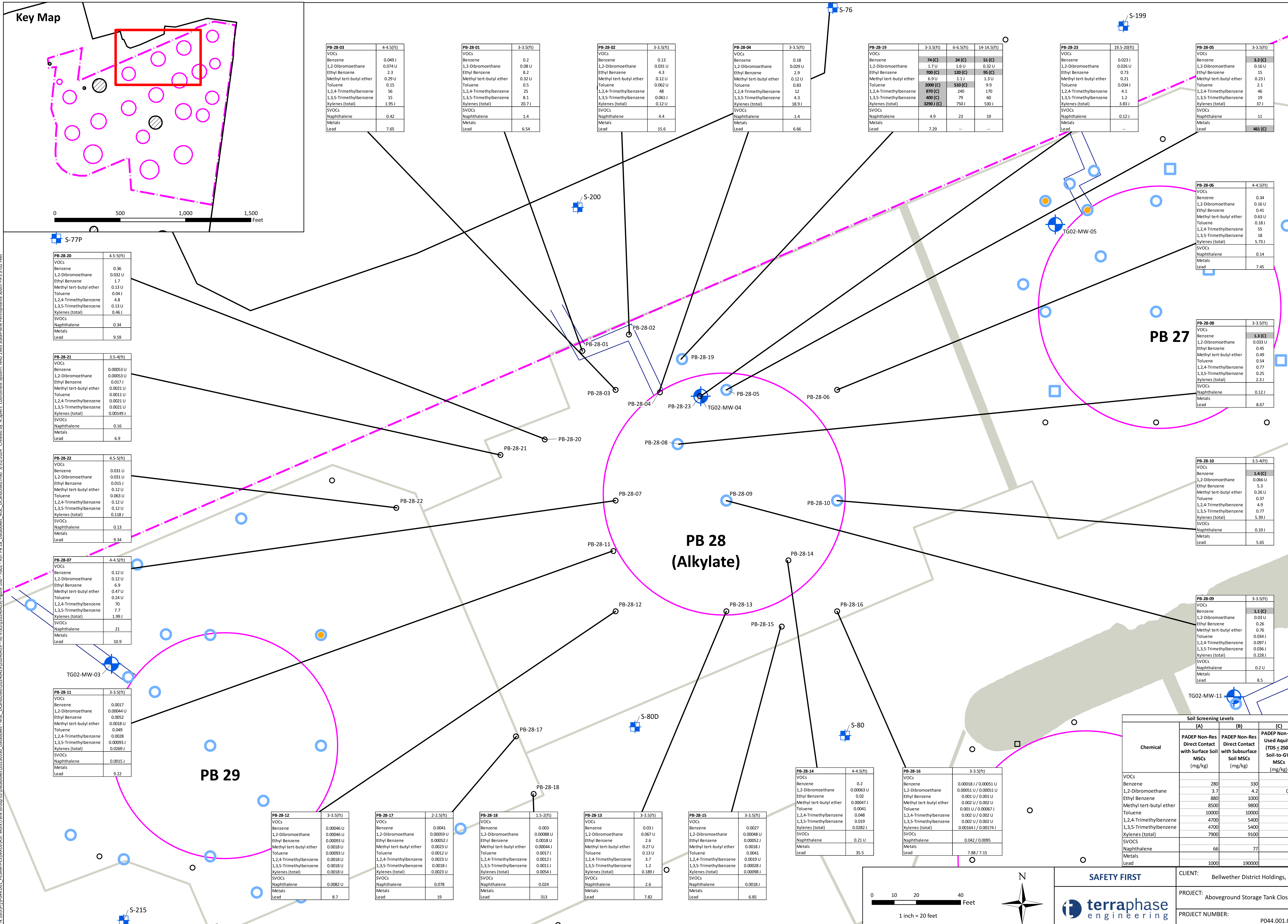
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 27)

Figure 10a



PB-28-03	4-4.5(ft)
VOCs	
Benzene	0.049 J
1,2-Dibromoethane	0.074 U
Ethyl Benzene	2.3
Methyl tert-butyl ether	0.29 U
Toluene	0.15
1,2,4-Trimethylbenzene	56
1,3,5-Trimethylbenzene	15
Xylenes (total)	1.95 J
SVOCs	
Naphthalene	0.42
Metals	
Lead	7.65

PB-28-01	3-3.5(ft)
VOCs	
Benzene	0.2
1,2-Dibromoethane	0.08 U
Ethyl Benzene	8.2
Methyl tert-butyl ether	0.32 U
Toluene	0.5
1,2,4-Trimethylbenzene	25
1,3,5-Trimethylbenzene	8.1
Xylenes (total)	20.7 J
SVOCs	
Naphthalene	1.4
Metals	
Lead	6.54

PB-28-02	3-3.5(ft)
VOCs	
Benzene	0.13
1,2-Dibromoethane	0.031 U
Ethyl Benzene	4.3
Methyl tert-butyl ether	0.12 U
Toluene	0.062 U
1,2,4-Trimethylbenzene	48
1,3,5-Trimethylbenzene	0.061 J
Xylenes (total)	0.12 U
SVOCs	
Naphthalene	4.4
Metals	
Lead	15.6

PB-28-04	3-3.5(ft)
VOCs	
Benzene	0.18
1,2-Dibromoethane	0.029 U
Ethyl Benzene	2.9
Methyl tert-butyl ether	0.12 U
Toluene	0.83
1,2,4-Trimethylbenzene	12
1,3,5-Trimethylbenzene	4.3
Xylenes (total)	18.9 J
SVOCs	
Naphthalene	1.4
Metals	
Lead	6.66

PB-28-19	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	74 {C}	24 {C}	51 {C}
1,2-Dibromoethane	1.7 U	1.6 U	0.32 U
Ethyl Benzene	700 {C}	120 {C}	95 {C}
Methyl tert-butyl ether	6.9 U	1.1 J	1.3 U
Toluene	2000 {C}	510 {C}	9.9
1,2,4-Trimethylbenzene	870 {C}	240	170
1,3,5-Trimethylbenzene	400 {C}	79	60
Xylenes (total)	3290 J {C}	750 J	530 J
SVOCs			
Naphthalene	4.9	23	19
Metals			
Lead	7.29	--	--

PB-28-23	19.5-20(ft)
VOCs	
Benzene	0.023 J
1,2-Dibromoethane	0.026 U
Ethyl Benzene	0.73
Methyl tert-butyl ether	0.21
Toluene	0.034 J
1,2,4-Trimethylbenzene	4.1
1,3,5-Trimethylbenzene	1.2
Xylenes (total)	3.83 J
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	--

PB-28-05	3-3.5(ft)
VOCs	
Benzene	3.2 {C}
1,2-Dibromoethane	0.16 U
Ethyl Benzene	15
Methyl tert-butyl ether	0.23 J
Toluene	2.1
1,2,4-Trimethylbenzene	46
1,3,5-Trimethylbenzene	19
Xylenes (total)	37 J
SVOCs	
Naphthalene	11
Metals	
Lead	461 {C}

PB-28-20	4.5-5(ft)
VOCs	
Benzene	0.36
1,2-Dibromoethane	0.032 U
Ethyl Benzene	1.7
Methyl tert-butyl ether	0.13 U
Toluene	0.04 J
1,2,4-Trimethylbenzene	4.8
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	0.46 J
SVOCs	
Naphthalene	0.34
Metals	
Lead	9.59

PB-28-21	3.5-4(ft)
VOCs	
Benzene	0.00053 U
1,2-Dibromoethane	0.00053 U
Ethyl Benzene	0.017 J
Methyl tert-butyl ether	0.0021 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.0021 U
1,3,5-Trimethylbenzene	0.0021 U
Xylenes (total)	0.00149 J
SVOCs	
Naphthalene	0.16
Metals	
Lead	6.9

PB-28-22	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.015 J
Methyl tert-butyl ether	0.12 U
Toluene	0.063 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	0.118 J
SVOCs	
Naphthalene	0.13
Metals	
Lead	9.34

PB-28-07	4-4.5(ft)
VOCs	
Benzene	0.12 U
1,2-Dibromoethane	0.12 U
Ethyl Benzene	6.9
Methyl tert-butyl ether	0.47 U
Toluene	0.24 U
1,2,4-Trimethylbenzene	70
1,3,5-Trimethylbenzene	7.7
Xylenes (total)	1.99 J
SVOCs	
Naphthalene	21
Metals	
Lead	10.9

PB-28-11	3-3.5(ft)
VOCs	
Benzene	0.0017
1,2-Dibromoethane	0.00044 U
Ethyl Benzene	0.0052
Methyl tert-butyl ether	0.0018 U
Toluene	0.049
1,2,4-Trimethylbenzene	0.0028
1,3,5-Trimethylbenzene	0.00093 J
Xylenes (total)	0.0269 J
SVOCs	
Naphthalene	0.0015 J
Metals	
Lead	9.22

PB-28-06	4-4.5(ft)
VOCs	
Benzene	0.34
1,2-Dibromoethane	0.16 U
Ethyl Benzene	0.41
Methyl tert-butyl ether	0.63 U
Toluene	0.18 J
1,2,4-Trimethylbenzene	55
1,3,5-Trimethylbenzene	18
Xylenes (total)	5.73 J
SVOCs	
Naphthalene	0.14
Metals	
Lead	7.45

PB-28-08	3-3.5(ft)
VOCs	
Benzene	**1.3 {C}**
1,2-Dibromoethane	0.033 U
Ethyl Benzene	0.45
Methyl tert-butyl ether	0.49
Toluene	0.54
1,2,4-Trimethylbenzene	0.77
1,3,5-Trimethylbenzene	0.25
Xylenes (total)	2.3 J
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	8.67

PB-28-10	3.5-4(ft)
VOCs	
Benzene	**1.4 {C}**
1,2-Dibromoethane	0.066 U
Ethyl Benzene	5.3
Methyl tert-butyl ether	0.26 U
Toluene	0.37
1,2,4-Trimethylbenzene	4.9
1,3,5-Trimethylbenzene	0.77
Xylenes (total)	5.39 J
SVOCs	
Naphthalene	0.19 J
Metals	
Lead	5.65

PB-28-09	3-3.5(ft)
VOCs	
Benzene	**1.1 {C}**
1,2-Dibromoethane	0.03 U
Ethyl Benzene	0.26
Methyl tert-butyl ether	0.76
Toluene	0.034 J
1,2,4-Trimethylbenzene	0.097 J
1,3,5-Trimethylbenzene	0.036 J
Xylenes (total)	0.228 J
SVOCs	
Naphthalene	0.2 U
Metals	
Lead	8.5

PB-28-12	3-3.5(ft)
VOCs	
Benzene	0.00046 U
1,2-Dibromoethane	0.00046 U
Ethyl Benzene	0.00093 U
Methyl tert-butyl ether	0.0018 U
Toluene	0.00093 U
1,2,4-Trimethylbenzene	0.0018 U
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	0.0018 U
SVOCs	
Naphthalene	0.0082 U
Metals	
Lead	8.7

PB-28-17	2-2.5(ft)
VOCs	
Benzene	0.0041
1,2-Dibromoethane	0.00059 U
Ethyl Benzene	0.00052 J
Methyl tert-butyl ether	0.0023 U
Toluene	0.0012 U
1,2,4-Trimethylbenzene	0.0023 U
1,3,5-Trimethylbenzene	0.0018 J
Xylenes (total)	0.0023 U
SVOCs	
Naphthalene	0.078
Metals	
Lead	19

PB-28-18	1.5-2(ft)
VOCs	
Benzene	0.003
1,2-Dibromoethane	0.00088 U
Ethyl Benzene	0.0018 U
Methyl tert-butyl ether	0.00044 J
Toluene	0.0017 J
1,2,4-Trimethylbenzene	0.0012 J
1,3,5-Trimethylbenzene	0.0011 J
Xylenes (total)	0.0054 J
SVOCs	
Naphthalene	0.024
Metals	
Lead	313

PB-28-13	3-3.5(ft)
VOCs	
Benzene	0.03 J
1,2-Dibromoethane	0.067 U
Ethyl Benzene	2.6
Methyl tert-butyl ether	0.27 U
Toluene	0.13 U
1,2,4-Trimethylbenzene	3.7
1,3,5-Trimethylbenzene	1.2
Xylenes (total)	0.189 J
SVOCs	
Naphthalene	2.6
Metals	
Lead	7.82

PB-28-15	3-3.5(ft)
VOCs	
Benzene	0.0027
1,2-Dibromoethane	0.00048 U
Ethyl Benzene	0.00052 J
Methyl tert-butyl ether	0.0018 J
Toluene	0.0041
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.00028 J
Xylenes (total)	0.00098 J
SVOCs	
Naphthalene	0.0018 J
Metals	
Lead	6.85

PB-28-14	4-4.5(ft)
VOCs	
Benzene	0.2
1,2-Dibromoethane	0.00063 U
Ethyl Benzene	0.02
Methyl tert-butyl ether	0.00047 J
Toluene	0.0041
1,2,4-Trimethylbenzene	0.048
1,3,5-Trimethylbenzene	0.019
Xylenes (total)	0.0282 J
SVOCs	
Naphthalene	0.21 U
Metals	
Lead	35.5

PB-28-16	3-3.5(ft)
VOCs	
Benzene	0.00018 J / 0.00051 U
1,2-Dibromoethane	0.00051 U / 0.00051 U
Ethyl Benzene	0.001 U / 0.001 U
Methyl tert-butyl ether	0.002 U / 0.002 U
Toluene	0.001 U / 0.00067 J
1,2,4-Trimethylbenzene	0.002 U / 0.002 U
1,3,5-Trimethylbenzene	0.002 U / 0.002 U
Xylenes (total)	0.00164 J / 0.00174 J
SVOCs	
Naphthalene	0.042 / 0.0095
Metals	
Lead	7.88 / 7.15

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds S-GW MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-28-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 28)

Figure 10b

PB-29-03	4.5-5(ft)	6-6.5(ft)	14-14.5(ft)	24.5-25(ft)
VOCs				
Benzene	93 {C}	110 {C}	3 {C}	130 {C}
1,2-Dibromoethane	0.61 U	0.65 U	0.026 U	0.69 U
Ethyl Benzene	220 {C}	240 {C}	1.7	260 {C}
Methyl tert-butyl ether	22 {C}	4.6 {C}	0.46	6.8 {C}
Toluene	540 {C}	200 {C}	0.11	41
1,2,4-Trimethylbenzene	500 {C}	540 {C}	3.1	580 {C}
1,3,5-Trimethylbenzene	170 {C}	200 {C}	0.94	170 {C}
Xylenes (total)	1150 J {C}	1270 J {C}	6.35 J	1420 J {C}
SVOCs				
Naphthalene	27 {C}	79 {BC}	0.73	--
Metals				
Lead	7.53	--	--	--

PB-29-02	0-0.5(ft)	4.5-5(ft)	6-6.5(ft)
VOCs			
Benzene	--	8.6 {C}	--
1,2-Dibromoethane	--	0.28 U	--
Ethyl Benzene	--	62	--
Methyl tert-butyl ether	--	0.37 J	--
Toluene	--	110 {C}	--
1,2,4-Trimethylbenzene	--	190	--
1,3,5-Trimethylbenzene	--	60	--
Xylenes (total)	--	380 J	--
SVOCs			
Naphthalene	--	41 {C}	--
Metals			
Lead	2500 {AC}	1180 {C}	9.53 J

PB-29-05	4.5-5(ft)
VOCs	
Benzene	8.9 {C}
1,2-Dibromoethane	0.58 U
Ethyl Benzene	190 {C}
Methyl tert-butyl ether	2.3 U
Toluene	0.67 J
1,2,4-Trimethylbenzene	540 {C}
1,3,5-Trimethylbenzene	110 {C}
Xylenes (total)	405 J
SVOCs	
Naphthalene	24
Metals	
Lead	282

PB-29-06	3-3.5(ft)
VOCs	
Benzene	5.5 {C}
1,2-Dibromoethane	0.06 U
Ethyl Benzene	19
Methyl tert-butyl ether	0.042 J
Toluene	37
1,2,4-Trimethylbenzene	37
1,3,5-Trimethylbenzene	13
Xylenes (total)	100 J
SVOCs	
Naphthalene	2.4
Metals	
Lead	8.52

PB-29-26	0-0.5(ft)	4.5-5(ft)
VOCs		
Benzene	--	11 {C}
1,2-Dibromoethane	--	0.037 U
Ethyl Benzene	--	1.6
Methyl tert-butyl ether	--	0.43
Toluene	--	1.5
1,2,4-Trimethylbenzene	--	2.1
1,3,5-Trimethylbenzene	--	0.52
Xylenes (total)	--	10.7 J
SVOCs		
Naphthalene	0.026 J	0.12
Metals		
Lead	274	6.93

PB-29-27	4-4.5(ft)
VOCs	
Benzene	0.033 U
1,2-Dibromoethane	0.033 U
Ethyl Benzene	0.012 J
Methyl tert-butyl ether	0.13 U
Toluene	0.066 U
1,2,4-Trimethylbenzene	1.7
1,3,5-Trimethylbenzene	0.68
Xylenes (total)	0.072 J
SVOCs	
Naphthalene	0.012
Metals	
Lead	7.15

PB-28-22	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.015 J
Methyl tert-butyl ether	0.12 U
Toluene	0.063 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	0.118 J
SVOCs	
Naphthalene	0.13
Metals	
Lead	9.34

PB-29-07	3-3.5(ft)
VOCs	
Benzene	12 {C}
1,2-Dibromoethane	0.03 U
Ethyl Benzene	10
Methyl tert-butyl ether	2.2 {C}
Toluene	7.7
1,2,4-Trimethylbenzene	24
1,3,5-Trimethylbenzene	7.9
Xylenes (total)	46 J
SVOCs	
Naphthalene	2.5
Metals	
Lead	8.23

PB-29-08	1-1.5(ft)	6-6.5(ft)
VOCs		
Benzene	22 {C}	0.37
1,2-Dibromoethane	0.91 U	0.00062 U
Ethyl Benzene	290 {C}	0.21
Methyl tert-butyl ether	3.6 U	0.0025 U
Toluene	5	0.012
1,2,4-Trimethylbenzene	680 {C}	0.0071
1,3,5-Trimethylbenzene	260 {C}	0.019
Xylenes (total)	1550 J {C}	0.0455 J
SVOCs		
Naphthalene	79 {AC}	0.032 J
Metals		
Lead	98.7	--

PB-29-11	1-1.5(ft)
VOCs	
Benzene	1.2 {C} / 3.6 {C}
1,2-Dibromoethane	0.03 U / 0.00046 U
Ethyl Benzene	1.3 / 0.52
Methyl tert-butyl ether	0.92 / 2
Toluene	0.53 / 0.16
1,2,4-Trimethylbenzene	8.6 / 0.44
1,3,5-Trimethylbenzene	2.7 / 0.16
Xylenes (total)	6.4 J 0.94 J
SVOCs	
Naphthalene	2.6 / 0.44
Metals	
Lead	5.15 / 8.85

PB-29-12	3-3.5(ft)
VOCs	
Benzene	6.6 {C}
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.75
Methyl tert-butyl ether	12 {C}
Toluene	0.1
1,2,4-Trimethylbenzene	0.64
1,3,5-Trimethylbenzene	0.19
Xylenes (total)	1.76 J
SVOCs	
Naphthalene	0.02
Metals	
Lead	7.89

PB-29-28	0-0.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	0.0027	7 {C}	6 {C}
1,2-Dibromoethane	0.00073 U	0.035 U	--
Ethyl Benzene	0.0016	8.7	4.8
Methyl tert-butyl ether	0.0042	1	--
Toluene	0.0015	8.1	16
1,2,4-Trimethylbenzene	0.0074	9.4	--
1,3,5-Trimethylbenzene	0.0023 J	3.2	--
Xylenes (total)	0.005 J	29.1 J	17.6 J
SVOCs			
Naphthalene	0.0059 U	2.3	1.1
Metals			
Lead	92.3	--	--

PB-29-01	3-3.5(ft)
VOCs	
Benzene	3.5 {C}
1,2-Dibromoethane	0.029 U
Ethyl Benzene	14
Methyl tert-butyl ether	0.056 J
Toluene	0.28
1,2,4-Trimethylbenzene	32
1,3,5-Trimethylbenzene	9.6
Xylenes (total)	33 J
SVOCs	
Naphthalene	3.6
Metals	
Lead	6.55

PB-29-04	4.5-5(ft)
VOCs	
Benzene	1.1 {C}
1,2-Dibromoethane	0.028 U
Ethyl Benzene	14
Methyl tert-butyl ether	0.015 J
Toluene	0.39
1,2,4-Trimethylbenzene	19
1,3,5-Trimethylbenzene	6.4
Xylenes (total)	83 J
SVOCs	
Naphthalene	4.1
Metals	
Lead	8.2

PB-29-10	1-1.5(ft)
VOCs	
Benzene	24 {C}
1,2-Dibromoethane	0.12 U
Ethyl Benzene	77 {C}
Methyl tert-butyl ether	0.48 U
Toluene	1.5
1,2,4-Trimethylbenzene	82
1,3,5-Trimethylbenzene	26
Xylenes (total)	183 J
SVOCs	
Naphthalene	16
Metals	
Lead	9.69

PB-29-09	4.5-5(ft)
VOCs	
Benzene	0.1 J
1,2-Dibromoethane	0.31 U
Ethyl Benzene	150 {C}
Methyl tert-butyl ether	1.2 U
Toluene	0.78
1,2,4-Trimethylbenzene	320 {C}
1,3,5-Trimethylbenzene	110 {C}
Xylenes (total)	800 J
SVOCs	
Naphthalene	25
Metals	
Lead	17.2

PB-29-13	3-3.5(ft)
VOCs	
Benzene	0.84 {C}
1,2-Dibromoethane	0.039 U
Ethyl Benzene	6.3
Methyl tert-butyl ether	0.02 J
Toluene	0.14
1,2,4-Trimethylbenzene	13
1,3,5-Trimethylbenzene	4
Xylenes (total)	27.8 J
SVOCs	
Naphthalene	0.16
Metals	
Lead	9.68

PB-29-14	3-3.5(ft)
VOCs	
Benzene	0.00058 U
1,2-Dibromoethane	0.00058 U
Ethyl Benzene	0.0012 U
Methyl tert-butyl ether	0.0023 U
Toluene	0.0012 U
1,2,4-Trimethylbenzene	0.0023 U
1,3,5-Trimethylbenzene	0.0023 U
Xylenes (total)	0.0023 U
SVOCs	
Naphthalene	0.011
Metals	
Lead	84.5

PB-29-15	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	0.00029 J	--
1,2-Dibromoethane	--	0.00046 U	--
Ethyl Benzene	--	0.00091 U	--
Methyl tert-butyl ether	--	0.0018 U	--
Toluene	--	0.00091 U	--
1,2,4-Trimethylbenzene	--	0.00033 J	--
1,3,5-Trimethylbenzene	--	0.0018 U	--
Xylenes (total)	--	0.0018 U	--
SVOCs			
Naphthalene	--	0.0062 J	--
Metals			
Lead	4.57 J	2110 {C}	4.39

PB-29-17	4.5-5(ft)
VOCs	
Benzene	0.035 U
1,2-Dibromoethane	0.035 U
Ethyl Benzene	0.032 J
Methyl tert-butyl ether	0.014 J
Toluene	0.07 U
1,2,4-Trimethylbenzene	0.025 J
1,3,5-Trimethylbenzene	0.14 U
Xylenes (total)	0.14 U
SVOCs	
Naphthalene	0.0027 J
Metals	
Lead	105

PB-29-16	3.5-4(ft)
VOCs	
Benzene	8.3 {C}
1,2-Dibromoethane	0.031 U
Ethyl Benzene	14
Methyl tert-butyl ether	0.12 U
Toluene	0.42
1,2,4-Trimethylbenzene	0.28
1,3,5-Trimethylbenzene	0.28
Xylenes (total)	3.89 J
SVOCs	
Naphthalene	0.27
Metals	
Lead	6.72

PB-29-18	4-4.5(ft)
VOCs	
Benzene	0.00094
1,2-Dibromoethane	0.00055 U
Ethyl Benzene	0.0011 U
Methyl tert-butyl ether	0.0022 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.0022 U
1,3,5-Trimethylbenzene	0.0022 U
Xylenes (total)	0.0022 U
SVOCs	
Naphthalene	0.012 J
Metals	
Lead	96.2

PB-29-19	4-4.5(ft)
VOCs	
Benzene	23 {C}
1,2-Dibromoethane	0.16 U
Ethyl Benzene	82 {C}
Methyl tert-butyl ether	0.63 U
Toluene	22
1,2,4-Trimethylbenzene	190
1,3,5-Trimethylbenzene	66
Xylenes (total)	383 J
SVOCs	
Naphthalene	0.38
Metals	
Lead	10.8

PB-29-21	4-4.5(ft)
VOCs	
Benzene	29 {C}
1,2-Dibromoethane	0.28 U
Ethyl Benzene	100 {C}
Methyl tert-butyl ether	1.1 U
Toluene	150 {C}
1,2,4-Trimethylbenzene	210
1,3,5-Trimethylbenzene	79
Xylenes (total)	460 J
SVOCs	
Naphthalene	13
Metals	
Lead	11.9

PB-29-22	4.5-5(ft)
VOCs	
Benzene	25 {C}
1,2-Dibromoethane	0.16 U
Ethyl Benzene	72 {C}
Methyl tert-butyl ether	0.64 U
Toluene	3.6
1,2,4-Trimethylbenzene	140
1,3,5-Trimethylbenzene	50
Xylenes (total)	312 J
SVOCs	
Naphthalene	1.6
Metals	
Lead	10.7

PB-29-24	4.5-5(ft)
VOCs	
Benzene	76 {C}
1,2-Dibromoethane	0.32 U
Ethyl Benzene	220 {C}
Methyl tert-butyl ether	1.3 U
Toluene	6.3
1,2,4-Trimethylbenzene	380 {C}
1,3,5-Trimethylbenzene	150 {C}
Xylenes (total)	830 J
SVOCs	
Naphthalene	1
Metals	
Lead	18

PB-29-23	3.5-4(ft)
VOCs	
Benzene	30 {C}
1,2-Dibromoethane	0.17 U
Ethyl Benzene	110 {C}
Methyl tert-butyl ether	0.67 U
Toluene	58
1,2,4-Trimethylbenzene	190
1,3,5-Trimethylbenzene	70
Xylenes (total)	450 J
SVOCs	
Naphthalene	1.3
Metals	
Lead	7.46

PB-28-17	2-2.5(ft)
VOCs	
Benzene	0.0041
1,2-Dibromoethane	0.00059 U
Ethyl Benzene	0.00052 J
Methyl tert-butyl ether	0.0023 U
Toluene	0.0012 U
1,2,4-Trimethylbenzene	0.0023 U
1,3,5-Trimethylbenzene	0.0018 J
Xylenes (total)	0.0023 U
SVOCs	
Naphthalene	0.078
Metals	
Lead	19

PB-29-20	1.5-2(ft)
VOCs	
Benzene	1.4 {C}
1,2-Dibromoethane	0.00046 U
Ethyl Benzene	1.1
Methyl tert-butyl ether	0.57
Toluene	0.088
1,2,4-Trimethylbenzene	2.6
1,3,5-Trimethylbenzene	0.7
Xylenes (total)	0.924 J
SVOCs	
Naphthalene	0.9
Metals	
Lead	37.3

PB-28-18	1.5-2(ft)
VOCs	
Benzene	0.003
1,2-Dibromoethane	0.00088 U
Ethyl Benzene	0.0018 U
Methyl tert-butyl ether	0.00044 J
Toluene	0.0017 J
1,2,4-Trimethylbenzene	0.0012 J
1,3,5-Trimethylbenzene	0.0011 J
Xylenes (total)	0.0054 J
SVOCs	
Naphthalene	0.024
Metals	
Lead	313

PB-29-25	4.5-5(ft)
VOCs	
Benzene	2 {C}
1,2-Dibromoethane	0.038 U
Ethyl Benzene	0.71
Methyl tert-butyl ether	0.15 U
Toluene	0.49
1,2,4-Trimethylbenzene	0.63
1,3,5-Trimethylbenzene	0.11 J
Xylenes (total)	0.86 J
SVOCs	
Naphthalene	0.21
Metals	
Lead	63.6

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

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CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 29)

Figure 10c

PB-33-02	3-3.5(ft)
VOCs	
Benzene	**6.6 {C}**
1,2-Dibromoethane	0.062 U
Ethyl Benzene	29
Methyl tert-butyl ether	0.25 U
Toluene	0.53
1,2,4-Trimethylbenzene	51
1,3,5-Trimethylbenzene	16
Xylenes (total)	71.7 J
SVOCs	
Naphthalene	7
Metals	
Lead	9.41

PB-33-03	2-2.5(ft)
VOCs	
Benzene	0.038
1,2-Dibromoethane	0.034 U
Ethyl Benzene	0.22
Methyl tert-butyl ether	0.018 J
Toluene	0.069 U
1,2,4-Trimethylbenzene	5.7
1,3,5-Trimethylbenzene	2.2
Xylenes (total)	1.12 J
SVOCs	
Naphthalene	0.28
Metals	
Lead	6.57

PB-33-04	1-1.5(ft)
VOCs	
Benzene	**12 {C}**
1,2-Dibromoethane	0.14 U
Ethyl Benzene	**91 {C}**
Methyl tert-butyl ether	0.57 U
Toluene	0.52
1,2,4-Trimethylbenzene	130
1,3,5-Trimethylbenzene	43
Xylenes (total)	329 J
SVOCs	
Naphthalene	8.6
Metals	
Lead	13

PB-33-24	14.5-15(ft)
VOCs	
Benzene	**4.3 {C}**
1,2-Dibromoethane	0.03 U
Ethyl Benzene	0.1
Methyl tert-butyl ether	0.11 J
Toluene	0.5
1,2,4-Trimethylbenzene	0.062 J
1,3,5-Trimethylbenzene	0.014 J
Xylenes (total)	0.258 J
SVOCs	
Naphthalene	--
Metals	
Lead	--

PB-33-05	2-2.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	**46 {C} / 30 {C}**	**5.2 {C}**	**6.6 {C}**
1,2-Dibromoethane	0.16 U / 0.14 U	0.053 U	0.06 U
Ethyl Benzene	**83 {C} / 55**	21	5.8
Methyl tert-butyl ether	0.53 J / 0.39 J	0.21 U	0.62
Toluene	**180 {C} / 150 {C}**	0.19	0.27
1,2,4-Trimethylbenzene	180 / 150	44	9.5
1,3,5-Trimethylbenzene	53 / 36	17	2.8
Xylenes (total)	410 J / 310 J	36.1 J	26.6 J
SVOCs			
Naphthalene	15 / 9.8	4.2	1
Metals			
Lead	13 / 8.92	--	--

PB-33-06	1-1.5(ft)
VOCs	
Benzene	0.026 U
1,2-Dibromoethane	0.026 U
Ethyl Benzene	0.051 U
Methyl tert-butyl ether	0.1 U
Toluene	0.051 U
1,2,4-Trimethylbenzene	0.1 U
1,3,5-Trimethylbenzene	0.1 U
Xylenes (total)	0.1 U
SVOCs	
Naphthalene	0.078 J
Metals	
Lead	6.69

PB-33-07	3-3.5(ft)
VOCs	
Benzene	0.14
1,2-Dibromoethane	0.00045 U
Ethyl Benzene	0.056
Methyl tert-butyl ether	0.0074
Toluene	0.0009 U
1,2,4-Trimethylbenzene	0.0018
1,3,5-Trimethylbenzene	0.01
Xylenes (total)	0.0605 J
SVOCs	
Naphthalene	0.0019 J
Metals	
Lead	8.06

PB-33-08	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.026 U
Ethyl Benzene	0.56
Methyl tert-butyl ether	0.1 U
Toluene	0.052 U
1,2,4-Trimethylbenzene	0.044 J
1,3,5-Trimethylbenzene	0.1 U
Xylenes (total)	0.08 J
SVOCs	
Naphthalene	0.14 J
Metals	
Lead	8.52

PB33-02	1-1(ft)	3.5-3.5(ft)
VOCs		
Benzene	0.3 J	**0.96 {C}**
1,2-Dibromoethane	--	--
Ethyl Benzene	0.089 J	2.4
Methyl tert-butyl ether	0.035 J	0.16 J
Toluene	0.15 J	0.056 J
1,2,4-Trimethylbenzene	0.084 J	0.11 J
1,3,5-Trimethylbenzene	0.048 J	0.45
Xylenes (total)	0.62	0.43
SVOCs		
Naphthalene	0.048 J	0.17 J
Metals		
Lead	--	--

PB-33-01	4.5-5(ft)
VOCs	
Benzene	**1.2 {C}**
1,2-Dibromoethane	0.061 U
Ethyl Benzene	0.17
Methyl tert-butyl ether	0.093 J
Toluene	0.12 U
1,2,4-Trimethylbenzene	0.061 J
1,3,5-Trimethylbenzene	0.24 U
Xylenes (total)	0.26 J
SVOCs	
Naphthalene	0.34 J
Metals	
Lead	5.89

PB-33-11	4-4.5(ft)
VOCs	
Benzene	**12 {C}**
1,2-Dibromoethane	0.028 U
Ethyl Benzene	3.6
Methyl tert-butyl ether	**2.6 {C}**
Toluene	7
1,2,4-Trimethylbenzene	34
1,3,5-Trimethylbenzene	12
Xylenes (total)	22.5 J
SVOCs	
Naphthalene	4.3
Metals	
Lead	7.51

PB-33-09	4-4.5(ft)
VOCs	
Benzene	**7.9 {C}**
1,2-Dibromoethane	0.13 U
Ethyl Benzene	53
Methyl tert-butyl ether	0.53 U
Toluene	2.7
1,2,4-Trimethylbenzene	67
1,3,5-Trimethylbenzene	26
Xylenes (total)	208 J
SVOCs	
Naphthalene	7.4
Metals	
Lead	10.2

PB-33-10	3-3.5(ft)
VOCs	
Benzene	0.028 U
1,2-Dibromoethane	0.028 U
Ethyl Benzene	0.056 U
Methyl tert-butyl ether	0.11 U
Toluene	0.056 U
1,2,4-Trimethylbenzene	0.11 U
1,3,5-Trimethylbenzene	0.11 U
Xylenes (total)	0.11 U
SVOCs	
Naphthalene	0.056 J
Metals	
Lead	13

PB-33-12	2.5-3(ft)
VOCs	
Benzene	**2.7 {C}**
1,2-Dibromoethane	0.027 U
Ethyl Benzene	2.4
Methyl tert-butyl ether	0.56
Toluene	0.036 J
1,2,4-Trimethylbenzene	4.9
1,3,5-Trimethylbenzene	1.6
Xylenes (total)	1.94 J
SVOCs	
Naphthalene	0.72
Metals	
Lead	9.05

PB-33-01	4.5-5(ft)
VOCs	
Benzene	**1.2 {C}**
1,2-Dibromoethane	0.061 U
Ethyl Benzene	0.17
Methyl tert-butyl ether	0.093 J
Toluene	0.12 U
1,2,4-Trimethylbenzene	0.061 J
1,3,5-Trimethylbenzene	0.24 U
Xylenes (total)	0.26 J
SVOCs	
Naphthalene	0.34 J
Metals	
Lead	5.89

PB-33-16	3-3.5(ft)
VOCs	
Benzene	0.13
1,2-Dibromoethane	0.034 U
Ethyl Benzene	0.028 J
Methyl tert-butyl ether	0.14 U
Toluene	0.068 U
1,2,4-Trimethylbenzene	0.14 U
1,3,5-Trimethylbenzene	0.021 J
Xylenes (total)	0.099 J
SVOCs	
Naphthalene	0.047 J
Metals	
Lead	46.7

PB-33-18	3.5-4(ft)
VOCs	
Benzene	**18 {C}**
1,2-Dibromoethane	0.27 U
Ethyl Benzene	7.2
Methyl tert-butyl ether	1.1 U
Toluene	0.54 U
1,2,4-Trimethylbenzene	29
1,3,5-Trimethylbenzene	1.7
Xylenes (total)	2.37 J
SVOCs	
Naphthalene	8
Metals	
Lead	9.81

PB-33-17	1.5-2(ft)
VOCs	
Benzene	0.00045 U
1,2-Dibromoethane	0.00045 U
Ethyl Benzene	0.0009 U
Methyl tert-butyl ether	0.00041 J
Toluene	0.0009 U
1,2,4-Trimethylbenzene	0.0018 U
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	0.0018 U
SVOCs	
Naphthalene	0.0036 U
Metals	
Lead	10

PB-33-04	1-1.5(ft)
VOCs	
Benzene	**12 {C}**
1,2-Dibromoethane	0.14 U
Ethyl Benzene	**91 {C}**
Methyl tert-butyl ether	0.57 U
Toluene	0.52
1,2,4-Trimethylbenzene	130
1,3,5-Trimethylbenzene	43
Xylenes (total)	329 J
SVOCs	
Naphthalene	8.6
Metals	
Lead	13

PB-33-19	1.5-2(ft)
VOCs	
Benzene	0.1
1,2-Dibromoethane	0.033 U
Ethyl Benzene	0.32
Methyl tert-butyl ether	0.13 U
Toluene	1.7
1,2,4-Trimethylbenzene	3.7
1,3,5-Trimethylbenzene	1.1
Xylenes (total)	11.2 J
SVOCs	
Naphthalene	0.087 J
Metals	
Lead	61.3

PB-33-20	3-3.5(ft)
VOCs	
Benzene	0.0006
1,2-Dibromoethane	0.0006 U
Ethyl Benzene	0.0012 U
Methyl tert-butyl ether	0.0024 U
Toluene	0.0012 U
1,2,4-Trimethylbenzene	0.0024 U
1,3,5-Trimethylbenzene	0.0024 U
Xylenes (total)	0.0024 U
SVOCs	
Naphthalene	0.0048 U
Metals	
Lead	372

PB-33-21	4.5-5(ft)
VOCs	
Benzene	0.00019 J
1,2-Dibromoethane	0.00045 U
Ethyl Benzene	0.0009 U
Methyl tert-butyl ether	0.0018 U
Toluene	0.0009 U
1,2,4-Trimethylbenzene	0.00036 J
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	0.0018 U
SVOCs	
Naphthalene	0.0007 J
Metals	
Lead	36.6

PB-33-22	2.5-3(ft)
VOCs	
Benzene	0.0005 J
1,2-Dibromoethane	0.00058 U
Ethyl Benzene	0.00022 J
Methyl tert-butyl ether	0.00025 J
Toluene	0.0012 U
1,2,4-Trimethylbenzene	0.0023 U
1,3,5-Trimethylbenzene	0.0023 U
Xylenes (total)	0.0023 U
SVOCs	
Naphthalene	0.0046 U
Metals	
Lead	8.82

PB-33-14	3-3.5(ft)
VOCs	
Benzene	0.0011
1,2-Dibromoethane	0.00047 U
Ethyl Benzene	0.00019 J
Methyl tert-butyl ether	0.00066 J
Toluene	0.00084 J
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.00029 J
Xylenes (total)	0.00168 J
SVOCs	
Naphthalene	0.01
Metals	
Lead	8.41

PB-33-15	4-4.5(ft)
VOCs	
Benzene	0.0005 U
1,2-Dibromoethane	0.0005 U
Ethyl Benzene	0.0055
Methyl tert-butyl ether	0.002 U
Toluene	0.00083 J
1,2,4-Trimethylbenzene	0.015
1,3,5-Trimethylbenzene	0.0048
Xylenes (total)	0.0235 J
SVOCs	
Naphthalene	0.0043
Metals	
Lead	10

PB33-03	1-1(ft)	4-4(ft)
VOCs		
Benzene	0.02 U	0.0004 J
1,2-Dibromoethane	--	--
Ethyl Benzene	0.02 U	0.0004 U
Methyl tert-butyl ether	0.025 U	0.0005 U
Toluene	0.015 U	0.0003 U
1,2,4-Trimethylbenzene	0.03 U	0.0006 U
1,3,5-Trimethylbenzene	0.025 U	0.0005 U
Xylenes (total)	0.045 U	0.0008 U
SVOCs		
Naphthalene	0.037 J	0.0006 U
Metals		
Lead	--	--

PB-33-13	0.5-1(ft)
VOCs	
Benzene	0.00053
1,2-Dibromoethane	0.00043 U
Ethyl Benzene	0.00021 J
Methyl tert-butyl ether	0.0023
Toluene	0.00086 U
1,2,4-Trimethylbenzene	0.0017 U
1,3,5-Trimethylbenzene	0.0017 U
Xylenes (total)	0.0017 U
SVOCs	
Naphthalene	0.0007 J
Metals	
Lead	6.33

PB-33-23	4.5-5(ft)
VOCs	
Benzene	0.2
1,2-Dibromoethane	0.071 U
Ethyl Benzene	0.87
Methyl tert-butyl ether	0.28 U
Toluene	0.14 U
1,2,4-Trimethylbenzene	62
1,3,5-Trimethylbenzene	2.4
Xylenes (total)	10.1 J
SVOCs	
Naphthalene	7.3
Metals	
Lead	8.86

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

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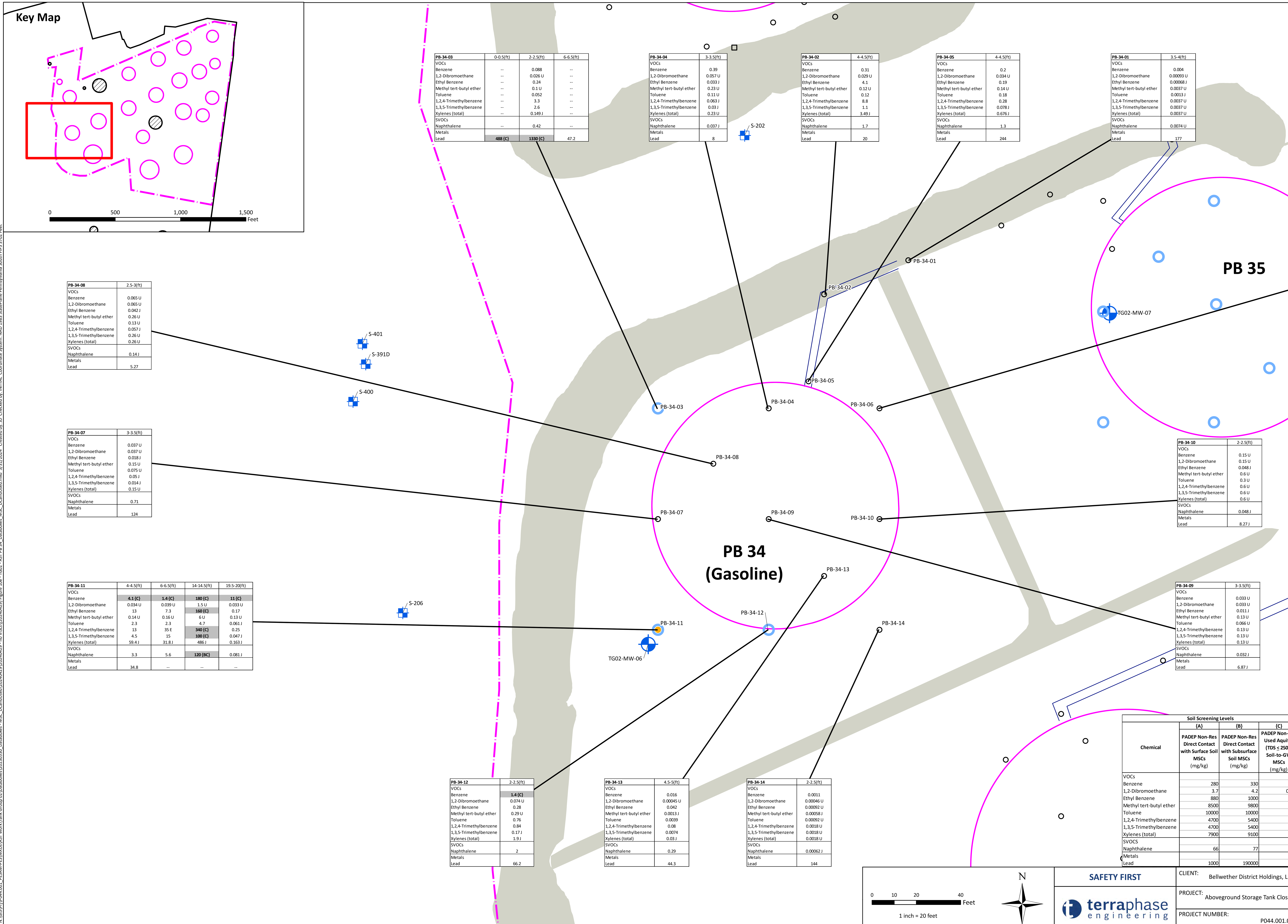
CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 33)

Figure 10d

File: N:\GIS\Pr\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\Databases\20230530_Databases - MSC_DCandUsed\20240429\20240429 - no VISL\(20240429) Figure 10d - TG02 - AST PB 33_Databases_MSC_DCandUsed.mxd 5/31/2024 Created by: JD Checked by: INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



PB-34-03	0-0.5(ft)	2-2.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	0.088	--
1,2-Dibromoethane	--	0.026 U	--
Ethyl Benzene	--	0.24	--
Methyl tert-butyl ether	--	0.1 U	--
Toluene	--	0.052	--
1,2,4-Trimethylbenzene	--	3.3	--
1,3,5-Trimethylbenzene	--	2.6	--
Xylenes (total)	--	0.149 J	--
SVOCs			
Naphthalene	--	0.42	--
Metals			
Lead	**488 {C}**	**1330 {C}**	47.2

PB-34-04	3-3.5(ft)
VOCs	
Benzene	0.39
1,2-Dibromoethane	0.057 U
Ethyl Benzene	0.033 J
Methyl tert-butyl ether	0.23 U
Toluene	0.11 U
1,2,4-Trimethylbenzene	0.063 J
1,3,5-Trimethylbenzene	0.03 J
Xylenes (total)	0.23 U
SVOCs	
Naphthalene	0.037 J
Metals	
Lead	8

PB-34-02	4-4.5(ft)
VOCs	
Benzene	0.31
1,2-Dibromoethane	0.029 U
Ethyl Benzene	4.1
Methyl tert-butyl ether	0.12 U
Toluene	0.12
1,2,4-Trimethylbenzene	8.8
1,3,5-Trimethylbenzene	1.1
Xylenes (total)	3.49 J
SVOCs	
Naphthalene	1.7
Metals	
Lead	20

PB-34-05	4-4.5(ft)
VOCs	
Benzene	0.2
1,2-Dibromoethane	0.034 U
Ethyl Benzene	0.19
Methyl tert-butyl ether	0.14 U
Toluene	0.18
1,2,4-Trimethylbenzene	0.28
1,3,5-Trimethylbenzene	0.078 J
Xylenes (total)	0.676 J
SVOCs	
Naphthalene	1.3
Metals	
Lead	244

PB-34-01	3.5-4(ft)
VOCs	
Benzene	0.004
1,2-Dibromoethane	0.00093 U
Ethyl Benzene	0.00068 J
Methyl tert-butyl ether	0.0037 U
Toluene	0.0013 J
1,2,4-Trimethylbenzene	0.0037 U
1,3,5-Trimethylbenzene	0.0037 U
Xylenes (total)	0.0037 U
SVOCs	
Naphthalene	0.0074 U
Metals	
Lead	177

PB-34-06	3-3.5(ft)
VOCs	
Benzene	0.029 U
1,2-Dibromoethane	0.029 U
Ethyl Benzene	0.059 U
Methyl tert-butyl ether	0.12 U
Toluene	0.059 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	0.12 U
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	6.84

PB-34-08	2.5-3(ft)
VOCs	
Benzene	0.065 U
1,2-Dibromoethane	0.065 U
Ethyl Benzene	0.042 J
Methyl tert-butyl ether	0.26 U
Toluene	0.13 U
1,2,4-Trimethylbenzene	0.057 J
1,3,5-Trimethylbenzene	0.26 U
Xylenes (total)	0.26 U
SVOCs	
Naphthalene	0.14 J
Metals	
Lead	5.27

PB-34-07	3-3.5(ft)
VOCs	
Benzene	0.037 U
1,2-Dibromoethane	0.037 U
Ethyl Benzene	0.018 J
Methyl tert-butyl ether	0.15 U
Toluene	0.075 U
1,2,4-Trimethylbenzene	0.05 J
1,3,5-Trimethylbenzene	0.014 J
Xylenes (total)	0.15 U
SVOCs	
Naphthalene	0.71
Metals	
Lead	124

PB-34-10	2-2.5(ft)
VOCs	
Benzene	0.15 U
1,2-Dibromoethane	0.15 U
Ethyl Benzene	0.048 J
Methyl tert-butyl ether	0.6 U
Toluene	0.3 U
1,2,4-Trimethylbenzene	0.6 U
1,3,5-Trimethylbenzene	0.6 U
Xylenes (total)	0.6 U
SVOCs	
Naphthalene	0.048 J
Metals	
Lead	8.27 J

PB-34-11	4-4.5(ft)	6-6.5(ft)	14-14.5(ft)	19.5-20(ft)
VOCs				
Benzene	**4.1 {C}**	**1.4 {C}**	**180 {C}**	**11 {C}**
1,2-Dibromoethane	0.034 U	0.039 U	1.5 U	0.033 U
Ethyl Benzene	13	7.3	**160 {C}**	0.17
Methyl tert-butyl ether	0.14 U	0.16 U	6 U	0.13 U
Toluene	2.3	2.3	4.7	0.061 J
1,2,4-Trimethylbenzene	13	35 E	**340 {C}**	0.25
1,3,5-Trimethylbenzene	4.5	15	**100 {C}**	0.047 J
Xylenes (total)	59.4 J	31.8 J	486 J	0.163 J
SVOCs				
Naphthalene	3.3	5.6	**120 {BC}**	0.081 J
Metals				
Lead	34.8	--	--	--

PB-34-09	3-3.5(ft)
VOCs	
Benzene	0.033 U
1,2-Dibromoethane	0.033 U
Ethyl Benzene	0.011 J
Methyl tert-butyl ether	0.13 U
Toluene	0.066 U
1,2,4-Trimethylbenzene	0.13 U
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	0.13 U
SVOCs	
Naphthalene	0.032 J
Metals	
Lead	6.87 J

PB-34-12	2-2.5(ft)
VOCs	
Benzene	**1.4 {C}**
1,2-Dibromoethane	0.074 U
Ethyl Benzene	0.28
Methyl tert-butyl ether	0.29 U
Toluene	0.76
1,2,4-Trimethylbenzene	0.84
1,3,5-Trimethylbenzene	0.17 J
Xylenes (total)	1.9 J
SVOCs	
Naphthalene	2
Metals	
Lead	66.2

PB-34-13	4.5-5(ft)
VOCs	
Benzene	0.016
1,2-Dibromoethane	0.00045 U
Ethyl Benzene	0.042
Methyl tert-butyl ether	0.0013 J
Toluene	0.0039
1,2,4-Trimethylbenzene	0.08
1,3,5-Trimethylbenzene	0.0074
Xylenes (total)	0.03 J
SVOCs	
Naphthalene	0.29
Metals	
Lead	44.3

PB-34-14	2-2.5(ft)
VOCs	
Benzene	0.0011
1,2-Dibromoethane	0.00046 U
Ethyl Benzene	0.00092 U
Methyl tert-butyl ether	0.00058 J
Toluene	0.00092 U
1,2,4-Trimethylbenzene	0.0018 U
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	0.0018 U
SVOCs	
Naphthalene	0.00062 J
Metals	
Lead	144

Legend

Property Boundary
Tank Group 02 Boundary
Previously Closed AST
Berm Boundary
Concrete Containment Wall
Associated Piping
BDH Monitoring Well
Evergreen Monitoring Well

BDH Soil Sample Location
Exceeds S-GW MSC
Exceeds DC MSC
No Exceedances

Evergreen Soil Sample Location
No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels			
	{A}	{B}	{C}
Chemical	PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

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terraphase engineering

CLIENT: Bellwether District Holdings, LLC

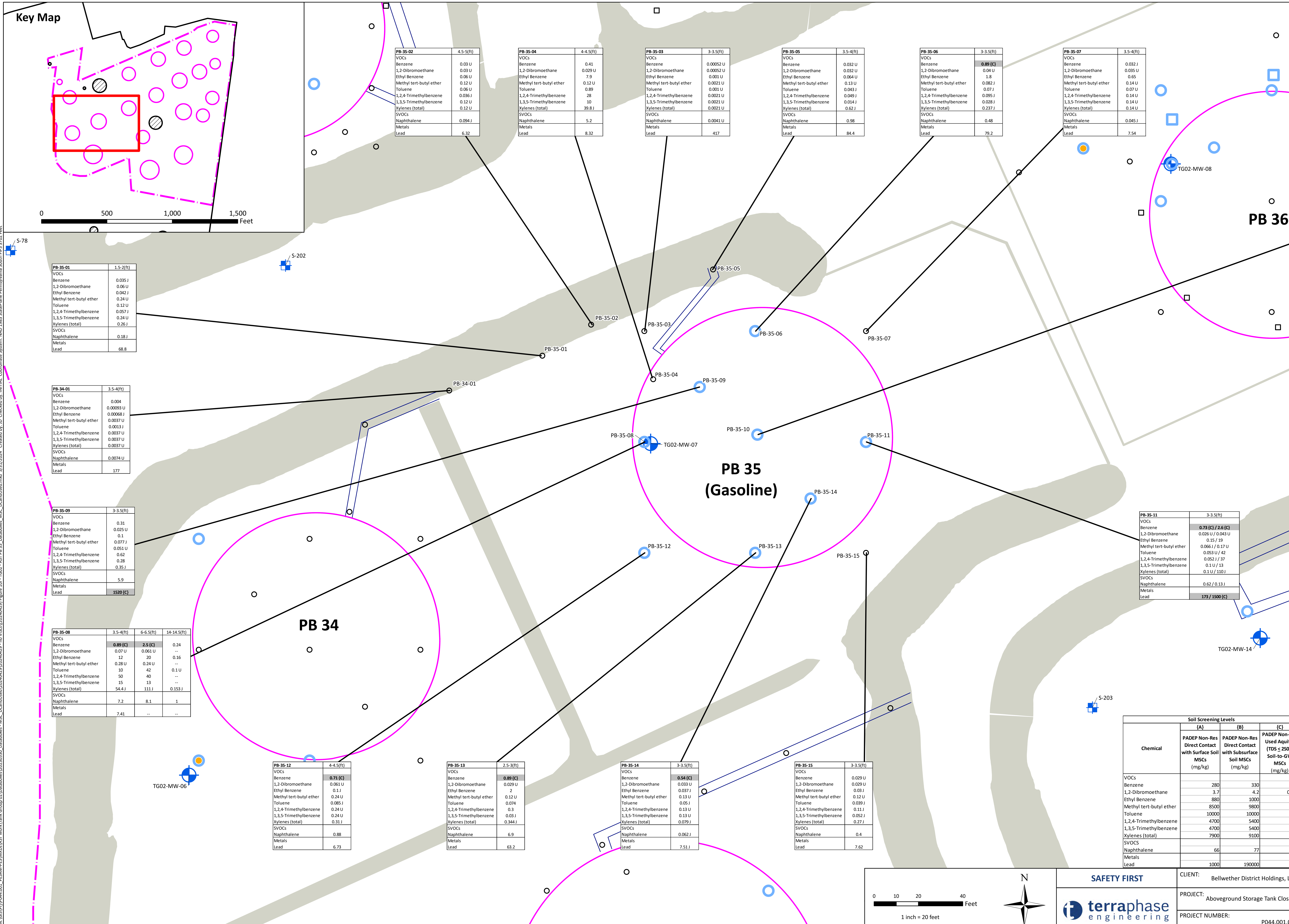
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 34)

Figure 10e

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\Databoxes\20230530_Databoxes - MSC_DCandUsed\20240429\20240429 - no VISLs\(20240429) Figure 10e - TG02 - AST PB 34_Databoxes_MSC_DCandUsed.mxd 5/31/2024 Created by: JD Checked by: INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



Sample	PB-35-01	PB-35-02	PB-35-03	PB-35-04	PB-35-05	PB-35-06	PB-35-07
Depth	1.5-2(ft)	4.5-5(ft)	3-3.5(ft)	4-4.5(ft)	3.5-4(ft)	3-3.5(ft)	3.5-4(ft)
VOCs							
Benzene	0.035 J	0.03 U	0.00052 U	0.41	0.032 U	**0.89 {C}**	0.032 J
1,2-Dibromoethane	0.06 U	0.03 U	0.00052 U	0.029 U	0.032 U	0.04 U	0.035 U
Ethyl Benzene	0.042 J	0.06 U	0.001 U	7.9	0.064 U	1.8	0.65
Methyl tert-butyl ether	0.24 U	0.12 U	0.0021 U	0.12 U	0.13 U	0.082 J	0.14 U
Toluene	0.12 U	0.06 U	0.001 U	0.89	0.043 J	0.07 J	0.07 U
1,2,4-Trimethylbenzene	0.057 J	0.036 J	0.0021 U	28	0.049 J	0.095 J	0.14 U
1,3,5-Trimethylbenzene	0.24 U	0.12 U	0.0021 U	10	0.014 J	0.028 J	0.14 U
Xylenes (total)	0.26 J	0.12 U	0.0021 U	39.8 J	0.62 J	0.237 J	0.14 U
SVOCs							
Naphthalene	0.18 J	0.094 J	0.0041 U	5.2	0.98	0.48	0.045 J
Metals							
Lead	68.8	6.32	417	8.32	84.4	79.2	7.54

Sample	PB-35-08	PB-35-08	PB-35-08	PB-35-09	PB-35-10	PB-35-11
Depth	3.5-4(ft)	6-6.5(ft)	14-14.5(ft)	3-3.5(ft)	3-3.5(ft)	3-3.5(ft)
VOCs						
Benzene	**0.89 {C}**	**2.5 {C}**	0.24	0.31	**1.2 {C}**	**0.73 {C} / 2.6 {C}**
1,2-Dibromoethane	0.07 U	0.061 U	--	0.025 U	0.036 U	0.026 U / 0.043 U
Ethyl Benzene	12	20	0.16	0.1	0.9	0.15 / 19
Methyl tert-butyl ether	0.28 U	0.24 U	--	0.077 J	0.035 J	0.066 J / 0.17 U
Toluene	10	42	0.1 U	0.051 U	0.06 J	0.053 U / 42
1,2,4-Trimethylbenzene	50	40	--	0.62	0.09 J	0.052 J / 37
1,3,5-Trimethylbenzene	15	13	--	0.28	0.028 J	0.1 U / 13
Xylenes (total)	54.4 J	111 J	0.153 J	0.35 J	0.12 J	0.1 U / 110 J
SVOCs						
Naphthalene	7.2	8.1	1	5.9	0.2 U	0.62 / 0.13 J
Metals						
Lead	7.41	--	--	**1520 {C}**	57.6	**173 / 1500 {C}**

Sample	PB-35-12	PB-35-13	PB-35-14	PB-35-15	PB-34-01
Depth	4-4.5(ft)	2.5-3(ft)	3-3.5(ft)	3-3.5(ft)	3.5-4(ft)
VOCs					
Benzene	**0.71 {C}**	**0.89 {C}**	**0.54 {C}**	0.029 U	0.004
1,2-Dibromoethane	0.061 U	0.029 U	0.033 U	0.029 U	0.00093 U
Ethyl Benzene	0.1 J	2	0.037 J	0.03 J	0.00068 J
Methyl tert-butyl ether	0.24 U	0.12 U	0.13 U	0.12 U	0.0037 U
Toluene	0.085 J	0.074	0.05 J	0.039 J	0.0013 J
1,2,4-Trimethylbenzene	0.24 U	0.3	0.13 U	0.11 J	0.0037 U
1,3,5-Trimethylbenzene	0.24 U	0.03 J	0.13 U	0.052 J	0.0037 U
Xylenes (total)	0.31 J	0.344 J	0.079 J	0.27 J	0.0037 U
SVOCs					
Naphthalene	0.88	6.9	0.062 J	0.4	0.0074 U
Metals					
Lead	6.73	63.2	7.51 J	7.62	177

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels			
Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet
N

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terraphase engineering

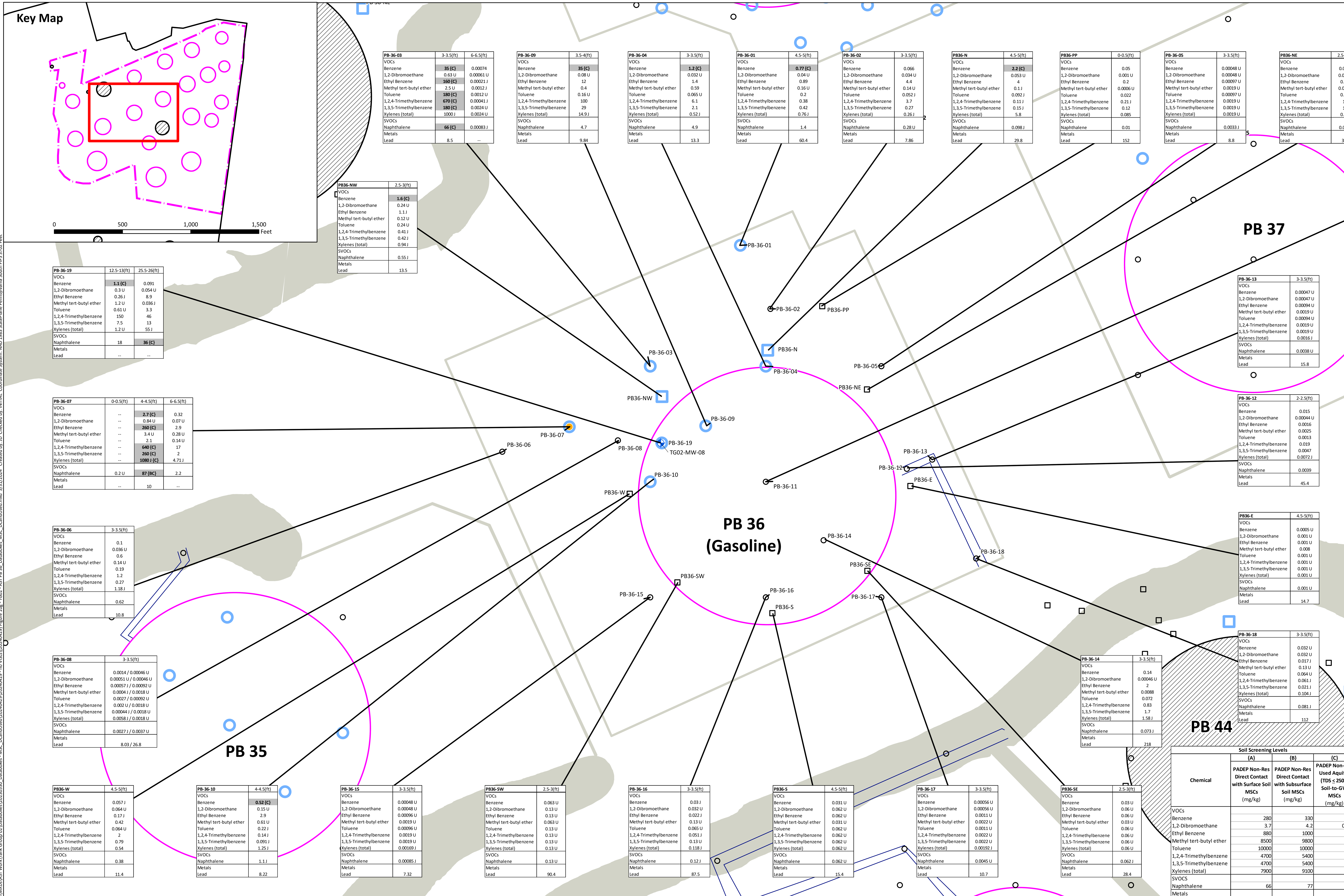
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 35)

Figure 10f



PB-36-03	3-3.5(ft)	6-6.5(ft)
VOCs		
Benzene	35 {C}	0.00074
1,2-Dibromoethane	0.63 U	0.00061 U
Ethyl Benzene	160 {C}	0.00021 J
Methyl tert-butyl ether	2.5 U	0.0012 J
Toluene	180 {C}	0.0012 U
1,2,4-Trimethylbenzene	670 {C}	0.00041 J
1,3,5-Trimethylbenzene	180 {C}	0.0024 U
Xylenes (total)	1000 J	0.0024 U
SVOCs		
Naphthalene	66 {C}	0.00083 J
Metals		
Lead	8.5	--

PB-36-09	3.5-4(ft)
VOCs	
Benzene	35 {C}
1,2-Dibromoethane	0.08 U
Ethyl Benzene	12
Methyl tert-butyl ether	0.4
Toluene	0.16 U
1,2,4-Trimethylbenzene	100
1,3,5-Trimethylbenzene	29
Xylenes (total)	14.9 J
SVOCs	
Naphthalene	4.7
Metals	
Lead	9.84

PB-36-04	3-3.5(ft)
VOCs	
Benzene	1.2 {C}
1,2-Dibromoethane	0.032 U
Ethyl Benzene	1.4
Methyl tert-butyl ether	0.59
Toluene	0.065 U
1,2,4-Trimethylbenzene	6.1
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	0.52 J
SVOCs	
Naphthalene	4.9
Metals	
Lead	13.3

PB-36-01	4.5-5(ft)
VOCs	
Benzene	0.77 {C}
1,2-Dibromoethane	0.04 U
Ethyl Benzene	0.89
Methyl tert-butyl ether	0.16 U
Toluene	0.2
1,2,4-Trimethylbenzene	0.38
1,3,5-Trimethylbenzene	0.42
Xylenes (total)	0.76 J
SVOCs	
Naphthalene	1.4
Metals	
Lead	60.4

PB-36-02	3-3.5(ft)
VOCs	
Benzene	0.066
1,2-Dibromoethane	0.034 U
Ethyl Benzene	4.4
Methyl tert-butyl ether	0.14 U
Toluene	0.052 J
1,2,4-Trimethylbenzene	3.7
1,3,5-Trimethylbenzene	0.27
Xylenes (total)	0.26 J
SVOCs	
Naphthalene	0.28 U
Metals	
Lead	7.86

PB36-N	4.5-5(ft)
VOCs	
Benzene	2.2 {C}
1,2-Dibromoethane	0.053 U
Ethyl Benzene	4
Methyl tert-butyl ether	0.1 J
Toluene	0.092 J
1,2,4-Trimethylbenzene	0.11 J
1,3,5-Trimethylbenzene	0.15 J
Xylenes (total)	5.8
SVOCs	
Naphthalene	0.098 J
Metals	
Lead	29.8

PB36-PP	0-0.5(ft)
VOCs	
Benzene	0.05
1,2-Dibromoethane	0.001 U
Ethyl Benzene	0.2
Methyl tert-butyl ether	0.0006 U
Toluene	0.022
1,2,4-Trimethylbenzene	0.21 J
1,3,5-Trimethylbenzene	0.12
Xylenes (total)	0.085
SVOCs	
Naphthalene	0.01
Metals	
Lead	152

PB-36-05	3-3.5(ft)
VOCs	
Benzene	0.00048 U
1,2-Dibromoethane	0.00048 U
Ethyl Benzene	0.00097 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00097 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	0.0019 U
SVOCs	
Naphthalene	0.0033 J
Metals	
Lead	8.8

PB36-NE	2.5-3(ft)
VOCs	
Benzene	0.057 J
1,2-Dibromoethane	0.062 U
Ethyl Benzene	0.14 J
Methyl tert-butyl ether	0.031 U
Toluene	0.11 J
1,2,4-Trimethylbenzene	1.7
1,3,5-Trimethylbenzene	1.1
Xylenes (total)	0.29 J
SVOCs	
Naphthalene	0.096 J
Metals	
Lead	37.3

PB36-NW	2.5-3(ft)
VOCs	
Benzene	1.6 {C}
1,2-Dibromoethane	0.24 U
Ethyl Benzene	1.1 J
Methyl tert-butyl ether	0.12 U
Toluene	0.24 U
1,2,4-Trimethylbenzene	0.41 J
1,3,5-Trimethylbenzene	0.42 J
Xylenes (total)	0.94 J
SVOCs	
Naphthalene	0.55 J
Metals	
Lead	13.5

PB-36-19	12.5-13(ft)	25.5-26(ft)
VOCs		
Benzene	1.1 {C}	0.091
1,2-Dibromoethane	0.3 U	0.054 U
Ethyl Benzene	0.26 J	8.9
Methyl tert-butyl ether	1.2 U	0.036 J
Toluene	0.61 U	3.3
1,2,4-Trimethylbenzene	150	46
1,3,5-Trimethylbenzene	7.5	13
Xylenes (total)	1.2 U	55 J
SVOCs		
Naphthalene	18	36 {C}
Metals		
Lead	--	--

PB-36-07	0-0.5(ft)	4-4.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	2.7 {C}	0.32
1,2-Dibromoethane	--	0.84 U	0.07 U
Ethyl Benzene	--	260 {C}	2.9
Methyl tert-butyl ether	--	3.4 U	0.28 U
Toluene	--	2.1	0.14 U
1,2,4-Trimethylbenzene	--	640 {C}	17
1,3,5-Trimethylbenzene	--	260 {C}	2
Xylenes (total)	--	1080 J {C}	4.71 J
SVOCs			
Naphthalene	0.2 U	87 {BC}	2.2
Metals			
Lead	--	10	--

PB-36-06	3-3.5(ft)
VOCs	
Benzene	0.1
1,2-Dibromoethane	0.036 U
Ethyl Benzene	0.6
Methyl tert-butyl ether	0.14 U
Toluene	0.19
1,2,4-Trimethylbenzene	1.2
1,3,5-Trimethylbenzene	0.27
Xylenes (total)	1.18 J
SVOCs	
Naphthalene	0.62
Metals	
Lead	10.8

PB-36-08	3-3.5(ft)
VOCs	
Benzene	0.0014 / 0.00046 U
1,2-Dibromoethane	0.00051 U / 0.00046 U
Ethyl Benzene	0.00057 J / 0.00092 U
Methyl tert-butyl ether	0.0004 J / 0.0018 U
Toluene	0.0027 / 0.00092 U
1,2,4-Trimethylbenzene	0.002 U / 0.0018 U
1,3,5-Trimethylbenzene	0.00044 J / 0.0018 U
Xylenes (total)	0.0058 J / 0.0018 U
SVOCs	
Naphthalene	0.0027 J / 0.0037 U
Metals	
Lead	8.03 / 26.8

PB36-W	4.5-5(ft)
VOCs	
Benzene	0.057 J
1,2-Dibromoethane	0.064 U
Ethyl Benzene	0.17 J
Methyl tert-butyl ether	0.42
Toluene	0.064 U
1,2,4-Trimethylbenzene	2
1,3,5-Trimethylbenzene	0.79
Xylenes (total)	0.54
SVOCs	
Naphthalene	0.38
Metals	
Lead	11.4

PB-36-10	4-4.5(ft)
VOCs	
Benzene	0.52 {C}
1,2-Dibromoethane	0.15 U
Ethyl Benzene	2.9
Methyl tert-butyl ether	0.61 U
Toluene	0.22 J
1,2,4-Trimethylbenzene	0.14 J
1,3,5-Trimethylbenzene	0.091 J
Xylenes (total)	1.25 J
SVOCs	
Naphthalene	1.1 J
Metals	
Lead	8.22

PB-36-15	3-3.5(ft)
VOCs	
Benzene	0.00048 U
1,2-Dibromoethane	0.00048 U
Ethyl Benzene	0.00096 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00096 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	0.00169 J
SVOCs	
Naphthalene	0.00085 J
Metals	
Lead	7.32

PB36-SW	2.5-3(ft)
VOCs	
Benzene	0.063 U
1,2-Dibromoethane	0.13 U
Ethyl Benzene	0.13 U
Methyl tert-butyl ether	0.063 U
Toluene	0.13 U
1,2,4-Trimethylbenzene	0.13 U
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	0.13 U
SVOCs	
Naphthalene	0.13 U
Metals	
Lead	90.4

PB-36-16	3-3.5(ft)
VOCs	
Benzene	0.03 J
1,2-Dibromoethane	0.032 U
Ethyl Benzene	0.022 J
Methyl tert-butyl ether	0.13 U
Toluene	0.065 U
1,2,4-Trimethylbenzene	0.051 J
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	0.118 J
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	87.5

PB36-S	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	0.062 U
Ethyl Benzene	0.062 U
Methyl tert-butyl ether	0.031 U
Toluene	0.062 U
1,2,4-Trimethylbenzene	0.062 U
1,3,5-Trimethylbenzene	0.062 U
Xylenes (total)	0.062 U
SVOCs	
Naphthalene	0.062 U
Metals	
Lead	15.4

PB-36-17	3-3.5(ft)
VOCs	
Benzene	0.00056 U
1,2-Dibromoethane	0.00056 U
Ethyl Benzene	0.0011 U
Methyl tert-butyl ether	0.0022 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.0022 U
1,3,5-Trimethylbenzene	0.0022 U
Xylenes (total)	0.00192 J
SVOCs	
Naphthalene	0.0045 U
Metals	
Lead	10.7

PB36-SE	2.5-3(ft)
VOCs	
Benzene	0.03 U
1,2-Dibromoethane	0.06 U
Ethyl Benzene	0.06 U
Methyl tert-butyl ether	0.03 U
Toluene	0.06 U
1,2,4-Trimethylbenzene	0.06 U
1,3,5-Trimethylbenzene	0.06 U
Xylenes (total)	0.06 U
SVOCs	
Naphthalene	0.062 J
Metals	
Lead	28.4

PB-36-11	3-3.5(ft)
VOCs	
Benzene	0.019 J
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.67
Methyl tert-butyl ether	0.03 J
Toluene	0.061 U
1,2,4-Trimethylbenzene	19
1,3,5-Trimethylbenzene	8.8
Xylenes (total)	1.33 J
SVOCs	
Naphthalene	1.4
Metals	
Lead	8.57

PB-36-13	3-3.5(ft)
VOCs	
Benzene	0.00047 U
1,2-Dibromoethane	0.00047 U
Ethyl Benzene	0.00094 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00094 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	0.0016 J
SVOCs	
Naphthalene	0.0038 U
Metals	
Lead	15.8

PB-36-12	2-2.5(ft)
VOCs	
Benzene	0.015
1,2-Dibromoethane	0.00044 U
Ethyl Benzene	0.0016
Methyl tert-butyl ether	0.0025
Toluene	0.0013
1,2,4-Trimethylbenzene	0.019
1,3,5-Trimethylbenzene	0.0047
Xylenes (total)	0.0072 J
SVOCs	
Naphthalene	0.0039
Metals	
Lead	45.4

PB36-E	4.5-5(ft)
VOCs	
Benzene	0.0005 U
1,2-Dibromoethane	0.001 U
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.008
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.001 U
1,3,5-Trimethylbenzene	0.001 U
Xylenes (total)	0.001 U
SVOCs	
Naphthalene	0.001 U
Metals	
Lead	14.7

PB-36-18	3-3.5(ft)
VOCs	
Benzene	0.032 U
1,2-Dibromoethane	0.032 U
Ethyl Benzene	0.017 J
Methyl tert-butyl ether	0.13 U
Toluene	0.064 U
1,2,4-Trimethylbenzene	0.061 J
1,3,5-Trimethylbenzene	0.021 J
Xylenes (total)	0.104 J
SVOCs	
Naphthalene	0.081 J
Metals	
Lead	112

PB-36-14	3-3.5(ft)
VOCs	
Benzene	0.14
1,2-Dibromoethane	0.00046 U
Ethyl Benzene	2
Methyl tert-butyl ether	0.0088
Toluene	0.072
1,2,4-Trimethylbenzene	0.83
1,3,5-Trimethylbenzene	1.7
Xylenes (total)	1.58 J
SVOCs	
Naphthalene	0.073 J
Metals	
Lead	218

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCs			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

0 10 20 40 Feet
1 inch = 20 feet

N

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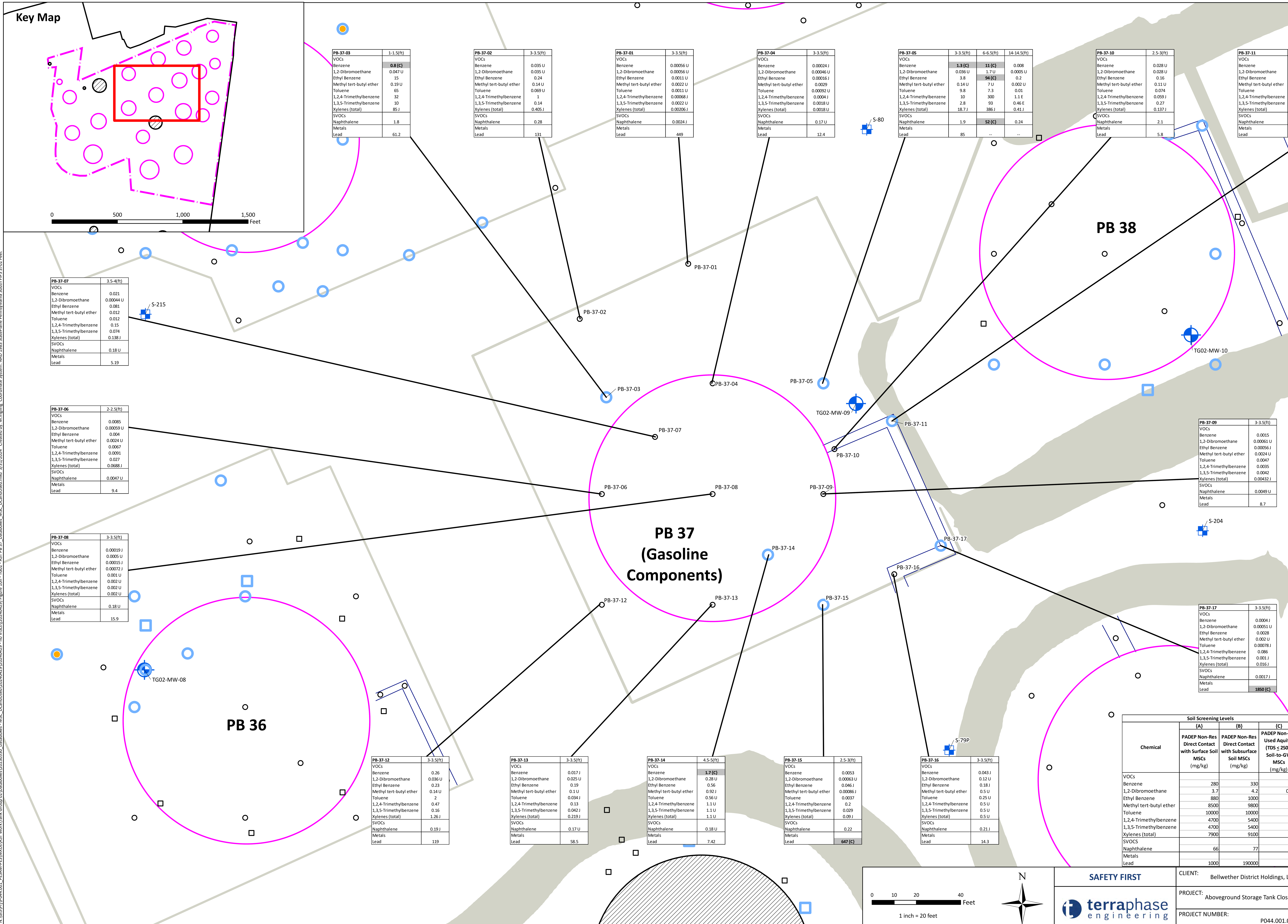
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 36)

Figure 10g



PB-37-03	1-1.5(ft)
VOCs	
Benzene	0.8 {C}
1,2-Dibromoethane	0.047 U
Ethyl Benzene	15
Methyl tert-butyl ether	0.19 U
Toluene	65
1,2,4-Trimethylbenzene	32
1,3,5-Trimethylbenzene	10
Xylenes (total)	85 J
SVOCs	
Naphthalene	1.8
Metals	
Lead	61.2

PB-37-02	3-3.5(ft)
VOCs	
Benzene	0.035 U
1,2-Dibromoethane	0.035 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.14 U
Toluene	0.069 U
1,2,4-Trimethylbenzene	1
1,3,5-Trimethylbenzene	0.14
Xylenes (total)	0.405 J
SVOCs	
Naphthalene	0.28
Metals	
Lead	131

PB-37-01	3-3.5(ft)
VOCs	
Benzene	0.00056 U
1,2-Dibromoethane	0.00056 U
Ethyl Benzene	0.0011 U
Methyl tert-butyl ether	0.0022 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.00068 J
1,3,5-Trimethylbenzene	0.0022 U
Xylenes (total)	0.00206 J
SVOCs	
Naphthalene	0.0024 J
Metals	
Lead	449

PB-37-04	3-3.5(ft)
VOCs	
Benzene	0.00024 J
1,2-Dibromoethane	0.00046 U
Ethyl Benzene	0.00016 J
Methyl tert-butyl ether	0.0029
Toluene	0.00092 U
1,2,4-Trimethylbenzene	0.0004 J
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	0.0018 U
SVOCs	
Naphthalene	0.17 U
Metals	
Lead	12.4

PB-37-05	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	1.3 {C}	11 {C}	0.008
1,2-Dibromoethane	0.036 U	1.7 U	0.0005 U
Ethyl Benzene	3.8	94 {C}	0.2
Methyl tert-butyl ether	0.14 U	7 U	0.002 U
Toluene	9.8	7.3	0.01
1,2,4-Trimethylbenzene	10	300	1.1 E
1,3,5-Trimethylbenzene	2.8	93	0.46 E
Xylenes (total)	18.7 J	386 J	0.41 J
SVOCs			
Naphthalene	1.9	52 {C}	0.24
Metals			
Lead	85	--	--

PB-37-10	2.5-3(ft)
VOCs	
Benzene	0.028 U
1,2-Dibromoethane	0.028 U
Ethyl Benzene	0.16
Methyl tert-butyl ether	0.11 U
Toluene	0.074
1,2,4-Trimethylbenzene	0.059 J
1,3,5-Trimethylbenzene	0.27
Xylenes (total)	0.137 J
SVOCs	
Naphthalene	2.1
Metals	
Lead	5.8

PB-37-11	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs				
Benzene	--	0.0006 U	--	--
1,2-Dibromoethane	--	0.0006 U	--	--
Ethyl Benzene	--	0.0012 U	--	--
Methyl tert-butyl ether	--	0.0024 U	--	--
Toluene	--	0.0012 U	--	--
1,2,4-Trimethylbenzene	--	0.0024 U	--	--
1,3,5-Trimethylbenzene	--	0.0024 U	--	--
Xylenes (total)	--	0.0024 U	--	--
SVOCs				
Naphthalene	--	0.0048 U	--	--
Metals				
Lead	161	2740 {C}	854 {C}	52.2

PB-37-07	3.5-4(ft)
VOCs	
Benzene	0.021
1,2-Dibromoethane	0.00044 U
Ethyl Benzene	0.081
Methyl tert-butyl ether	0.012
Toluene	0.012
1,2,4-Trimethylbenzene	0.15
1,3,5-Trimethylbenzene	0.074
Xylenes (total)	0.138 J
SVOCs	
Naphthalene	0.18 U
Metals	
Lead	5.19

PB-37-06	2-2.5(ft)
VOCs	
Benzene	0.0085
1,2-Dibromoethane	0.00059 U
Ethyl Benzene	0.004
Methyl tert-butyl ether	0.0024 U
Toluene	0.0067
1,2,4-Trimethylbenzene	0.0091
1,3,5-Trimethylbenzene	0.027
Xylenes (total)	0.0688 J
SVOCs	
Naphthalene	0.0047 U
Metals	
Lead	9.4

PB-37-08	3-3.5(ft)
VOCs	
Benzene	0.00019 J
1,2-Dibromoethane	0.0005 U
Ethyl Benzene	0.00015 J
Methyl tert-butyl ether	0.00072 J
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	0.002 U
SVOCs	
Naphthalene	0.18 U
Metals	
Lead	15.9

PB-37-09	3-3.5(ft)
VOCs	
Benzene	0.0015
1,2-Dibromoethane	0.00061 U
Ethyl Benzene	0.00056 J
Methyl tert-butyl ether	0.0024 U
Toluene	0.0047
1,2,4-Trimethylbenzene	0.0035
1,3,5-Trimethylbenzene	0.0042
Xylenes (total)	0.00432 J
SVOCs	
Naphthalene	0.0049 U
Metals	
Lead	8.7

PB-37-17	3-3.5(ft)
VOCs	
Benzene	0.0004 J
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.0028
Methyl tert-butyl ether	0.002 U
Toluene	0.00078 J
1,2,4-Trimethylbenzene	0.086
1,3,5-Trimethylbenzene	0.001 J
Xylenes (total)	0.016 J
SVOCs	
Naphthalene	0.0017 J
Metals	
Lead	1850 {C}

PB-37-12	3-3.5(ft)
VOCs	
Benzene	0.26
1,2-Dibromoethane	0.036 U
Ethyl Benzene	0.23
Methyl tert-butyl ether	0.14 U
Toluene	2
1,2,4-Trimethylbenzene	0.47
1,3,5-Trimethylbenzene	0.16
Xylenes (total)	1.26 J
SVOCs	
Naphthalene	0.19 J
Metals	
Lead	119

PB-37-13	3-3.5(ft)
VOCs	
Benzene	0.017 J
1,2-Dibromoethane	0.025 U
Ethyl Benzene	0.19
Methyl tert-butyl ether	0.1 U
Toluene	0.034 J
1,2,4-Trimethylbenzene	0.13
1,3,5-Trimethylbenzene	0.042 J
Xylenes (total)	0.219 J
SVOCs	
Naphthalene	0.17 U
Metals	
Lead	58.5

PB-37-14	4.5-5(ft)
VOCs	
Benzene	1.7 {C}
1,2-Dibromoethane	0.28 U
Ethyl Benzene	0.56
Methyl tert-butyl ether	0.92 J
Toluene	0.56 U
1,2,4-Trimethylbenzene	1.1 U
1,3,5-Trimethylbenzene	1.1 U
Xylenes (total)	1.1 U
SVOCs	
Naphthalene	0.18 U
Metals	
Lead	7.42

PB-37-15	2.5-3(ft)
VOCs	
Benzene	0.0053
1,2-Dibromoethane	0.00063 U
Ethyl Benzene	0.046 J
Methyl tert-butyl ether	0.00086 J
Toluene	0.0037
1,2,4-Trimethylbenzene	0.2
1,3,5-Trimethylbenzene	0.029
Xylenes (total)	0.09 J
SVOCs	
Naphthalene	0.22
Metals	
Lead	647 {C}

PB-37-16	3-3.5(ft)
VOCs	
Benzene	0.043 J
1,2-Dibromoethane	0.12 U
Ethyl Benzene	0.18 J
Methyl tert-butyl ether	0.5 U
Toluene	0.25 U
1,2,4-Trimethylbenzene	0.5 U
1,3,5-Trimethylbenzene	0.5 U
Xylenes (total)	0.5 U
SVOCs	
Naphthalene	0.21 J
Metals	
Lead	14.3

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds DC MSC
- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

0 10 20 40 Feet
1 inch = 20 feet
N

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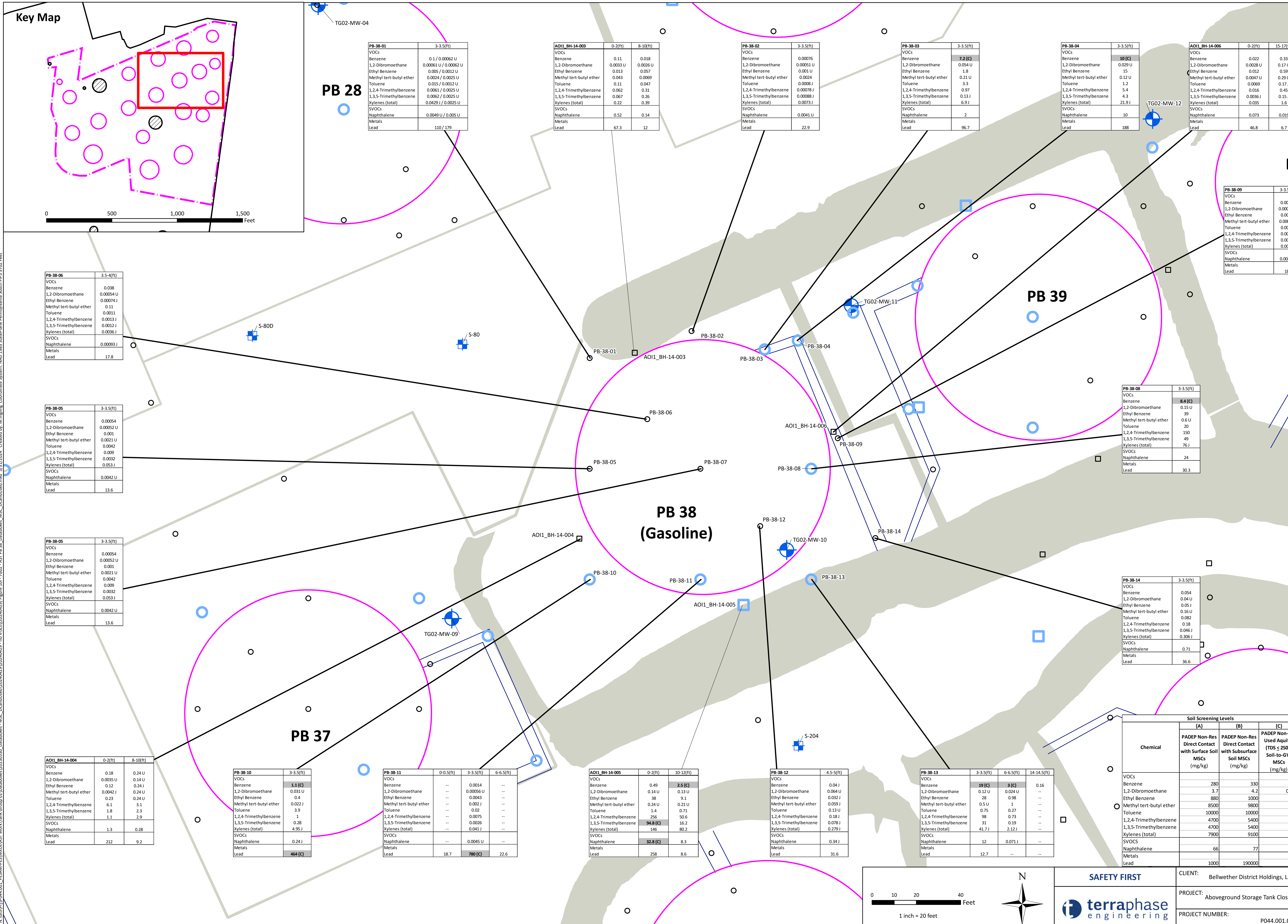
CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 37)

Figure 10h



PB-38-01	3-3.5(ft)
VOCs	
Benzene	0.1 / 0.00062 U
1,2-Dibromoethane	0.00061 U / 0.00062 U
Ethyl Benzene	0.005 / 0.0012 U
Methyl tert-butyl ether	0.0024 / 0.0025 U
Toluene	0.015 / 0.0012 U
1,2,4-Trimethylbenzene	0.0061 / 0.0025 U
1,3,5-Trimethylbenzene	0.0062 / 0.0025 U
Xylenes (total)	0.0429 J / 0.0025 U
SVOCs	
Naphthalene	0.0049 U / 0.005 U
Metals	
Lead	110 / 179

AOI1_BH-14-003	0-2(ft)	8-10(ft)
VOCs		
Benzene	0.11	0.018
1,2-Dibromoethane	0.0033 U	0.0026 U
Ethyl Benzene	0.013	0.057
Methyl tert-butyl ether	0.043	0.0069
Toluene	0.11	0.047
1,2,4-Trimethylbenzene	0.062	0.31
1,3,5-Trimethylbenzene	0.067	0.26
Xylenes (total)	0.22	0.39
SVOCs		
Naphthalene	0.52	0.14
Metals		
Lead	67.3	12

PB-38-02	3-3.5(ft)
VOCs	
Benzene	0.00076
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.0024
Toluene	0.0008 J
1,2,4-Trimethylbenzene	0.00078 J
1,3,5-Trimethylbenzene	0.00088 J
Xylenes (total)	0.0073 J
SVOCs	
Naphthalene	0.0041 U
Metals	
Lead	22.9

PB-38-03	3-3.5(ft)
VOCs	
Benzene	7.2 {C}
1,2-Dibromoethane	0.054 U
Ethyl Benzene	1.8
Methyl tert-butyl ether	0.21 U
Toluene	3.3
1,2,4-Trimethylbenzene	0.97
1,3,5-Trimethylbenzene	0.13 J
Xylenes (total)	6.9 J
SVOCs	
Naphthalene	2
Metals	
Lead	96.7

PB-38-04	3-3.5(ft)
VOCs	
Benzene	10 {C}
1,2-Dibromoethane	0.029 U
Ethyl Benzene	15
Methyl tert-butyl ether	0.12 U
Toluene	1.2
1,2,4-Trimethylbenzene	5.4
1,3,5-Trimethylbenzene	4.3
Xylenes (total)	21.9 J
SVOCs	
Naphthalene	10
Metals	
Lead	188

AOI1_BH-14-006	0-2(ft)	15-17(ft)
VOCs		
Benzene	0.022	0.33
1,2-Dibromoethane	0.0028 U	0.17 U
Ethyl Benzene	0.012	0.59
Methyl tert-butyl ether	0.0047 U	0.29 U
Toluene	0.0069	0.17 J
1,2,4-Trimethylbenzene	0.016	0.45
1,3,5-Trimethylbenzene	0.0036 J	0.15 J
Xylenes (total)	0.035	1.6
SVOCs		
Naphthalene	0.073	0.019
Metals		
Lead	46.8	6.7

PB-38-09	3-3.5(ft)
VOCs	
Benzene	0.0002 J
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.00073 J
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	0.002 U
SVOCs	
Naphthalene	0.0041 U
Metals	
Lead	188

PB-38-06	3.5-4(ft)
VOCs	
Benzene	0.038
1,2-Dibromoethane	0.00054 U
Ethyl Benzene	0.00074 J
Methyl tert-butyl ether	0.11
Toluene	0.0011
1,2,4-Trimethylbenzene	0.0013 J
1,3,5-Trimethylbenzene	0.0012 J
Xylenes (total)	0.0036 J
SVOCs	
Naphthalene	0.00093 J
Metals	
Lead	17.8

PB-38-05	3-3.5(ft)
VOCs	
Benzene	0.00054
1,2-Dibromoethane	0.00052 U
Ethyl Benzene	0.001
Methyl tert-butyl ether	0.0021 U
Toluene	0.0042
1,2,4-Trimethylbenzene	0.009
1,3,5-Trimethylbenzene	0.0032
Xylenes (total)	0.053 J
SVOCs	
Naphthalene	0.0042 U
Metals	
Lead	13.6

PB-38-05	3-3.5(ft)
VOCs	
Benzene	0.00054
1,2-Dibromoethane	0.00052 U
Ethyl Benzene	0.001
Methyl tert-butyl ether	0.0021 U
Toluene	0.0042
1,2,4-Trimethylbenzene	0.009
1,3,5-Trimethylbenzene	0.0032
Xylenes (total)	0.053 J
SVOCs	
Naphthalene	0.0042 U
Metals	
Lead	13.6

PB-38-08	3-3.5(ft)
VOCs	
Benzene	8.4 {C}
1,2-Dibromoethane	0.15 U
Ethyl Benzene	39
Methyl tert-butyl ether	0.6 U
Toluene	20
1,2,4-Trimethylbenzene	150
1,3,5-Trimethylbenzene	49
Xylenes (total)	76 J
SVOCs	
Naphthalene	24
Metals	
Lead	30.3

PB-38-14	3-3.5(ft)
VOCs	
Benzene	0.054
1,2-Dibromoethane	0.04 U
Ethyl Benzene	0.05 J
Methyl tert-butyl ether	0.16 U
Toluene	0.082
1,2,4-Trimethylbenzene	0.18
1,3,5-Trimethylbenzene	0.046 J
Xylenes (total)	0.306 J
SVOCs	
Naphthalene	0.71
Metals	
Lead	36.6

AOI1_BH-14-004	0-2(ft)	8-10(ft)
VOCs		
Benzene	0.18	0.24 U
1,2-Dibromoethane	0.0035 U	0.14 U
Ethyl Benzene	0.12	0.24 J
Methyl tert-butyl ether	0.0042 J	0.24 U
Toluene	0.23	0.24 U
1,2,4-Trimethylbenzene	6.1	3.1
1,3,5-Trimethylbenzene	1.8	2.3
Xylenes (total)	1.1	2.9
SVOCs		
Naphthalene	1.3	0.28
Metals		
Lead	212	9.2

PB-38-10	3-3.5(ft)
VOCs	
Benzene	1.1 {C}
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.4
Methyl tert-butyl ether	0.022 J
Toluene	3.9
1,2,4-Trimethylbenzene	1
1,3,5-Trimethylbenzene	0.28
Xylenes (total)	4.95 J
SVOCs	
Naphthalene	0.24 J
Metals	
Lead	464 {C}

PB-38-11	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	0.0014	--
1,2-Dibromoethane	--	0.00056 U	--
Ethyl Benzene	--	0.0043	--
Methyl tert-butyl ether	--	0.002 J	--
Toluene	--	0.02	--
1,2,4-Trimethylbenzene	--	0.0075	--
1,3,5-Trimethylbenzene	--	0.0026	--
Xylenes (total)	--	0.041 J	--
SVOCs			
Naphthalene	--	0.0045 U	--
Metals			
Lead	18.7	780 {C}	22.6

AOI1_BH-14-005	0-2(ft)	10-12(ft)
VOCs		
Benzene	0.49	2.5 {C}
1,2-Dibromoethane	0.14 U	0.13 U
Ethyl Benzene	38	9.1
Methyl tert-butyl ether	0.24 U	0.21 U
Toluene	1.4	0.71
1,2,4-Trimethylbenzene	256	50.6
1,3,5-Trimethylbenzene	94.8 {C}	16.2
Xylenes (total)	146	80.2
SVOCs		
Naphthalene	32.8 {C}	8.3
Metals		
Lead	258	8.6

PB-38-12	4.5-5(ft)
VOCs	
Benzene	0.04 J
1,2-Dibromoethane	0.064 U
Ethyl Benzene	0.032 J
Methyl tert-butyl ether	0.059 J
Toluene	0.13 U
1,2,4-Trimethylbenzene	0.18 J
1,3,5-Trimethylbenzene	0.078 J
Xylenes (total)	0.279 J
SVOCs	
Naphthalene	0.34 J
Metals	
Lead	31.6

PB-38-13	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	19 {C}	3 {C}	0.16
1,2-Dibromoethane	0.12 U	0.024 U	--
Ethyl Benzene	28	0.98	--
Methyl tert-butyl ether	0.5 U	1	--
Toluene	0.75	0.27	--
1,2,4-Trimethylbenzene	98	0.73	--
1,3,5-Trimethylbenzene	31	0.19	--
Xylenes (total)	41.7 J	2.12 J	--
SVOCs			
Naphthalene	12	0.071 J	--
Metals			
Lead	12.7	--	--

Legend

Property Boundary
Tank Group 02 Boundary
Previously Closed AST
Berm Boundary
Concrete Containment Wall
Associated Piping
BDH Monitoring Well
Evergreen Monitoring Well

BDH Soil Sample Location
Exceeds DC MSC
No Exceedances

Evergreen Soil Sample Location
Exceeds DC MSC
No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet
N

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CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 38)

Figure 10i

PB-39-01	3-3.5(ft)
VOCs	
Benzene	0.0012
1,2-Dibromoethane	0.00069 U
Ethyl Benzene	0.0014 U
Methyl tert-butyl ether	0.0028 U
Toluene	0.0014 U
1,2,4-Trimethylbenzene	0.0028 U
1,3,5-Trimethylbenzene	0.0028 U
Xylenes (total)	0.0028 U
SVOCs	
Naphthalene	0.0055 U
Metals	
Lead	153

AOI1_BH-14-009	0-2(ft)	14-16(ft)
VOCs		
Benzene	0.0048 U	**0.98 {C}**
1,2-Dibromoethane	0.0029 U	0.13 U
Ethyl Benzene	0.0048 U	0.13 J
Methyl tert-butyl ether	0.0048 U	0.22 U
Toluene	0.0048 U	0.15 J
1,2,4-Trimethylbenzene	0.0036 J	0.17 J
1,3,5-Trimethylbenzene	0.0048 U	0.22 U
Xylenes (total)	0.0031 J	0.23 J
SVOCs		
Naphthalene	0.0056 J	0.19
Metals		
Lead	29.4	9.1

PB-39-05	3-3.5(ft)
VOCs	
Benzene	0.015
1,2-Dibromoethane	0.00084 U
Ethyl Benzene	0.0051
Methyl tert-butyl ether	0.0037
Toluene	0.0077
1,2,4-Trimethylbenzene	0.0041
1,3,5-Trimethylbenzene	0.0024 J
Xylenes (total)	0.0196 J
SVOCs	
Naphthalene	0.0011 J
Metals	
Lead	268

PB-39-02	4-4.5(ft)
VOCs	
Benzene	0.00018 J
1,2-Dibromoethane	0.00049 U
Ethyl Benzene	0.00039 J
Methyl tert-butyl ether	0.002 U
Toluene	0.00099 U
1,2,4-Trimethylbenzene	0.003
1,3,5-Trimethylbenzene	0.00038 J
Xylenes (total)	0.00319 J
SVOCs	
Naphthalene	0.0067
Metals	
Lead	26.1

PB-39-03	3-3.5(ft)
VOCs	
Benzene	0.00082 U
1,2-Dibromoethane	0.00082 U
Ethyl Benzene	0.0016 U
Methyl tert-butyl ether	0.0033 U
Toluene	0.0016 U
1,2,4-Trimethylbenzene	0.0033 U
1,3,5-Trimethylbenzene	0.0033 U
Xylenes (total)	0.0033 U
SVOCs	
Naphthalene	0.0066 U
Metals	
Lead	19.4

PB-39-06	4-4.5(ft)
VOCs	
Benzene	**0.92 {C}**
1,2-Dibromoethane	0.05 U
Ethyl Benzene	0.26
Methyl tert-butyl ether	0.2 U
Toluene	0.37
1,2,4-Trimethylbenzene	0.34
1,3,5-Trimethylbenzene	0.1 J
Xylenes (total)	1.3 J
SVOCs	
Naphthalene	0.26 J
Metals	
Lead	72.5

AOI1_BH-14-008	0-2(ft)	10-12(ft)
VOCs		
Benzene	0.0045 J	0.24 U
1,2-Dibromoethane	0.0027 U	0.15 U
Ethyl Benzene	0.0046 U	0.24 U
Methyl tert-butyl ether	0.0046 U	0.24 U
Toluene	0.0046 U	0.24 U
1,2,4-Trimethylbenzene	0.0046 U	0.16 J
1,3,5-Trimethylbenzene	0.0046 U	0.24 U
Xylenes (total)	0.014 U	0.21 J
SVOCs		
Naphthalene	0.085	0.11
Metals		
Lead	70.1	8

PB-39-04	2-2.5(ft)
VOCs	
Benzene	**0.65 {C}**
1,2-Dibromoethane	0.028 U
Ethyl Benzene	5.3
Methyl tert-butyl ether	0.015 J
Toluene	0.16
1,2,4-Trimethylbenzene	13
1,3,5-Trimethylbenzene	2.7
Xylenes (total)	19.4 J
SVOCs	
Naphthalene	5.4
Metals	
Lead	137

PB-39-07	3-3.5(ft)
VOCs	
Benzene	0.00051 U
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.0047
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	0.002 U
SVOCs	
Naphthalene	0.004 U
Metals	
Lead	59.4

PB-39-12	3-3.5(ft)	6-6.5(ft)	14-14.5(ft)	23.5-24(ft)
VOCs				
Benzene	**73 {C}**	**1.7 {C}**	**45 {C}**	**47 {C}**
1,2-Dibromoethane	0.78 U	0.031 U	--	0.65 U
Ethyl Benzene	**180 {C}**	0.35	**80 {C}**	**150 {C}**
Methyl tert-butyl ether	0.37 J	0.12 U	--	2.6 U
Toluene	**350 {C}**	7.1	**360 {C}**	**510 {C}**
1,2,4-Trimethylbenzene	**390 {C}**	0.46	--	270
1,3,5-Trimethylbenzene	**98 {C}**	0.094 J	--	89
Xylenes (total)	920 J	1.93 J	510 J	870 J
SVOCs				
Naphthalene	**40 {C}**	0.71	20	--
Metals				
Lead	31.5	--	--	--

PB-39-10	3-3.5(ft)
VOCs	
Benzene	0.00028 J
1,2-Dibromoethane	0.00064 U
Ethyl Benzene	0.0013 U
Methyl tert-butyl ether	0.0019 J
Toluene	0.0013 U
1,2,4-Trimethylbenzene	0.0025 U
1,3,5-Trimethylbenzene	0.0025 U
Xylenes (total)	0.0025 U
SVOCs	
Naphthalene	0.0051 U
Metals	
Lead	419

PB-39-08	3-3.5(ft)
VOCs	
Benzene	**0.72 {C}**
1,2-Dibromoethane	0.03 U
Ethyl Benzene	1.2
Methyl tert-butyl ether	0.015 J
Toluene	0.2
1,2,4-Trimethylbenzene	3.1
1,3,5-Trimethylbenzene	1.8
Xylenes (total)	0.55 J
SVOCs	
Naphthalene	10
Metals	
Lead	28.8

AOI1_BH-14-010	0-2(ft)	14-16(ft)
VOCs		
Benzene	0.062	**4.5 {C}**
1,2-Dibromoethane	0.0031 U	0.14 U
Ethyl Benzene	0.14	14.7
Methyl tert-butyl ether	0.0052 U	0.22 J
Toluene	0.027	2
1,2,4-Trimethylbenzene	0.19	55
1,3,5-Trimethylbenzene	0.064	17.9
Xylenes (total)	0.23	68.2
SVOCs		
Naphthalene	0.25	2.8
Metals		
Lead	359	25.7

PB-39-13	3-3.5(ft)
VOCs	
Benzene	0.16
1,2-Dibromoethane	0.032 U
Ethyl Benzene	0.12
Methyl tert-butyl ether	0.13 U
Toluene	0.046 J
1,2,4-Trimethylbenzene	0.087 J
1,3,5-Trimethylbenzene	0.03 J
Xylenes (total)	0.17 J
SVOCs	
Naphthalene	0.041
Metals	
Lead	84.8

PB-39-09	4.5-5(ft)
VOCs	
Benzene	**1.4 {C}**
1,2-Dibromoethane	0.061 U
Ethyl Benzene	0.33
Methyl tert-butyl ether	0.24 U
Toluene	0.68
1,2,4-Trimethylbenzene	0.5
1,3,5-Trimethylbenzene	0.14 J
Xylenes (total)	1.42 J
SVOCs	
Naphthalene	0.97
Metals	
Lead	130

AOI1_BH-14-007	0-2(ft)	14-16(ft)
VOCs		
Benzene	0.0052 U	0.25 U
1,2-Dibromoethane	0.0031 U	0.15 U
Ethyl Benzene	0.0052 U	0.19 J
Methyl tert-butyl ether	0.0052 U	0.25 U
Toluene	0.0027 J	0.25 U
1,2,4-Trimethylbenzene	0.0052 U	0.26
1,3,5-Trimethylbenzene	0.0052 U	0.25 U
Xylenes (total)	0.016 U	0.29 J
SVOCs		
Naphthalene	0.14	0.33
Metals		
Lead	113	28.5

PB-39-11	3-3.5(ft)
VOCs	
Benzene	0.002
1,2-Dibromoethane	0.00073 U
Ethyl Benzene	0.001 J
Methyl tert-butyl ether	0.00081 J
Toluene	0.0015 U
1,2,4-Trimethylbenzene	0.0029 U
1,3,5-Trimethylbenzene	0.0029 U
Xylenes (total)	0.002 J
SVOCs	
Naphthalene	0.016
Metals	
Lead	32.5

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Evergreen Soil Sample Location

- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 39)

Figure 10j

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

PB-40-04	3.5-4(ft)
VOCs	
Benzene	0.014 J
1,2-Dibromoethane	0.03 U
Ethyl Benzene	0.069
Methyl tert-butyl ether	0.12 U
Toluene	0.036 J
1,2,4-Trimethylbenzene	0.086 J
1,3,5-Trimethylbenzene	0.03 J
Xylenes (total)	0.25 J
SVOCs	
Naphthalene	0.15 J
Metals	
Lead	36.3

PB-40-05	3-3.5(ft)
VOCs	
Benzene	0.00048 U
1,2-Dibromoethane	0.00048 U
Ethyl Benzene	0.00095 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00095 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	0.0019 U
SVOCs	
Naphthalene	0.0038 U
Metals	
Lead	355

PB-40-06	3-3.5(ft)
VOCs	
Benzene	0.0027 / 0.43
1,2-Dibromoethane	0.00041 U / 0.029 U
Ethyl Benzene	0.0002 J / 1.3
Methyl tert-butyl ether	0.0016 U / 0.12 U
Toluene	0.00082 U / 0.037 J
1,2,4-Trimethylbenzene	0.0003 J / 2.6
1,3,5-Trimethylbenzene	0.0016 U / 0.22
Xylenes (total)	0.0011 J / 1.65 J
SVOCs	
Naphthalene	0.00053 J / 1.9
Metals	
Lead	247 / 29.8

PB-40-03	3-3.5(ft)
VOCs	
Benzene	0.039 J
1,2-Dibromoethane	0.065 U
Ethyl Benzene	0.14
Methyl tert-butyl ether	0.26 U
Toluene	0.1 J
1,2,4-Trimethylbenzene	0.38
1,3,5-Trimethylbenzene	0.059 J
Xylenes (total)	0.46 J
SVOCs	
Naphthalene	1.9
Metals	
Lead	297

PB-40-02	4.5-5(ft)
VOCs	
Benzene	0.062 U
1,2-Dibromoethane	0.062 U
Ethyl Benzene	0.044 J
Methyl tert-butyl ether	0.25 U
Toluene	0.12 U
1,2,4-Trimethylbenzene	0.058 J
1,3,5-Trimethylbenzene	0.25 U
Xylenes (total)	0.245 J
SVOCs	
Naphthalene	1.8
Metals	
Lead	6.14

PB-40-01	2.5-3(ft)
VOCs	
Benzene	0.04 J
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.061 J
Methyl tert-butyl ether	0.17 U
Toluene	0.062 J
1,2,4-Trimethylbenzene	0.18
1,3,5-Trimethylbenzene	0.027 J
Xylenes (total)	0.265 J
SVOCs	
Naphthalene	1.2
Metals	
Lead	272

PB-40-07	3.5-4(ft)
VOCs	
Benzene	0.026 U
1,2-Dibromoethane	0.026 U
Ethyl Benzene	0.026 J
Methyl tert-butyl ether	0.1 U
Toluene	0.052 U
1,2,4-Trimethylbenzene	0.74
1,3,5-Trimethylbenzene	0.23
Xylenes (total)	0.077 J
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	463 {C}

PB-40-09	3-3.5(ft)
VOCs	
Benzene	0.0049
1,2-Dibromoethane	0.00052 U
Ethyl Benzene	0.0012
Methyl tert-butyl ether	0.0021 U
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.0021 U
1,3,5-Trimethylbenzene	0.0021 U
Xylenes (total)	0.0021 U
SVOCs	
Naphthalene	0.0024 J
Metals	
Lead	15.5

PB-40-10	4-4.5(ft)
VOCs	
Benzene	0.056 U
1,2-Dibromoethane	0.056 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.22 U
Toluene	0.11 U
1,2,4-Trimethylbenzene	0.17 J
1,3,5-Trimethylbenzene	0.22 U
Xylenes (total)	0.21 J
SVOCs	
Naphthalene	0.5
Metals	
Lead	58.2

PB-40-11	3-3.5(ft)
VOCs	
Benzene	0.023
1,2-Dibromoethane	0.00054 U
Ethyl Benzene	0.027
Methyl tert-butyl ether	0.0022 U
Toluene	0.03
1,2,4-Trimethylbenzene	0.11
1,3,5-Trimethylbenzene	0.037
Xylenes (total)	0.125 J
SVOCs	
Naphthalene	0.035
Metals	
Lead	258

PB-40-08	4-4.5(ft)
VOCs	
Benzene	0.055 U
1,2-Dibromoethane	0.055 U
Ethyl Benzene	0.029 J
Methyl tert-butyl ether	0.22 U
Toluene	0.11 U
1,2,4-Trimethylbenzene	0.22 U
1,3,5-Trimethylbenzene	0.22 U
Xylenes (total)	0.179 J
SVOCs	
Naphthalene	0.63
Metals	
Lead	41.1

PB-40-15	4-4.5(ft)
VOCs	
Benzene	0.0018
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.0078
Methyl tert-butyl ether	0.002 U
Toluene	0.0033
1,2,4-Trimethylbenzene	0.032
1,3,5-Trimethylbenzene	0.012
Xylenes (total)	0.0168 J
SVOCs	
Naphthalene	0.016
Metals	
Lead	34.4

PB-40-12	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	0.59 {C}	0.0037
1,2-Dibromoethane	--	0.033 U	0.00049 U
Ethyl Benzene	--	0.83	0.00051 J
Methyl tert-butyl ether	--	0.014 J	0.031
Toluene	--	0.17	0.0011
1,2,4-Trimethylbenzene	--	0.3	0.031
1,3,5-Trimethylbenzene	--	0.04 J	0.0038
Xylenes (total)	--	1.05 J	0.0035 J
SVOCs			
Naphthalene	--	0.79	0.0025 J
Metals			
Lead	7.08	1070 {C}	31.2

PB-40-13	4-4.5(ft)
VOCs	
Benzene	0.00095
1,2-Dibromoethane	0.00066 U
Ethyl Benzene	0.00042 J
Methyl tert-butyl ether	0.0026 U
Toluene	0.0025
1,2,4-Trimethylbenzene	0.00067 J
1,3,5-Trimethylbenzene	0.0026 U
Xylenes (total)	0.0032 J
SVOCs	
Naphthalene	0.0058
Metals	
Lead	8.13

PB-40-14	3-3.5(ft)
VOCs	
Benzene	0.12
1,2-Dibromoethane	0.00051 U
Ethyl Benzene	0.01
Methyl tert-butyl ether	0.002 U
Toluene	0.0094
1,2,4-Trimethylbenzene	0.073
1,3,5-Trimethylbenzene	0.023
Xylenes (total)	0.029 J
SVOCs	
Naphthalene	0.033
Metals	
Lead	248

PB-40-16	4-4.5(ft)
VOCs	
Benzene	0.0007
1,2-Dibromoethane	0.00049 U
Ethyl Benzene	0.0025
Methyl tert-butyl ether	0.002 U
Toluene	0.0027
1,2,4-Trimethylbenzene	0.046
1,3,5-Trimethylbenzene	0.019
Xylenes (total)	0.0312 J
SVOCs	
Naphthalene	0.0028 J
Metals	
Lead	40.1

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

0 10 20 40 Feet
1 inch = 20 feet

N

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terraphase engineering

CLIENT: Bellwether District Holdings, LLC

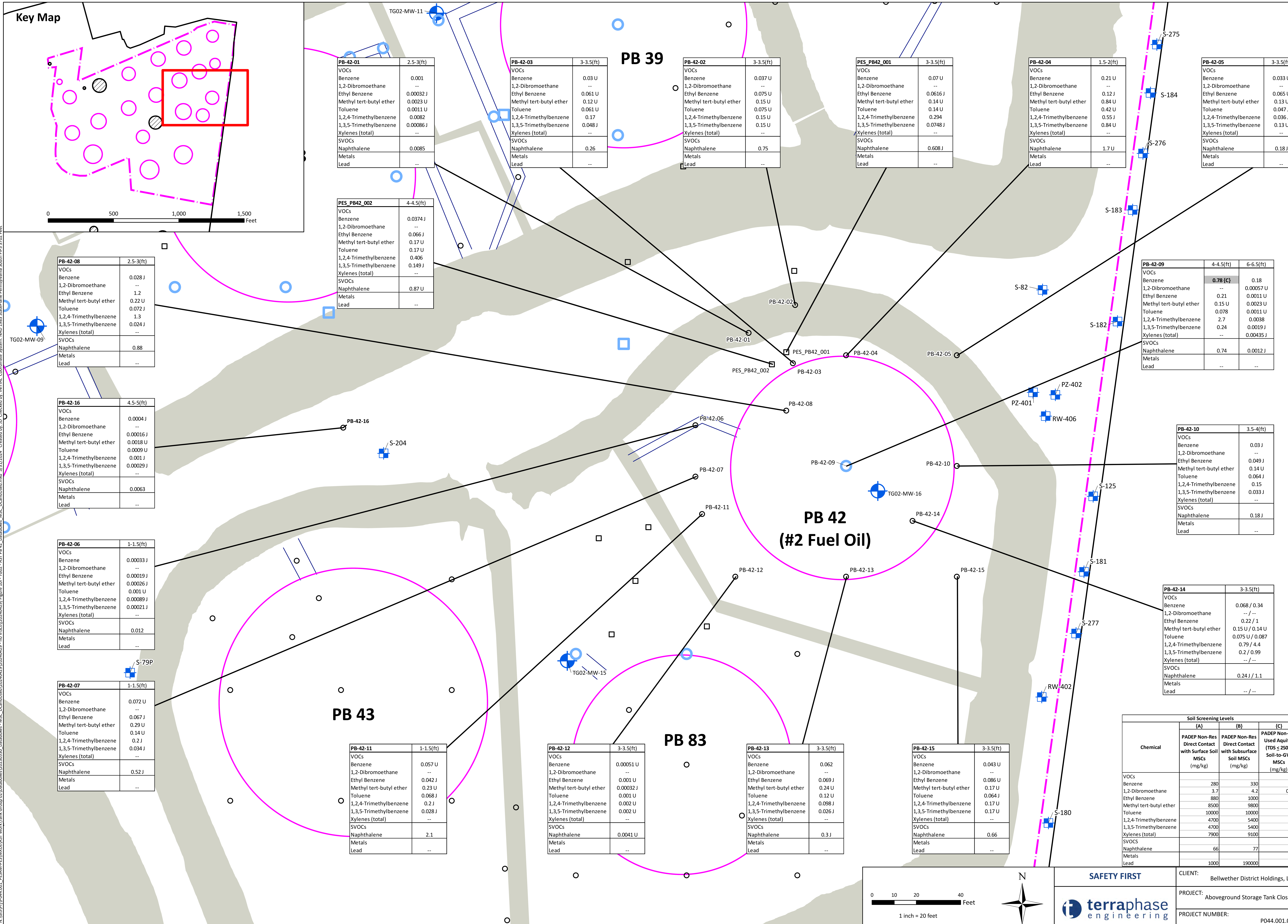
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 40)

Figure 10k

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\Databases\20230530_Databases - MSC_DCandUsed\20240429\20240429 - no VISL\[20240429] Figure 10k - TG02 - AST PB 40_Databases_MSC_DCandUsed.mxd 5/31/2024 Created by: M.Ingling Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



PB-42-01	2.5-3(ft)
VOCs	
Benzene	0.001
1,2-Dibromoethane	--
Ethyl Benzene	0.00032 J
Methyl tert-butyl ether	0.0023 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.0082
1,3,5-Trimethylbenzene	0.00086 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.0085
Metals	
Lead	--

PB-42-03	3-3.5(ft)
VOCs	
Benzene	0.03 U
1,2-Dibromoethane	--
Ethyl Benzene	0.061 U
Methyl tert-butyl ether	0.12 U
Toluene	0.061 U
1,2,4-Trimethylbenzene	0.17
1,3,5-Trimethylbenzene	0.048 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.26
Metals	
Lead	--

PB-42-02	3-3.5(ft)
VOCs	
Benzene	0.037 U
1,2-Dibromoethane	--
Ethyl Benzene	0.075 U
Methyl tert-butyl ether	0.15 U
Toluene	0.075 U
1,2,4-Trimethylbenzene	0.15 U
1,3,5-Trimethylbenzene	0.15 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.75
Metals	
Lead	--

PES_PB42_001	3-3.5(ft)
VOCs	
Benzene	0.07 U
1,2-Dibromoethane	--
Ethyl Benzene	0.0616 J
Methyl tert-butyl ether	0.14 U
Toluene	0.14 U
1,2,4-Trimethylbenzene	0.294
1,3,5-Trimethylbenzene	0.0748 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.608 J
Metals	
Lead	--

PB-42-04	1.5-2(ft)
VOCs	
Benzene	0.21 U
1,2-Dibromoethane	--
Ethyl Benzene	0.12 J
Methyl tert-butyl ether	0.84 U
Toluene	0.42 U
1,2,4-Trimethylbenzene	0.55 J
1,3,5-Trimethylbenzene	0.84 U
Xylenes (total)	--
SVOCs	
Naphthalene	1.7 U
Metals	
Lead	--

PB-42-05	3-3.5(ft)
VOCs	
Benzene	0.033 U
1,2-Dibromoethane	--
Ethyl Benzene	0.065 U
Methyl tert-butyl ether	0.13 U
Toluene	0.047 J
1,2,4-Trimethylbenzene	0.036 J
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.18 J
Metals	
Lead	--

PES_PB42_002	4-4.5(ft)
VOCs	
Benzene	0.0374 J
1,2-Dibromoethane	--
Ethyl Benzene	0.066 J
Methyl tert-butyl ether	0.17 U
Toluene	0.17 U
1,2,4-Trimethylbenzene	0.406
1,3,5-Trimethylbenzene	0.149 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.87 U
Metals	
Lead	--

PB-42-08	2.5-3(ft)
VOCs	
Benzene	0.028 J
1,2-Dibromoethane	--
Ethyl Benzene	1.2
Methyl tert-butyl ether	0.22 U
Toluene	0.072 J
1,2,4-Trimethylbenzene	1.3
1,3,5-Trimethylbenzene	0.024 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.88
Metals	
Lead	--

PB-42-16	4.5-5(ft)
VOCs	
Benzene	0.0004 J
1,2-Dibromoethane	--
Ethyl Benzene	0.00016 J
Methyl tert-butyl ether	0.0018 U
Toluene	0.0009 U
1,2,4-Trimethylbenzene	0.001 J
1,3,5-Trimethylbenzene	0.00029 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.0063
Metals	
Lead	--

PB-42-06	1-1.5(ft)
VOCs	
Benzene	0.00033 J
1,2-Dibromoethane	--
Ethyl Benzene	0.00019 J
Methyl tert-butyl ether	0.00026 J
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.00089 J
1,3,5-Trimethylbenzene	0.00021 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.012
Metals	
Lead	--

PB-42-07	1-1.5(ft)
VOCs	
Benzene	0.072 U
1,2-Dibromoethane	--
Ethyl Benzene	0.067 J
Methyl tert-butyl ether	0.29 U
Toluene	0.14 U
1,2,4-Trimethylbenzene	0.2 J
1,3,5-Trimethylbenzene	0.034 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.52 J
Metals	
Lead	--

PB-42-11	1-1.5(ft)
VOCs	
Benzene	0.057 U
1,2-Dibromoethane	--
Ethyl Benzene	0.042 J
Methyl tert-butyl ether	0.23 U
Toluene	0.068 J
1,2,4-Trimethylbenzene	0.2 J
1,3,5-Trimethylbenzene	0.028 J
Xylenes (total)	--
SVOCs	
Naphthalene	2.1
Metals	
Lead	--

PB-42-12	3-3.5(ft)
VOCs	
Benzene	0.00051 U
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.00032 J
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0041 U
Metals	
Lead	--

PB-42-13	3-3.5(ft)
VOCs	
Benzene	0.062
1,2-Dibromoethane	--
Ethyl Benzene	0.069 J
Methyl tert-butyl ether	0.24 U
Toluene	0.12 U
1,2,4-Trimethylbenzene	0.098 J
1,3,5-Trimethylbenzene	0.026 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.3 J
Metals	
Lead	--

PB-42-15	3-3.5(ft)
VOCs	
Benzene	0.043 U
1,2-Dibromoethane	--
Ethyl Benzene	0.086 U
Methyl tert-butyl ether	0.17 U
Toluene	0.064 J
1,2,4-Trimethylbenzene	0.17 U
1,3,5-Trimethylbenzene	0.17 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.66
Metals	
Lead	--

PB-42-09	4-4.5(ft)	6-6.5(ft)
VOCs		
Benzene	**0.78 {C}**	0.18
1,2-Dibromoethane	--	0.00057 U
Ethyl Benzene	0.21	0.0011 U
Methyl tert-butyl ether	0.15 U	0.0023 U
Toluene	0.078	0.0011 U
1,2,4-Trimethylbenzene	2.7	0.0038
1,3,5-Trimethylbenzene	0.24	0.0019 J
Xylenes (total)	--	0.00435 J
SVOCs		
Naphthalene	0.74	0.0012 J
Metals		
Lead	--	--

PB-42-10	3.5-4(ft)
VOCs	
Benzene	0.03 J
1,2-Dibromoethane	--
Ethyl Benzene	0.049 J
Methyl tert-butyl ether	0.14 U
Toluene	0.064 J
1,2,4-Trimethylbenzene	0.15
1,3,5-Trimethylbenzene	0.033 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.18 J
Metals	
Lead	--

PB-42-14	3-3.5(ft)
VOCs	
Benzene	0.068 / 0.34
1,2-Dibromoethane	-- / --
Ethyl Benzene	0.22 / 1
Methyl tert-butyl ether	0.15 U / 0.14 U
Toluene	0.075 U / 0.087
1,2,4-Trimethylbenzene	0.79 / 4.4
1,3,5-Trimethylbenzene	0.2 / 0.99
Xylenes (total)	-- / --
SVOCs	
Naphthalene	0.24 J / 1.1
Metals	
Lead	-- / --

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels			
	{A}	{B}	{C}
Chemical	PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet

N

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CLIENT: Bellwether District Holdings, LLC

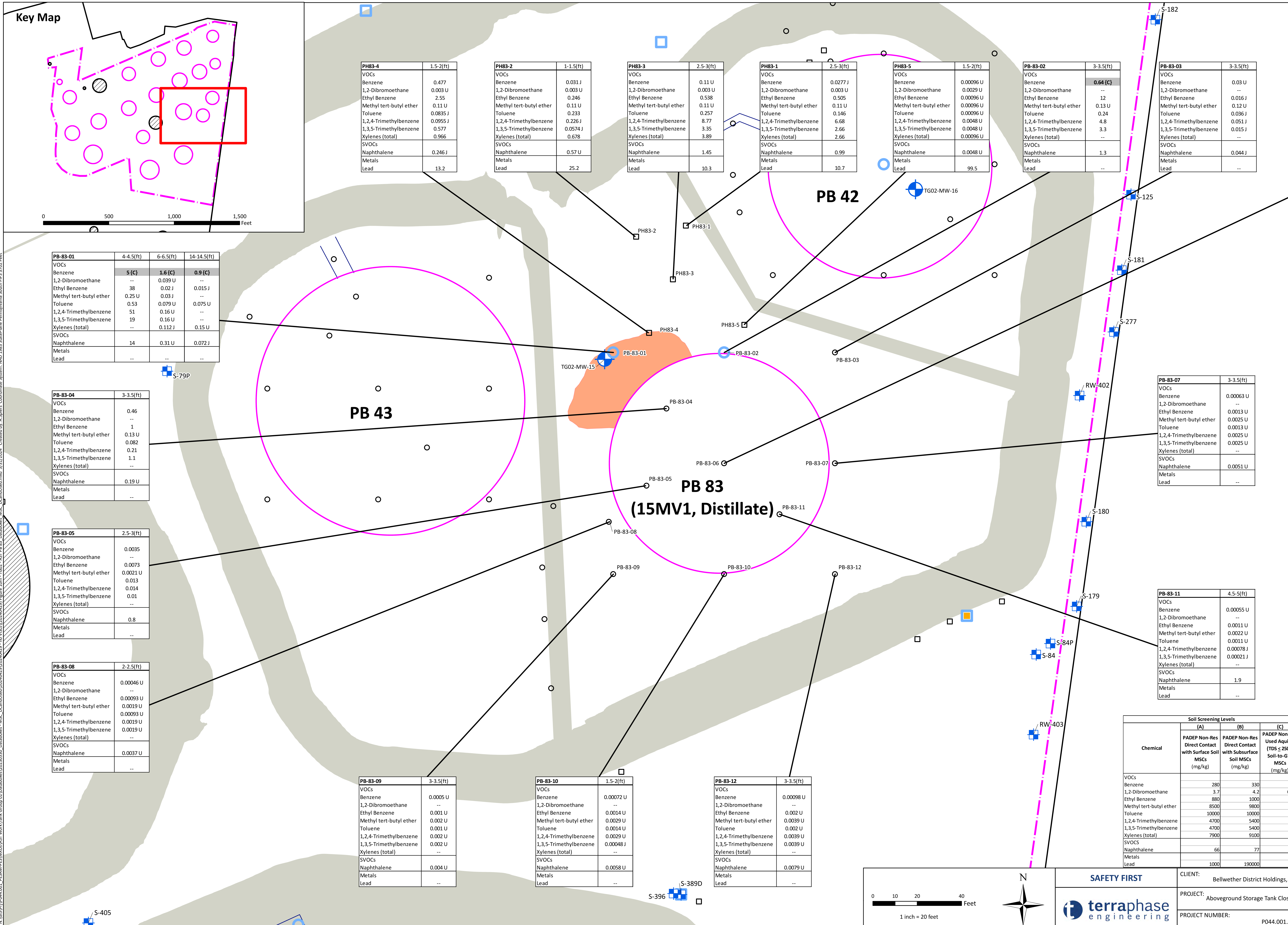
PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 42)

Figure 10l

File: N:\GIS\Pri\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\Databases\20230530_Databases - MSC_DCandUsed\20240429\20240429 - no VISL\(20240429) Figure 10l - TG02 - AST PB 42_Databases_MSC_DCandUsed.mxd 5/31/2024 Created by: JD Checked by: INITIAL Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet



PH83-4	1.5-2(ft)
VOCs	
Benzene	0.477
1,2-Dibromoethane	0.003 U
Ethyl Benzene	2.55
Methyl tert-butyl ether	0.11 U
Toluene	0.0835 J
1,2,4-Trimethylbenzene	0.0955 J
1,3,5-Trimethylbenzene	0.577
Xylenes (total)	0.966
SVOCs	
Naphthalene	0.246 J
Metals	
Lead	13.2

PH83-2	1-1.5(ft)
VOCs	
Benzene	0.031 J
1,2-Dibromoethane	0.003 U
Ethyl Benzene	0.246
Methyl tert-butyl ether	0.11 U
Toluene	0.233
1,2,4-Trimethylbenzene	0.226 J
1,3,5-Trimethylbenzene	0.0574 J
Xylenes (total)	0.678
SVOCs	
Naphthalene	0.57 U
Metals	
Lead	25.2

PH83-3	2.5-3(ft)
VOCs	
Benzene	0.11 U
1,2-Dibromoethane	0.003 U
Ethyl Benzene	0.538
Methyl tert-butyl ether	0.11 U
Toluene	0.257
1,2,4-Trimethylbenzene	8.77
1,3,5-Trimethylbenzene	3.35
Xylenes (total)	3.89
SVOCs	
Naphthalene	1.45
Metals	
Lead	10.3

PH83-1	2.5-3(ft)
VOCs	
Benzene	0.0277 J
1,2-Dibromoethane	0.003 U
Ethyl Benzene	0.505
Methyl tert-butyl ether	0.11 U
Toluene	0.146
1,2,4-Trimethylbenzene	6.68
1,3,5-Trimethylbenzene	2.66
Xylenes (total)	2.66
SVOCs	
Naphthalene	0.99
Metals	
Lead	10.7

PH83-5	1.5-2(ft)
VOCs	
Benzene	0.00096 U
1,2-Dibromoethane	0.0029 U
Ethyl Benzene	0.00096 U
Methyl tert-butyl ether	0.00096 U
Toluene	0.00096 U
1,2,4-Trimethylbenzene	0.0048 U
1,3,5-Trimethylbenzene	0.0048 U
Xylenes (total)	0.00096 U
SVOCs	
Naphthalene	0.0048 U
Metals	
Lead	99.5

PB-83-02	3-3.5(ft)
VOCs	
Benzene	**0.64 {C}**
1,2-Dibromoethane	--
Ethyl Benzene	12
Methyl tert-butyl ether	0.13 U
Toluene	0.24
1,2,4-Trimethylbenzene	4.8
1,3,5-Trimethylbenzene	3.3
Xylenes (total)	--
SVOCs	
Naphthalene	1.3
Metals	
Lead	--

PB-83-03	3-3.5(ft)
VOCs	
Benzene	0.03 U
1,2-Dibromoethane	--
Ethyl Benzene	0.016 J
Methyl tert-butyl ether	0.12 U
Toluene	0.036 J
1,2,4-Trimethylbenzene	0.051 J
1,3,5-Trimethylbenzene	0.015 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.044 J
Metals	
Lead	--

PB-83-06	4.5-5(ft)
VOCs	
Benzene	0.0037
1,2-Dibromoethane	--
Ethyl Benzene	0.0013
Methyl tert-butyl ether	0.0021 U
Toluene	0.0043
1,2,4-Trimethylbenzene	0.0062
1,3,5-Trimethylbenzene	0.0019 J
Xylenes (total)	--
SVOCs	
Naphthalene	1.3 U
Metals	
Lead	--

PB-83-01	4-4.5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	**5 {C}**	**1.6 {C}**	**0.9 {C}**
1,2-Dibromoethane	--	0.039 U	--
Ethyl Benzene	38	0.02 J	0.015 J
Methyl tert-butyl ether	0.25 U	0.03 J	--
Toluene	0.53	0.079 U	0.075 U
1,2,4-Trimethylbenzene	51	0.16 U	--
1,3,5-Trimethylbenzene	19	0.16 U	--
Xylenes (total)	--	0.112 J	0.15 U
SVOCs			
Naphthalene	14	0.31 U	0.072 J
Metals			
Lead	--	--	--

PB-83-04	3-3.5(ft)
VOCs	
Benzene	0.46
1,2-Dibromoethane	--
Ethyl Benzene	1
Methyl tert-butyl ether	0.13 U
Toluene	0.082
1,2,4-Trimethylbenzene	0.21
1,3,5-Trimethylbenzene	1.1
Xylenes (total)	--
SVOCs	
Naphthalene	0.19 U
Metals	
Lead	--

PB-83-05	2.5-3(ft)
VOCs	
Benzene	0.0035
1,2-Dibromoethane	--
Ethyl Benzene	0.0073
Methyl tert-butyl ether	0.0021 U
Toluene	0.013
1,2,4-Trimethylbenzene	0.014
1,3,5-Trimethylbenzene	0.01
Xylenes (total)	--
SVOCs	
Naphthalene	0.8
Metals	
Lead	--

PB-83-08	2-2.5(ft)
VOCs	
Benzene	0.00046 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00093 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00093 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0037 U
Metals	
Lead	--

PB-83-09	3-3.5(ft)
VOCs	
Benzene	0.0005 U
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.002 U
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.002 U
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.004 U
Metals	
Lead	--

PB-83-10	1.5-2(ft)
VOCs	
Benzene	0.00072 U
1,2-Dibromoethane	--
Ethyl Benzene	0.0014 U
Methyl tert-butyl ether	0.0029 U
Toluene	0.0014 U
1,2,4-Trimethylbenzene	0.0029 U
1,3,5-Trimethylbenzene	0.00048 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.0058 U
Metals	
Lead	--

PB-83-12	3-3.5(ft)
VOCs	
Benzene	0.00098 U
1,2-Dibromoethane	--
Ethyl Benzene	0.002 U
Methyl tert-butyl ether	0.0039 U
Toluene	0.002 U
1,2,4-Trimethylbenzene	0.0039 U
1,3,5-Trimethylbenzene	0.0039 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0079 U
Metals	
Lead	--

PB-83-07	3-3.5(ft)
VOCs	
Benzene	0.00063 U
1,2-Dibromoethane	--
Ethyl Benzene	0.0013 U
Methyl tert-butyl ether	0.0025 U
Toluene	0.0013 U
1,2,4-Trimethylbenzene	0.0025 U
1,3,5-Trimethylbenzene	0.0025 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0051 U
Metals	
Lead	--

PB-83-11	4.5-5(ft)
VOCs	
Benzene	0.00055 U
1,2-Dibromoethane	--
Ethyl Benzene	0.0011 U
Methyl tert-butyl ether	0.0022 U
Toluene	0.0011 U
1,2,4-Trimethylbenzene	0.00078 J
1,3,5-Trimethylbenzene	0.00021 J
Xylenes (total)	--
SVOCs	
Naphthalene	1.9
Metals	
Lead	--

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Approximate Release Area
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

0 10 20 40 Feet
1 inch = 20 feet
N

SAFETY FIRST
terraphase engineering

CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 83)

Figure 10m

Soil Sampling Results (AST PB 84)

PB-84-01	2.5-3(ft)
VOCs	
Benzene	0.064 U
1,2-Dibromoethane	--
Ethyl Benzene	0.13 U
Methyl tert-butyl ether	0.26 U
Toluene	0.13 U
1,2,4-Trimethylbenzene	23
1,3,5-Trimethylbenzene	0.49
Xylenes (total)	--
SVOCs	
Naphthalene	1
Metals	
Lead	--

PB-84-02	1.5-2(ft)
VOCs	
Benzene	0.027
1,2-Dibromoethane	--
Ethyl Benzene	0.042 J
Methyl tert-butyl ether	0.11 U
Toluene	0.041 J
1,2,4-Trimethylbenzene	0.97
1,3,5-Trimethylbenzene	0.024 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.81
Metals	
Lead	--

PB-84-05	4-4.5(ft)
VOCs	
Benzene	0.036 U
1,2-Dibromoethane	--
Ethyl Benzene	0.011 J
Methyl tert-butyl ether	0.14 U
Toluene	0.072 U
1,2,4-Trimethylbenzene	0.039 J
1,3,5-Trimethylbenzene	0.14 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.4
Metals	
Lead	--

PB-84-03	4-4.5(ft)
VOCs	
Benzene	0.07 U
1,2-Dibromoethane	--
Ethyl Benzene	0.14 U
Methyl tert-butyl ether	0.28 U
Toluene	0.14 U
1,2,4-Trimethylbenzene	0.79
1,3,5-Trimethylbenzene	0.28 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.55 J
Metals	
Lead	--

PB-84-06	3.5-4(ft)
VOCs	
Benzene	0.047
1,2-Dibromoethane	--
Ethyl Benzene	0.014 J
Methyl tert-butyl ether	0.099 U
Toluene	0.049 U
1,2,4-Trimethylbenzene	0.099 U
1,3,5-Trimethylbenzene	0.099 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.26
Metals	
Lead	--

PB-44-LINE-2	0.5-0.5(ft)
VOCs	
Benzene	0.0065 U
1,2-Dibromoethane	0.0065 U
Ethyl Benzene	0.0065 U
Methyl tert-butyl ether	--
Toluene	0.0065 U
1,2,4-Trimethylbenzene	--
1,3,5-Trimethylbenzene	--
Xylenes (total)	0.0028 J
SVOCs	
Naphthalene	0.0029 J
Metals	
Lead	320

PB-84-09	0-0.5(ft)
VOCs	
Benzene	0.15 U / 0.17 U
1,2-Dibromoethane	-- / --
Ethyl Benzene	0.42 / 0.45
Methyl tert-butyl ether	0.62 U / 0.67 U
Toluene	0.31 U / 0.34 U
1,2,4-Trimethylbenzene	120 / 100
1,3,5-Trimethylbenzene	37 / 37
Xylenes (total)	-- / --
SVOCs	
Naphthalene	13 / 14
Metals	
Lead	-- / --

PB-84-10	1.5-2(ft)
VOCs	
Benzene	0.00047 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00094 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00094 U
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0038 U
Metals	
Lead	--

PB-84-04	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)	8.5-9(ft)
VOCs				
Benzene	--	2.1 {C}	0.28	0.1
1,2-Dibromoethane	--	--	0.031 U	0.028 U
Ethyl Benzene	--	15	0.43	2.2
Methyl tert-butyl ether	--	0.52 U	0.12 U	0.11 U
Toluene	--	3	0.062 U	0.056 U
1,2,4-Trimethylbenzene	--	110	61 E	29
1,3,5-Trimethylbenzene	--	29	6.4	7.3
Xylenes (total)	--	--	0.395 J	5.79 J
SVOCs				
Naphthalene	0.2 U	74 {C}	0.2 U	20
Metals				
Lead	--	--	--	--

PB-84-07	4.5-5(ft)
VOCs	
Benzene	0.16 U
1,2-Dibromoethane	--
Ethyl Benzene	0.69
Methyl tert-butyl ether	0.64 U
Toluene	0.32 U
1,2,4-Trimethylbenzene	0.64 U
1,3,5-Trimethylbenzene	0.64 U
Xylenes (total)	--
SVOCs	
Naphthalene	1.2 J
Metals	
Lead	--

AOI1_BH-14-042	0-2(ft)	6-8(ft)
VOCs		
Benzene	0.0056 U	0.27 U
1,2-Dibromoethane	0.0034 U	0.16 U
Ethyl Benzene	0.059	0.29
Methyl tert-butyl ether	0.0056 U	0.27 U
Toluene	0.0091	0.27 U
1,2,4-Trimethylbenzene	14.1	0.97
1,3,5-Trimethylbenzene	0.23	0.27 U
Xylenes (total)	0.33	0.81 U
SVOCs		
Naphthalene	4.2	3.3
Metals		
Lead	13.4	3.4

PB-84-12	3-3.5(ft)
VOCs	
Benzene	0.03 U
1,2-Dibromoethane	--
Ethyl Benzene	0.06 U
Methyl tert-butyl ether	0.12 U
Toluene	0.06 U
1,2,4-Trimethylbenzene	0.084 J
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.23 J
Metals	
Lead	--

PB-84-11	3-3.5(ft)
VOCs	
Benzene	0.00024 J
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.0021 U
Toluene	0.001
1,2,4-Trimethylbenzene	0.078
1,3,5-Trimethylbenzene	0.0009 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.2 U
Metals	
Lead	--

AOI1_BH-14-043	0-2(ft)	6-8(ft)
VOCs		
Benzene	0.0058 U	0.0065
1,2-Dibromoethane	0.0035 U	0.0036 U
Ethyl Benzene	0.0058 U	0.015
Methyl tert-butyl ether	0.0058 U	0.006 U
Toluene	0.0058 U	0.0051 J
1,2,4-Trimethylbenzene	0.0058 U	0.47
1,3,5-Trimethylbenzene	0.0058 U	0.039
Xylenes (total)	0.017 U	0.032
SVOCs		
Naphthalene	0.13 J	0.92
Metals		
Lead	9.7	19

PB-84-15	2.5-3(ft)
VOCs	
Benzene	0.032 U
1,2-Dibromoethane	--
Ethyl Benzene	0.064 U
Methyl tert-butyl ether	0.13 U
Toluene	0.064 U
1,2,4-Trimethylbenzene	4.1
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	--
SVOCs	
Naphthalene	4.2
Metals	
Lead	--

PB-84-19	3-3.5(ft)
VOCs	
Benzene	0.0005 U
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.002 U
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.00034 J
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.004 U
Metals	
Lead	--

PB-84-16	1-1.5(ft)
VOCs	
Benzene	0.035 U
1,2-Dibromoethane	--
Ethyl Benzene	0.06 J
Methyl tert-butyl ether	0.14 U
Toluene	0.07 U
1,2,4-Trimethylbenzene	2.6
1,3,5-Trimethylbenzene	1.6
Xylenes (total)	--
SVOCs	
Naphthalene	0.62
Metals	
Lead	--

PB-84-13	3.5-4(ft)
VOCs	
Benzene	0.00068
1,2-Dibromoethane	--
Ethyl Benzene	0.0013 U
Methyl tert-butyl ether	0.0025 U
Toluene	0.0014
1,2,4-Trimethylbenzene	0.0025 U
1,3,5-Trimethylbenzene	0.0025 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.17 J
Metals	
Lead	--

PB-84-18	2.5-3(ft)
VOCs	
Benzene	0.00047 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00094 U
Methyl tert-butyl ether	0.0019 U
Toluene	0.00061 J
1,2,4-Trimethylbenzene	0.0019 U
1,3,5-Trimethylbenzene	0.0019 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0038 U
Metals	
Lead	--

PB-84-08	3-3.5(ft)
VOCs	
Benzene	0.00046 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00019 J
Methyl tert-butyl ether	0.0018 U
Toluene	0.00091 U
1,2,4-Trimethylbenzene	0.028
1,3,5-Trimethylbenzene	0.0021
Xylenes (total)	--
SVOCs	
Naphthalene	0.049
Metals	
Lead	--

PB-84-14	3-3.5(ft)	3-3.5(ft)	9-9.5(ft)
VOCs			
Benzene	0.00052 U	0.0007 U	0.052
1,2-Dibromoethane	0.00052 U	--	0.031 U
Ethyl Benzene	0.001 U	0.0014 U	0.21
Methyl tert-butyl ether	0.0021 U	0.0028 U	0.12 U
Toluene	0.001 U	0.0014 U	0.09
1,2,4-Trimethylbenzene	0.0021 U	0.0028 U	0.6
1,3,5-Trimethylbenzene	0.0021 U	0.0028 U	0.12 U
Xylenes (total)	0.0021 U	--	0.152 J
SVOCs			
Naphthalene	0.2 U	0.2 U	0.14 J
Metals			
Lead	--	--	--

PB-84-17	3.5-4(ft)
VOCs	
Benzene	0.00028 J
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.002 U
Toluene	0.0015
1,2,4-Trimethylbenzene	0.001 J
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.2 U
Metals	
Lead	--

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

PB-128-01	3-3.5(ft)
VOCs	
Benzene	0.15
1,2-Dibromoethane	0.043 U
Ethyl Benzene	0.24
Methyl tert-butyl ether	0.17 U
Toluene	0.27
1,2,4-Trimethylbenzene	42
1,3,5-Trimethylbenzene	2.1
Xylenes (total)	17.1 J
SVOCs	
Naphthalene	3.1
Metals	
Lead	1980 {C}

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 84)

Figure 10n

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet Created by: A.Spiers Created Used.mxd 5/31/2024

PB-85-01	3.5-4(ft)
VOCs	
Benzene	0.018
1,2-Dibromoethane	--
Ethyl Benzene	0.00061 J
Methyl tert-butyl ether	0.0031 U
Toluene	0.0015 U
1,2,4-Trimethylbenzene	0.0031 U
1,3,5-Trimethylbenzene	0.00046 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.0062 U
Metals	
Lead	--

PB-85-02	3.5-4(ft)
VOCs	
Benzene	0.00041 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00082 U
Methyl tert-butyl ether	0.0016 U
Toluene	0.00082 U
1,2,4-Trimethylbenzene	0.0016 U
1,3,5-Trimethylbenzene	0.0016 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0033 U
Metals	
Lead	--

PB-85-03	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	--
Ethyl Benzene	0.063 U
Methyl tert-butyl ether	0.12 U
Toluene	0.063 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	--
SVOCs	
Naphthalene	1.6
Metals	
Lead	--

PB-85-04	4-4.5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	--
Ethyl Benzene	0.062 U
Methyl tert-butyl ether	0.12 U
Toluene	0.062 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.3
Metals	
Lead	--

PB-85-08	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	--
Ethyl Benzene	0.062 U
Methyl tert-butyl ether	0.12 U
Toluene	0.062 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.6
Metals	
Lead	--

PB-85-05	3-3.5(ft)
VOCs	
Benzene	0.00045 U
1,2-Dibromoethane	--
Ethyl Benzene	0.00091 U
Methyl tert-butyl ether	0.0018 U
Toluene	0.00091 U
1,2,4-Trimethylbenzene	0.0018 U
1,3,5-Trimethylbenzene	0.0018 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.0024 J
Metals	
Lead	--

PB-85-06	4.5-5(ft)	6-6.5(ft)	14-14.5(ft)
VOCs			
Benzene	**3.1 {C}**	**18 {C}**	0.0031
1,2-Dibromoethane	--	0.052 U	--
Ethyl Benzene	2.6	28	0.005
Methyl tert-butyl ether	0.6 U	0.12 J	0.0019 U
Toluene	34	**110 {C}**	0.031
1,2,4-Trimethylbenzene	1.2	53	--
1,3,5-Trimethylbenzene	0.32 J	17	--
Xylenes (total)	--	180 J	0.0308 J
SVOCs			
Naphthalene	1.2 U	6.4	0.015
Metals			
Lead	--	--	--

PB-85-09	3.5-4(ft)
VOCs	
Benzene	**1.7 {C}**
1,2-Dibromoethane	--
Ethyl Benzene	2.8
Methyl tert-butyl ether	0.13 U
Toluene	0.7
1,2,4-Trimethylbenzene	0.48
1,3,5-Trimethylbenzene	0.62
Xylenes (total)	--
SVOCs	
Naphthalene	0.14 J
Metals	
Lead	--

PB-85-07	4.5-5(ft)
VOCs	
Benzene	0.014 J
1,2-Dibromoethane	--
Ethyl Benzene	0.069 U
Methyl tert-butyl ether	0.14 U
Toluene	0.08
1,2,4-Trimethylbenzene	0.086 J
1,3,5-Trimethylbenzene	0.022 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.34
Metals	
Lead	--

PB-85-10	3-3.5(ft)
VOCs	
Benzene	0.038 J
1,2-Dibromoethane	--
Ethyl Benzene	0.08 U
Methyl tert-butyl ether	0.16 U
Toluene	0.059 J
1,2,4-Trimethylbenzene	0.11 J
1,3,5-Trimethylbenzene	0.036 J
Xylenes (total)	--
SVOCs	
Naphthalene	0.33
Metals	
Lead	--

PB-85-03	4.5-5(ft)
VOCs	
Benzene	0.031 U
1,2-Dibromoethane	--
Ethyl Benzene	0.063 U
Methyl tert-butyl ether	0.12 U
Toluene	0.063 U
1,2,4-Trimethylbenzene	0.12 U
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	--
SVOCs	
Naphthalene	1.6
Metals	
Lead	--

PB-85-15	3-3.5(ft)
VOCs	
Benzene	0.17 U
1,2-Dibromoethane	--
Ethyl Benzene	0.33 U
Methyl tert-butyl ether	0.67 U
Toluene	0.33 U
1,2,4-Trimethylbenzene	0.67 U
1,3,5-Trimethylbenzene	0.67 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.95 J
Metals	
Lead	--

AOI1_BH-14-008	0-2(ft)	10-12(ft)
VOCs		
Benzene	0.0045 J	0.24 U
1,2-Dibromoethane	0.0027 U	0.15 U
Ethyl Benzene	0.0046 U	0.24 U
Methyl tert-butyl ether	0.0046 U	0.24 U
Toluene	0.0046 U	0.24 U
1,2,4-Trimethylbenzene	0.0046 U	0.16 J
1,3,5-Trimethylbenzene	0.0046 U	0.24 U
Xylenes (total)	0.014 U	0.21 J
SVOCs		
Naphthalene	0.085	0.11
Metals		
Lead	70.1	8

PB-85-16	3-3.5(ft)
VOCs	
Benzene	0.033 U
1,2-Dibromoethane	--
Ethyl Benzene	0.066 U
Methyl tert-butyl ether	0.13 U
Toluene	0.066 U
1,2,4-Trimethylbenzene	0.13 U
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.38
Metals	
Lead	--

PB-85-11	4-4.5(ft)
VOCs	
Benzene	0.027 U
1,2-Dibromoethane	--
Ethyl Benzene	0.026 J
Methyl tert-butyl ether	0.11 U
Toluene	0.083
1,2,4-Trimethylbenzene	0.11 U
1,3,5-Trimethylbenzene	0.11 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.12 J
Metals	
Lead	--

PB-85-12	3-3.5(ft)
VOCs	
Benzene	0.0005 U
1,2-Dibromoethane	--
Ethyl Benzene	0.001 U
Methyl tert-butyl ether	0.00042 J
Toluene	0.001 U
1,2,4-Trimethylbenzene	0.00043 J
1,3,5-Trimethylbenzene	0.002 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.004 U
Metals	
Lead	--

PB-85-13	3-3.5(ft)
VOCs	
Benzene	0.1
1,2-Dibromoethane	--
Ethyl Benzene	0.14
Methyl tert-butyl ether	0.019 J
Toluene	0.086 U
1,2,4-Trimethylbenzene	0.17 U
1,3,5-Trimethylbenzene	0.17 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.21 J
Metals	
Lead	--

PB-85-17	3-3.5(ft)
VOCs	
Benzene	0.039 U
1,2-Dibromoethane	--
Ethyl Benzene	0.078 U
Methyl tert-butyl ether	0.16 U
Toluene	0.078 U
1,2,4-Trimethylbenzene	0.036 J
1,3,5-Trimethylbenzene	0.16 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.28 J
Metals	
Lead	--

PB-85-14	4-4.5(ft)
VOCs	
Benzene	0.074
1,2-Dibromoethane	--
Ethyl Benzene	0.15
Methyl tert-butyl ether	0.014 J
Toluene	0.052 U
1,2,4-Trimethylbenzene	0.1 U
1,3,5-Trimethylbenzene	0.1 U
Xylenes (total)	--
SVOCs	
Naphthalene	0.41
Metals	
Lead	--

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

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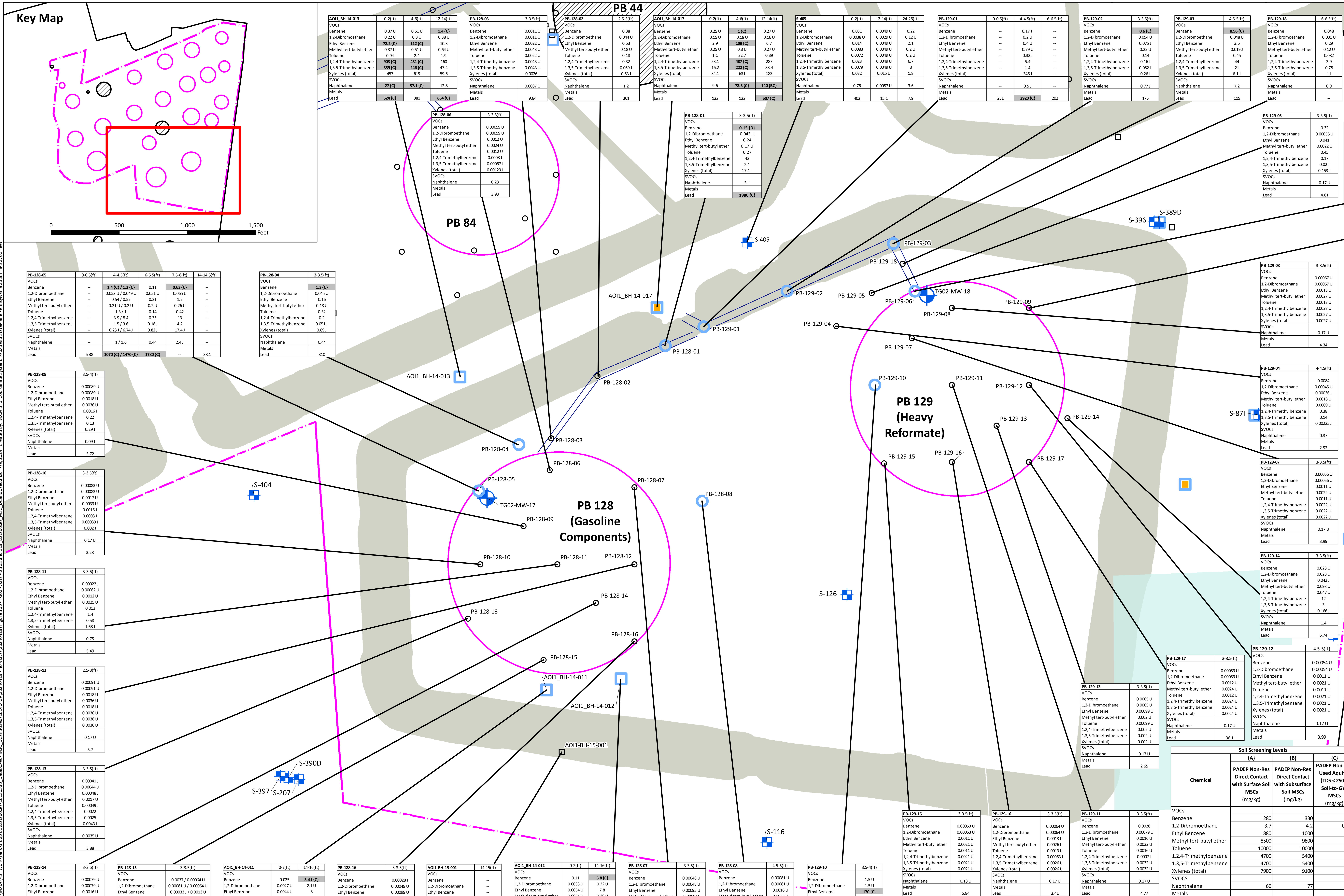
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 85)

Figure 10o



Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- Berm Boundary
- Concrete Containment Wall
- Soil Saturated with LNAPL - August 2023
- Associated Piping
- BDH Monitoring Well
- Evergreen Monitoring Well

BDH Soil Sample Location
- Exceeds S-GW MSC
- No Exceedances

Evergreen Soil Sample Location
- Exceeds S-GW MSC
- Exceeds DC MSC
- No Exceedances

Soil Screening Levels			
Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

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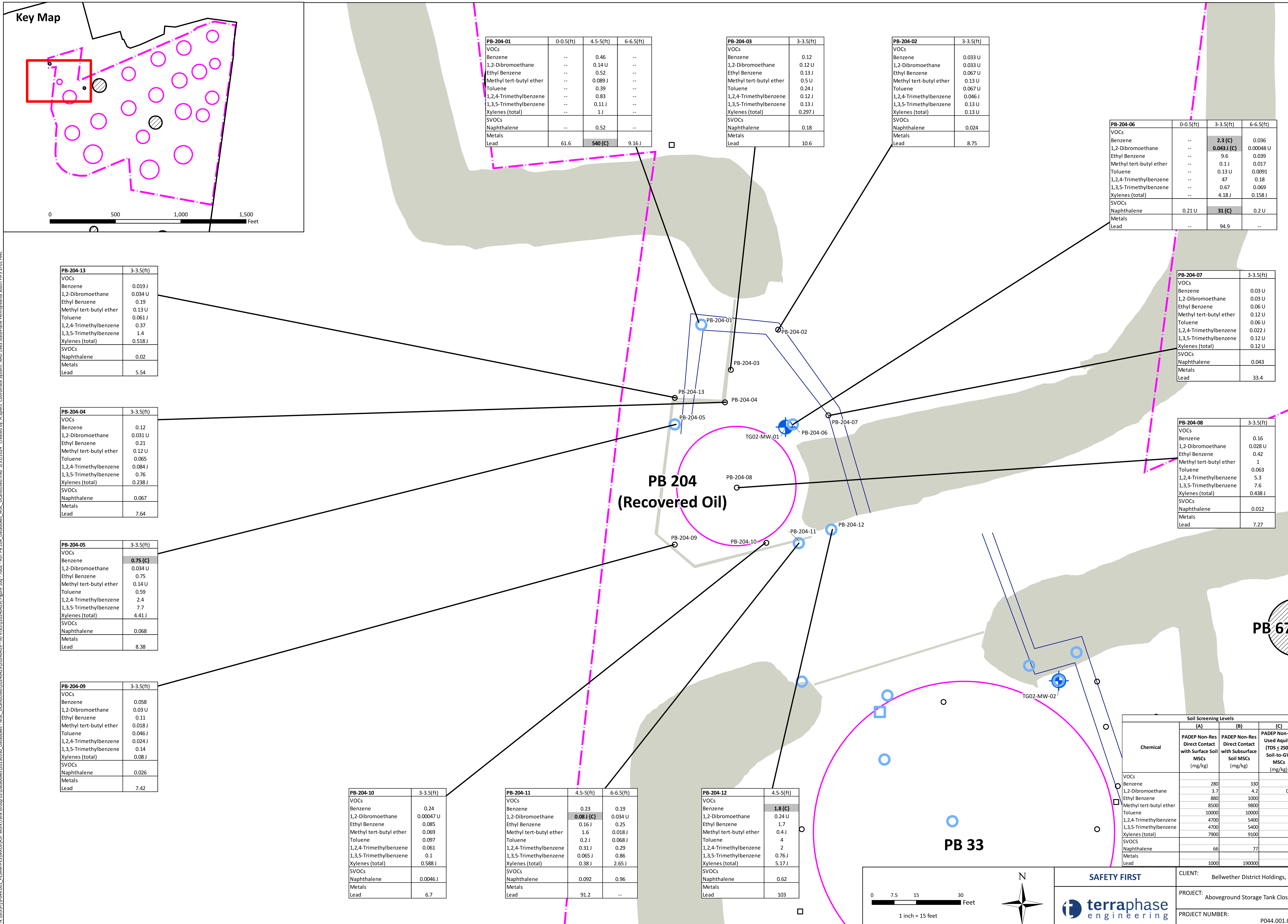
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Soil Sampling Results (ASTs PB 128 and 129)

Figure 10p



PB-204-01	0-0.5(ft)	4.5-5(ft)	6-6.5(ft)
VOCs			
Benzene	--	0.46	--
1,2-Dibromoethane	--	0.14 U	--
Ethyl Benzene	--	0.52	--
Methyl tert-butyl ether	--	0.089 J	--
Toluene	--	0.39	--
1,2,4-Trimethylbenzene	--	0.83	--
1,3,5-Trimethylbenzene	--	0.11 J	--
Xylenes (total)	--	1 J	--
SVOCs			
Naphthalene	--	0.52	--
Metals			
Lead	61.6	**540 {C}**	9.16 J

PB-204-03	3-3.5(ft)
VOCs	
Benzene	0.12
1,2-Dibromoethane	0.12 U
Ethyl Benzene	0.13 J
Methyl tert-butyl ether	0.5 U
Toluene	0.24 J
1,2,4-Trimethylbenzene	0.12 J
1,3,5-Trimethylbenzene	0.13 J
Xylenes (total)	0.297 J
SVOCs	
Naphthalene	0.18
Metals	
Lead	10.6

PB-204-02	3-3.5(ft)
VOCs	
Benzene	0.033 U
1,2-Dibromoethane	0.033 U
Ethyl Benzene	0.067 U
Methyl tert-butyl ether	0.13 U
Toluene	0.067 U
1,2,4-Trimethylbenzene	0.046 J
1,3,5-Trimethylbenzene	0.13 U
Xylenes (total)	0.13 U
SVOCs	
Naphthalene	0.024
Metals	
Lead	8.75

PB-204-06	0-0.5(ft)	3-3.5(ft)	6-6.5(ft)
VOCs			
Benzene	--	**2.3 {C}**	0.036
1,2-Dibromoethane	--	**0.043 J {C}**	0.00048 U
Ethyl Benzene	--	9.6	0.039
Methyl tert-butyl ether	--	0.1 J	0.017
Toluene	--	0.13 U	0.0091
1,2,4-Trimethylbenzene	--	47	0.18
1,3,5-Trimethylbenzene	--	0.67	0.069
Xylenes (total)	--	4.18 J	0.158 J
SVOCs			
Naphthalene	0.21 U	**31 {C}**	0.2 U
Metals			
Lead	--	94.9	--

PB-204-13	3-3.5(ft)
VOCs	
Benzene	0.019 J
1,2-Dibromoethane	0.034 U
Ethyl Benzene	0.19
Methyl tert-butyl ether	0.13 U
Toluene	0.061 J
1,2,4-Trimethylbenzene	0.37
1,3,5-Trimethylbenzene	1.4
Xylenes (total)	0.518 J
SVOCs	
Naphthalene	0.02
Metals	
Lead	5.54

PB-204-07	3-3.5(ft)
VOCs	
Benzene	0.03 U
1,2-Dibromoethane	0.03 U
Ethyl Benzene	0.06 U
Methyl tert-butyl ether	0.12 U
Toluene	0.06 U
1,2,4-Trimethylbenzene	0.022 J
1,3,5-Trimethylbenzene	0.12 U
Xylenes (total)	0.12 U
SVOCs	
Naphthalene	0.043
Metals	
Lead	33.4

PB-204-04	3-3.5(ft)
VOCs	
Benzene	0.12
1,2-Dibromoethane	0.031 U
Ethyl Benzene	0.21
Methyl tert-butyl ether	0.12 U
Toluene	0.065
1,2,4-Trimethylbenzene	0.084 J
1,3,5-Trimethylbenzene	0.76
Xylenes (total)	0.238 J
SVOCs	
Naphthalene	0.067
Metals	
Lead	7.64

PB-204-08	3-3.5(ft)
VOCs	
Benzene	0.16
1,2-Dibromoethane	0.028 U
Ethyl Benzene	0.42
Methyl tert-butyl ether	1
Toluene	0.063
1,2,4-Trimethylbenzene	5.3
1,3,5-Trimethylbenzene	7.6
Xylenes (total)	0.438 J
SVOCs	
Naphthalene	0.012
Metals	
Lead	7.27

PB-204-05	3-3.5(ft)
VOCs	
Benzene	**0.75 {C}**
1,2-Dibromoethane	0.034 U
Ethyl Benzene	0.75
Methyl tert-butyl ether	0.14 U
Toluene	0.59
1,2,4-Trimethylbenzene	2.4
1,3,5-Trimethylbenzene	7.7
Xylenes (total)	4.41 J
SVOCs	
Naphthalene	0.068
Metals	
Lead	8.38

PB-204-09	3-3.5(ft)
VOCs	
Benzene	0.058
1,2-Dibromoethane	0.03 U
Ethyl Benzene	0.11
Methyl tert-butyl ether	0.018 J
Toluene	0.046 J
1,2,4-Trimethylbenzene	0.024 J
1,3,5-Trimethylbenzene	0.14
Xylenes (total)	0.08 J
SVOCs	
Naphthalene	0.026
Metals	
Lead	7.42

PB-204-10	3-3.5(ft)
VOCs	
Benzene	0.24
1,2-Dibromoethane	0.00047 U
Ethyl Benzene	0.085
Methyl tert-butyl ether	0.069
Toluene	0.097
1,2,4-Trimethylbenzene	0.061
1,3,5-Trimethylbenzene	0.1
Xylenes (total)	0.588 J
SVOCs	
Naphthalene	0.0046 J
Metals	
Lead	6.7

PB-204-11	4.5-5(ft)	6-6.5(ft)
VOCs		
Benzene	0.23	0.19
1,2-Dibromoethane	**0.08 J {C}**	0.034 U
Ethyl Benzene	0.16 J	0.25
Methyl tert-butyl ether	1.6	0.018 J
Toluene	0.2 J	0.068 J
1,2,4-Trimethylbenzene	0.31 J	0.29
1,3,5-Trimethylbenzene	0.065 J	0.86
Xylenes (total)	0.38 J	2.65 J
SVOCs		
Naphthalene	0.092	0.96
Metals		
Lead	91.2	--

PB-204-12	4.5-5(ft)
VOCs	
Benzene	**1.8 {C}**
1,2-Dibromoethane	0.24 U
Ethyl Benzene	1.7
Methyl tert-butyl ether	0.4 J
Toluene	4
1,2,4-Trimethylbenzene	2
1,3,5-Trimethylbenzene	0.76 J
Xylenes (total)	5.17 J
SVOCs	
Naphthalene	0.62
Metals	
Lead	103

Legend

Property Boundary
Tank Group 02 Boundary
Previously Closed AST
Berm Boundary
Concrete Containment Wall
Associated Piping
BDH Monitoring Well

BDH Soil Sample Location
Exceeds S-GW MSC
No Exceedances

Evergreen Soil Sample Location
Exceeds S-GW MSC
No Exceedances

Sample Location
Sampling Depth
Result
MSC Exceeded

Soil Screening Levels

Chemical	{A} PADEP Non-Res Direct Contact with Surface Soil MSCs (mg/kg)	{B} PADEP Non-Res Direct Contact with Subsurface Soil MSCs (mg/kg)	{C} PADEP Non-Res Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs (mg/kg)
VOCs			
Benzene	280	330	0.5
1,2-Dibromoethane	3.7	4.2	0.005
Ethyl Benzene	880	1000	70
Methyl tert-butyl ether	8500	9800	2
Toluene	10000	10000	100
1,2,4-Trimethylbenzene	4700	5400	300
1,3,5-Trimethylbenzene	4700	5400	93
Xylenes (total)	7900	9100	1000
SVOCS			
Naphthalene	66	77	25
Metals			
Lead	1000	190000	450

Qualifiers:
U -- Not Detected
J -- Estimated Concentration

Abbreviations:
DC -- Direct Contact
MSC -- Medium Specific Concentration
S-GW -- Soil-to-Groundwater

Exceedance Codes:
{A} Greater than NonRes Surface DC MSC
{B} Greater than NonRes Subsurface DC MSC
{C} Greater than NonRes Used Aquifer S-GW MSC

Notes:
All concentrations are presented in mg/kg.
Results exceeding the MSCs are shaded.
Sample locations symbolizing NonRes DC exceedances indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

0 7.5 15 30 Feet
1 inch = 15 feet
N

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CLIENT: Bellwether District Holdings, LLC
PROJECT: Aboveground Storage Tank Closure
PROJECT NUMBER: P044.001.002

Soil Sampling Results (AST PB 204)

Figure 10q

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

General Distribution of Benzene in Soil

FIGURE 11a

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Remediation Systems
- Associated Piping
- BDH Soil Sample Location
- Evergreen Soil Sample Location

Soil Concentration (mg/kg)

- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000 and ≤ 10,000
- > 10,000

Note:
Results presented are the maximum concentrations found at each location regardless of depth.

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC
terraphase engineering	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

General Distribution of 12DBA in Soil

FIGURE 11b

Evergreen's Loading Rack Remediation System
Evergreen's Active 26th Street Sewer Area System
PB 7300
PB 117
PB 7308
PB 7306
PB 7305
PB 7307
PB 89A
PB 3V 37
PB 7316
PB 7312
PB 7310
PB 7311
PB 15V 101
PB 14V 403
PB 140
PB 237
PB 279
PB 298
PB 201
PB 204
PB 30
PB 67
PB 33
PB 34
PB 35
PB 40
PB 36
PB 29
PB 28
PB 27
PB 26
PB 85
PB 39
PB 38
PB 37
PB 42
PB 43
PB 83
PB 44
PB 84
PB 128
PB 129
Legend
Property Boundary
Tank Group 02 Boundary
Previously Closed AST
AST Associated with WWTP
Berm Boundary
Concrete Containment Wall
Remediation Systems
Associated Piping
BDH Soil Sample Location
Evergreen Soil Sample Location
Soil Concentration (mg/kg)
≤ 1.0
> 1.0 and ≤ 10
> 10 and ≤ 100
> 100 and ≤ 1,000
> 1,000 and ≤ 10,000
> 10,000
Note:
Results presented are the maximum concentrations found at each location regardless of depth.
0
100
200
300
400 ft
1 Inch = 100 Feet
N
SAFETY FIRST
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CLIENT:
Bellwether District Holdings, LLC
PROJECT:
Aboveground Storage Tank Closure
PROJECT NUMBER:
P044.001.002
General Distribution of Ethyl Benzene in Soil
FIGURE 11c

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

General Distribution of MTBE in Soil

FIGURE 11d

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

General Distribution of Toluene in Soil

FIGURE 11e

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Remediation Systems
- Associated Piping
- BDH Soil Sample Location
- Evergreen Soil Sample Location

Soil Concentration (mg/kg)

- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000 and ≤ 10,000
- > 10,000

Note:
Results presented are the maximum concentrations found at each location regardless of depth.

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC	General Distribution of 124TMB in Soil
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	FIGURE 11f

SAFETY FIRST	CLIENT: Bellwether District Holdings, LLC
terraphase engineering	PROJECT: Aboveground Storage Tank Closure
	PROJECT NUMBER: P044.001.002

General Distribution of 135TMB in Soil

FIGURE 11g

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Remediation Systems
- Associated Piping
- BDH Soil Sample Location
- Evergreen Soil Sample Location

Soil Concentration (mg/kg)

- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000 and ≤ 10,000
- > 10,000

Note:
Results presented are the maximum concentrations found at each location regardless of depth.

0 100 200 300 400 ft

1 Inch = 100 Feet

N

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CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

General Distribution of Naphthalene in Soil

FIGURE 11h

Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Remediation Systems
- Associated Piping
- BDH Soil Sample Location
- Evergreen Soil Sample Location

Soil Concentration (mg/kg)

- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000 and ≤ 10,000
- > 10,000

Note:
Results presented are the maximum concentrations found at each location regardless of depth.

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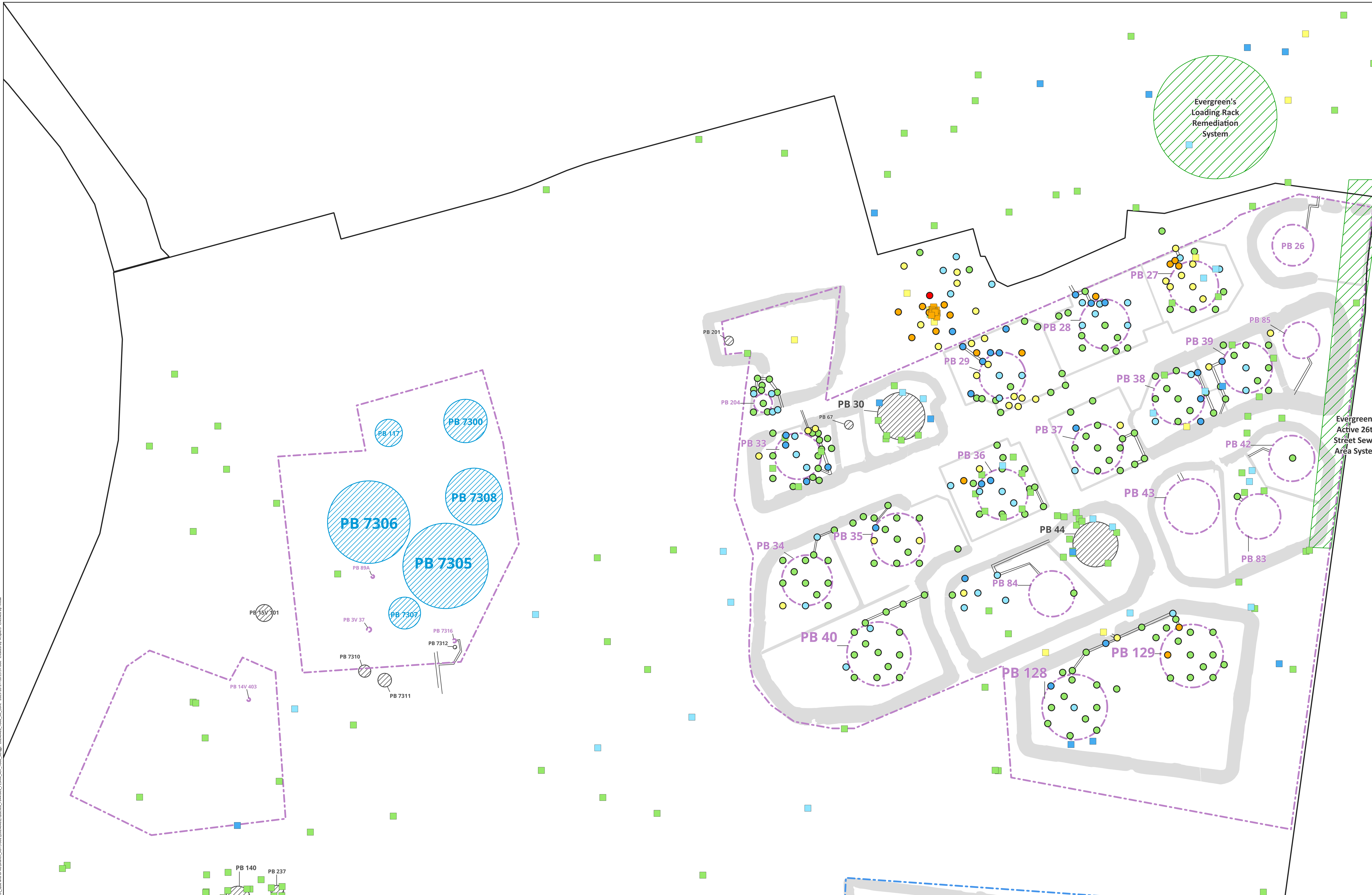
CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

General Distribution of Lead in Soil

FIGURE 11i



Legend

- Property Boundary
- Tank Group 02 Boundary
- Previously Closed AST
- AST Associated with WWTP
- Berm Boundary
- Concrete Containment Wall
- Remediation Systems
- Associated Piping
- BDH Soil Sample Location
- Evergreen Soil Sample Location

Soil Concentration (mg/kg)

- ≤ 1.0
- > 1.0 and ≤ 10
- > 10 and ≤ 100
- > 100 and ≤ 1,000
- > 1,000 and ≤ 10,000
- > 10,000

Note:
Results presented are the maximum concentrations found at each location regardless of depth.

0 100 200 300 400 ft

1 Inch = 100 Feet

N

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CLIENT:	Bellwether District Holdings, LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

General Distribution of Xylenes (total) in Soil

FIGURE 11j

S-77P	12/21/2022	1/24/2023
VOCs		
Benzene	0.27 (A)	0.29 (A)
Ethyl Benzene	0.0074	0.0064
MTBE	0.52 (A)	0.33 (A)
Toluene	0.024	0.024
1,2,4-TMB	0.002 J	0.002 J
SVOCs		
Anthracene	0.0017	0.001
BaA	0.00007	0.00004 J
BaP	0.00003 J	0.00002 J
BbF	0.00003 J	0.00002 J
BghiP	0.00002 J	0.0001 U
Chrysene	0.00005 J	0.00004 J
IcdP	0.00002 J	0.0001 U
Naphthalene	0.0062	0.0045
Pyrene	0.00049	0.00033
Metals		
Lead (Dissolved)	0.001 U	0.001 U

S-200	12/21/2022	1/24/2023
VOCs		
Benzene	5.2 (A)	4.6 (A)
Ethyl Benzene	0.4	1.1 (A)
MTBE	0.14 (A)	0.2 (A)
Toluene	0.06	0.15
1,2,4-TMB	0.59 (A)	1.2 (A)
SVOCs		
Anthracene	0.009	0.26 (A)
BaA	0.0014	0.15 (A)
BaP	0.00086 (A)	0.095 (A)
BbF	0.0011	0.12 (A)
BghiP	0.00042 (A)	0.039 (A)
Chrysene	0.0013	0.15 (A)
IcdP	0.00041	0.038 (A)
Naphthalene	1.4 (A)	6.6 (A)
Pyrene	0.0065	0.43 (A)
Metals		
Lead (Dissolved)	0.000616 J	0.000884 J

S-271	12/22/2022	1/23/2023
VOCs		
Benzene	0.14 (A)	0.13 (A)
Ethyl Benzene	0.0086 J	0.05 U
MTBE	10 (A)	11 (A)
Toluene	0.059	0.051 J
1,2,4-TMB	0.12 U	0.25 U
SVOCs		
Anthracene	0.0019	0.0012
BaA	0.00008	0.00006
BaP	0.00002 J	0.00003 J
BbF	0.00002 J	0.00003 J
BghiP	0.0001 U	0.0001 U
Chrysene	0.00006 J	0.00007 J
IcdP	0.0001 U	0.0001 U
Naphthalene	0.0007	0.0007
Pyrene	0.00075	0.0006
Metals		
Lead (Dissolved)	0.00927 (A)	0.00825 (A)

TG02-MW-05	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-04	12/20/2022
LNAPL Characterization	Mix of Light/Middle/Heavy Distillate

TG02-MW-12	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-11	12/19/2022
LNAPL Characterization	Light Distillate

TG02-MW-10	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-09	12/19/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-01	12/20/2022	1/23/2023
VOCs		
Benzene	12 (A)	10 (A) / 9.1 (A)
Ethyl Benzene	0.52	0.36 / 0.33
MTBE	1.6 (A)	1.4 (A) / 1.3 (A)
Toluene	0.2	0.15 / 0.13
1,2,4-TMB	0.37	0.26 / 0.25
SVOCs		
Anthracene	0.00013	0.00021 / 0.00018
BaA	0.00004 J	0.00004 J / 0.00005
BaP	0.0001 U	0.0001 U / 0.00002 J
BbF	0.00005 U	0.00005 U / 0.00003 J
BghiP	0.0001 U	0.0001 U / 0.00002 J
Chrysene	0.0001 U	0.00003 J / 0.00005 J
IcdP	0.0001 U	0.0001 U / 0.00002 J
Naphthalene	0.14 (A)	0.17 (A) / 0.17 (A)
Pyrene	0.00005 J	0.00013 / 0.00014
Metals		
Lead (Dissolved)	0.001 U	0.001 U / 0.001 U

TG02-MW-02	12/20/2022	1/23/2023
VOCs		
Benzene	2 (A) / 2.1 (A)	5.6 (A)
Ethyl Benzene	0.23 / 0.24	0.05
MTBE	0.064 (A) / 0.065 (A)	0.069 (A)
Toluene	0.23 / 0.24	0.56
1,2,4-TMB	0.96 (A) / 1 (A)	0.33
SVOCs		
Anthracene	0.00008 J / 0.00011	0.0001 U
BaA	0.00004 J / 0.00005 J	0.00003 J
BaP	0.0001 U / 0.0001 U	0.0001 U
BbF	0.00005 U / 0.00005 U	0.00001 J
BghiP	0.0001 U / 0.0001 U	0.0001 U
Chrysene	0.00003 J / 0.0001 U	0.00002 J
IcdP	0.0001 U / 0.0001 U	0.0001 U
Naphthalene	0.15 (A) / 0.18 (A)	0.0071
Pyrene	0.00003 J / 0.00004 J	0.00004 J
Metals		
Lead (Dissolved)	0.00357 / 0.00343	0.00393

TG02-MW-03	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-08	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

S-206	12/22/2022	1/24/2023
VOCs		
Benzene	0.0011	0.001
Ethyl Benzene	0.0005 U	0.0005 U
MTBE	0.0039	0.0022
Toluene	0.00033 J	0.00036 J
1,2,4-TMB	0.0025 U	0.0025 U
SVOCs		
Anthracene	0.00007 J	0.00002 J
BaA	0.00002 J	0.00004 J
BaP	0.0001 U	0.00003 J
BbF	0.00005 U	0.00006
BghiP	0.0001 U	0.00003 J
Chrysene	0.0001 U	0.00004 J
IcdP	0.0001 U	0.00004 J
Naphthalene	0.00023	0.0001 U
Pyrene	0.00005 J	0.00002 J
Metals		
Lead (Dissolved)	0.001 U	0.001 U

TG02-MW-06	12/19/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-15	12/20/2022
LNAPL Characterization	Mix of Light/Middle Distillate

TG02-MW-16	12/21/2022	1/26/2023
VOCs		
Benzene	1.9 (A)	0.46 (A)
Ethyl Benzene	1.3 (A)	0.46
MTBE	6 (A)	0.41 (A)
Toluene	4.8 (A)	0.45
1,2,4-TMB	0.71 (A)	0.74 (A)
SVOCs		
Anthracene	0.00016	0.0001
BaA	0.00004 J	0.00005 U
BaP	0.0001 U	0.0001 U
BbF	0.00005 U	0.00005 U
BghiP	0.0001 U	0.0001 U
Chrysene	0.0001 U	0.0001 U
IcdP	0.0001 U	0.0001 U
Naphthalene	0.066	0.029
Pyrene	0.00007 J	0.00005 J
Metals		
Lead (Dissolved)	0.00673 (A)	0.00996 (A)

TG02-MW-07	12/20/2022	1/25/2023
VOCs		
Benzene	0.1 (A)	0.18 (A)
Ethyl Benzene	0.022	0.025
MTBE	0.21 (A)	0.3 (A)
Toluene	0.062	0.076
1,2,4-TMB	0.035	0.027
SVOCs		
Anthracene	0.00009 J	0.00011
BaA	0.00003 J	0.00003 J
BaP	0.0001 U	0.0001 U
BbF	0.00005 U	0.00005 U
BghiP	0.0001 U	0.0001 U
Chrysene	0.0001 U	0.00002 J
IcdP	0.0001 U	0.0001 U
Naphthalene	0.0096	0.01
Pyrene	0.00004 J	0.00006 J
Metals		
Lead (Dissolved)	0.00112	0.00105

TG02-MW-13	12/21/2022	1/24/2023
VOCs		
Benzene	0.021 (A)	0.054 (A)
Ethyl Benzene	0.0025	0.0043
MTBE	0.031 (A)	0.044 (A)
Toluene	0.0035	0.0022
1,2,4-TMB	0.0087	0.0051
SVOCs		
Anthracene	0.00018	0.00008 J
BaA	0.00002 J	0.00005 U
BaP	0.0001 U	0.0001 U
BbF	0.00005 U	0.00005 U
BghiP	0.0001 U	0.0001 U
Chrysene	0.0001 U	0.0001 U
IcdP	0.0001 U	0.0001 U
Naphthalene	0.00088	0.0001 U
Pyrene	0.00008 J	0.00005 J
Metals		
Lead (Dissolved)	0.001 U	0.001 U

TG02-MW-14	12/21/2022	1/25/2023
VOCs		
Benzene	0.25 (A)	0.33 (A)
Ethyl Benzene	0.0026	0.0023
MTBE	0.88 (A)	0.71 (A)
Toluene	0.0063	0.0065
1,2,4-TMB	0.024	0.017
SVOCs		
Anthracene	0.0001	0.00005 J
BaA	0.00015	0.00005 U
BaP	0.00006 J	0.0001 U
BbF	0.00009	0.00005 U
BghiP	0.00011	0.0001 U
Chrysene	0.00009 J	0.0001 U
IcdP	0.00011	0.0001 U
Naphthalene	0.0082	0.0073
Pyrene	0.00004 J	0.0001 U
Metals		
Lead (Dissolved)	0.000801 J	0.000958 J

S-207	12/22/2022	1/24/2023
VOCs		
Benzene	0.0005 U	0.0005 U
Ethyl Benzene	0.0005 U	0.0005 U
MTBE	0.00097 J	0.00076 J
Toluene	0.00075 U	0.00023 J
1,2,4-TMB	0.0025 U	0.0025 U
SVOCs		
Anthracene	0.00019	0.00008 J
BaA	0.00005 U	0.00005 U
BaP	0.0001 U	0.0001 U
BbF	0.00005 U	0.00005 U
BghiP	0.0001 U	0.0001 U
Chrysene	0.0001 U	0.0001 U
IcdP	0.0001 U	0.0001 U
Naphthalene	0.00036	0.00048
Pyrene	0.00006 J	0.00003 J
Metals		
Lead (Dissolved)	0.001 U	0.001 U

TG02-MW-17*	12/19/2022
VOCs	
Benzene	0.002 U
Ethyl Benzene	0.002 U
MTBE	0.0205 (A)
Toluene	0.002 U
1,2,4-TMB	0.002 U
SVOCs	
Anthracene	0.000204 U
BaA	0.000476
BaP	0.0011 (A)
BbF	0.00104
BghiP	0.00101 (A)
Chrysene	
IcdP	0.000685
Naphthalene	0.000372
Pyrene	0.00168
Metals	
Lead (Dissolved)	--

TG02-MW-18	12/21/2022	1/24/2023
VOCs		
Benzene	0.022 (A)	0.049 (A)
Ethyl Benzene	0.1	0.19
MTBE	0.0012	0.00077 J
Toluene	0.0015	0.0013 J
1,2,4-TMB	0.038	0.066
SVOCs		
Anthracene	0.00006 J	0.00003 J
BaA	0.00003 J	0.00005 U
BaP	0.0001 U	0.0001 U
BbF	0.00005 U	0.00005 U
BghiP	0.0001 U	0.0001 U
Chrysene	0.0001 U	0.0001 U
IcdP	0.0001 U	0.0001 U
Naphthalene	0.0093	0.016
Pyrene	0.00007 J	0.00004 J
Metals		
Lead (Dissolved)	0.001 U	0.001 U

Groundwater Screening Levels	(A)
Chemical	Non-Residential GW Used Aquifer (TDS ≤ 2500) (mg/L)
VOCs	
Benzene	0.0050
Ethyl Benzene	0.70
MTBE	0.020
Toluene	1.0
1,2,4-TMB	0.53
SVOCs	
Anthracene	0.066
BaA	0.0039
BaP	0.00020
BbF	0.0012
BghiP	0.00026
Chrysene	0.0019
IcdP	0.0023
Naphthalene	0.10
Pyrene	0.13
Metals	
Lead (Dissolved)	0.0050

Notes:

* A LNAPL sample was collected from this well on December 19, 2022. Due to insufficient volume, the sample was analyzed as a water sample for PIANO VOCs and PAHs/Biomarkers. The results presented are qualified due to improper sampling, handling, and analysis protocols and may be biased low.

All concentrations are presented in mg/L.

Results exceeding the MSCs are shaded.

Wells S-389D, S-470, S-80D, S-87I, CSX-DW-5, S-294D, S-390D, S-391D, S-397, S-400, S-454, and S-459 are in the lower aquifer and were not considered when drawing the interpreted LNAPL extents.

Gauging results from well S-80 are from 2022. S-80 has been dry since the 2022 gauging event.

Well construction details for monitoring wells S-79/S-79P are unknown. Only S-79 LNAPL results were considered when drawing the interpreted LNAPL extents.

Gauging data considered when drawing the interpreted LNAPL extents was collected between November 8, 2000 – January 26, 2023.

Interpreted groundwater flow is primarily based on the water-table elevation data prepared by Stantec (2016; 2022) which also accounted for synoptic water level elevation measurements taken monitoring wells off-facility. The water level gauging data an interpreted elevations developed from the Site Characterization effort, while only based upon measurements from on-facility wells, are consistent with Stantec's.

Qualifiers:
J - Estimated
U - Not Detected

Exceedance Codes:
(A) Non-Res Used Aquifer

Legend
- Property Boundary
- Tank Group 02 Boundary
- Tank Group 03 Boundary
- Berm Boundary
- Concrete Containment Wall
- Remediation System
- Current Estimated Extent of LNAPL
- GW Flow Direction
- Associated Piping

Monitoring Well Location
- BDH
- Other
- Other (No GW Characterization Data)

Abbreviations:
1,2,4-TMB - 1,2,4-Trimethylbenzene
BaA - Benzo(a)anthracene
BaP - Benzo(a)pyrene
BbF - Benzo(b)fluoranthene
BghiP - Benzo(g,h,i)perylene
GW - Groundwater
IcdP - Indeno(1,2,3-cd)pyrene
MSC - Medium Specific Concentration
MTBE - Methyl tert-butyl ether

0 80 160 Feet
1 inch = 80 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Bellwether District Holdings, LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Characterization
GW Sampling Results

Figure 12

Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Appendix A

Tank Closure Report

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

51-33620
Facility I.D.

Former Philadelphia Refinery Point Breeze - Tank Group 2
Facility Name

Philadelphia	Philadelphia
Municipality	County

9/16/2022
Date Prepared

Kevin L. Long
Name of Person Submitting Report
(Please Print)

Terraphase Engineering
Company Name
(If Applicable)

Principal Consultant
Title

Closure Method (Check all that apply):

- ☒ AST Removal
- ☐ AST Closure-In-Place
- ☐ AST Change-In-Service

Site Assessment Results (Check all that apply):

- ☒ No Obvious Contamination - Sample Results Meet Standards/Levels
- ☒ No Obvious Contamination - Sample Results Do Not Meet Standards/Levels
- ☐ Obvious, Localized Contamination - Sample Results Meet Standards/Levels
- ☒ Obvious, Localized Contamination - Sample Results Do Not Meet Standards/Levels
- ☐ Obvious, Extensive Contamination

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

DATE RECEIVED: ______________

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Owners who are permanently closing aboveground storage tank systems may use this form to demonstrate that a storage tank system closure was performed in accordance with technical guidance document 263-4200-001 “Closure Requirements for Aboveground Storage Tank Systems”. PLEASE PRINT OR TYPE. COMPLETE ALL QUESTIONS.

SECTION I. Owner/Facility/Tank/Waste Management and Disposal Information

1. Facility ID Number 51-33620 Breeze - Tank Group 2
2. Facility Name Former Philadelphia Refinery Point
3. Facility County Philadelphia
4. Facility Municipality Philadelphia
5. Facility Address 3144 West Passyunk Avenue
6. Facility Contact Person Anne Garr
7. Facility Telephone Number (312) 796-6564
8. Owner Name Philadelphia Energy Solutions Refining and Marketing LLC
9. Owner Mailing Address 111 S. Wacker Dr., Ste 3000
10. Description of Aboveground Storage Tank Systems (Complete for each tank system closed)

DATE OF TANK SYSTEM CLOSURE (Month/Day/Year)		- -	- -	- -	- -
Description of Aboveground Storage Tank System (Complete for each tank system undergoing closure)					
DEP Tank ID Number					
Total Capacity (Gallons)					
Substance(s) Stored Throughout Operating Life of Tank System (Check All That Apply)	**a. Petroleum**				
	Unleaded Gasoline	☐	☐	☐	☐
	Leaded Gasoline	☐	☐	☐	☐
	Aviation Gasoline	☐	☐	☐	☐
	Pure Ethanol	☐	☐	☐	☐
	Blended Ethanol ______%	☐	☐	☐	☐
	Kerosene	☐	☐	☐	☐
	Jet Fuel	☐	☐	☐	☐
	Diesel Fuel	☐	☐	☐	☐
	Biodiesel ______%	☐	☐	☐	☐
	Fuel Oil No. 1	☐	☐	☐	☐
	Fuel Oil No. 2	☐	☐	☐	☐
	Fuel Oil No. 4	☐	☐	☐	☐
	Fuel Oil No. 5	☐	☐	☐	☐
	Fuel Oil No. 6	☐	☐	☐	☐
	New Motor Oil	☐	☐	☐	☐
	Used Motor Oil	☐	☐	☐	☐
	Nonpetroleum Oil, Specify	______	______	______	______
	Other, Specify	______	______	______	______
NOTE: If Hazardous Substance Block is Checked, Attach Safety Data Sheets (SDS)	**b. Hazardous Substance**	☐	☐	☐	☐
	Name of Principal CERCLA Substance	______	______	______	______
	AND				
	Chemical Abstract Service (CAS) No.	______	______	______	______
	c. Unknown	☐	☐	☐	☐

CLOSURE METHOD(s):	DEP Tank ID Number:				
Partial Storage Tank System Closure		☐	☐	☐	☐
Tank ☐ N/A	a. Removal b. Closure-in-Place c. Change-in-Service	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Piping ☐ N/A	a. Removal b. Closure-in-Place c. Change-in-Service	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Dispenser ☐ N/A	a. Removal b. Closure-in-Place c. Change-in-Service	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐
Other _______________	a. Removal b. Closure-in-Place c. Change-in-Service	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐	☐ ☐ ☐

Describe Closure Activities:

The tanks were drained via the in-place piping systems. Associated piping was also drained. Residual product was retained for use in other areas of the Former Philadelphia Refinery Complex. The interiors of tanks were cleaned. The tanks and piping were dismantled and removed from the site for disposal. When encountered, double bottoms were excavated and removed at a later date. No soil or other backfill material was excavated as part of the closure. Site Assessment sampling was performed in accordance with Aboveground Storage Tank Closure Work Plan (Terraphase 2021) which was approved by PADEP on April 23, 2021. Site Characterization sampling has also been performed to adequately characterize the horizontal and vertical extent of concentrations greater than applicable MSCs.

Yes N/A

11. Briefly describe the storage tank facility and the nature of the operations which were conducted at the facility (both historical and present) **including use of the storage tank systems:**

Tank Group 02 was located in the northern portion of the Former Philadelphia Refinery Complex. The tanks in the group held a variety of materials associated with the petroleum refining process.

☒ ☐ 12. A site location and sampling map of the site, drawn to scale, is attached. See page 11 of 11.

☒ ☐ 13. Original, color photographs of the closure process involving any excavation are attached (i.e., inside of excavation/piping runs, pit water, containment structure and foundation showing condition).

☒ ☐ 14. An amended "Storage Tanks Registration/Permitting Application" Form was submitted to the DEP, Bureau of Environmental Cleanup and Brownfields, Division of Storage Tanks, P.O. Box 8762, Harrisburg, PA 17105-8762.

Date: 1 / 12 / 2021

☒ ☐ 15. If a release was confirmed, the appropriate regional office of DEP was notified by the owner or operator.

Date: 6 / 10 / 2021 Office: Southeast

Yes	N/A	
☒	☐	16. If tanks were cleaned on-site:

a. Briefly describe the disposition of usable product: Tank Group 02 consisted of materials that did not create tank bottoms with solids requiring stabilization and therefore there was no Hazardous Secondary Materials management associated with this tank group. All tank rinseates and water from line flushing activities were eventually treated through the Point Breeze Bio-Wastewater Treatment Plant and the oils / distillates were combined and consolidated in a slop oil tank for eventual sale.

b. Briefly describe the disposal of unusable product, sludges, sediments, and wastewater generated during cleaning. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):
Remaining waste was discharged to the facility process sewer and treatment system.

c. If tank contents were determined/deemed to be hazardous waste, provide:

(1) Generator ID Number: ____________

(2) Licensed Hazardous Waste Transporter Name and ID Number: ____________

Yes	N/A	
☐	☒	17. If tanks were removed from the site for cleaning:

a. Provide the name and permit number of the processing, treatment, storage or disposal facility performing the tank cleaning:

b. If tank contents were determined/deemed to be hazardous waste, provide:

(1) Generator ID Number: ____________

(2) Licensed Hazardous Waste Transporter Name and ID Number: ____________

18. Briefly describe the disposition of tanks/piping (Attach documentation of proper disposal):
All tanks, associated piping were cleaned, demolished and recycled for scrap value. See scrap disposal documentation attached.

Yes	N/A	
☐	☒	19. If contaminated soil is excavated:

a. Briefly describe the disposition and amount __________ (tons) of contaminated soil. Provide the name and permit number of the processing, treatment, storage or disposal facility. (Attach documentation of proper disposal):

b. If contaminated soil is determined/deemed to be hazardous waste, provide:

(1) Generator ID Number: ______________________

(2) Licensed Hazardous Waste Transporter Name and ID Number: ______________________

Yes	N/A	
☐	☒	20. Briefly describe the disposition of and amount _________ (tons) of uncontaminated soil and debris (attach analyses):
☐	☒	21. If the tanks were "Closed-in-Place" provide information below:

a. Briefly describe the tank cleaning process: ______________________

b. If subcontracted, name and address of company that performed the tank cleaning:

____

c. How were tanks marked/labeled with permanent closure date: ______________________

I, Anne R. Garr, Assistant Secretary (Print Name), hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the owner of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Signature of Tank Owner

09 / 26 / 2022
Date

Philadelphia Energy Solutions Refining and Marketing LLC
Company Name
(If applicable)

Assistant Secretary
Title

Section I - Table 1
Description of Aboveground Storage Tank System

DATE OF TANK SYSTEM CLOSURE (Month/Day/Year)		12/31/2021	1/15/2021	1/25/2021	2/9/2021	5/21/2021	3/31/2021	3/31/2021	3/29/2021	3/11/2021	3/18/2021	9/1/2021	9/7/2021
Description of Aboveground Storage Tank System		(Complete for each tank system undergoing closure)				(Complete for each tank system undergoing closure)				(Complete for each tank system undergoing closure)			
DEP Tank ID Number		001A	019A	020A	021A	002A	022A	023A	026A	032A	033A	041A	087A
Total Capacity (Gallons)		2,142,000	3,410,400	3,414,432	2,935,800	2,935,800	3,285,996	3,410,400	5,527,200	6,447,000	6,447,000	340,200	3,410,400
Substance(s) Stored Throughout Operating Life of Tank System (Check All That Apply)	**a. Petroleum**												
	Unleaded Gasoline												
	Leaded Gasoline												
	Aviation Gasoline												
	Pure Ethanol	X				X	X	X	X				X
	Blended Ethanol ______%												
	Kerosene												
	Jet Fuel												
	Diesel Fuel												
	Biodiesel ______%												
	Fuel Oil No. 1												
	Fuel Oil No. 2												
	Fuel Oil No. 4												
	Fuel Oil No. 5												
	Fuel Oil No. 6												
	New Motor Oil												
	Used Motor Oil												
	Nonpetroleum Oil, Specify												
	Other, Specify		Gasoline Components	Alkylate	Heavy Reformate					Gasoline Components	Heavy Reformate	Recovered Oil	
NOTE: If Hazardous Substance Block is Attach Safety Data Sheets (SDS)	**b. Hazardous Substance** Name of Principal CERCLA Substance												
	AND Chemical Abstract Service (CAS) No.												
	c. Unknown												
CLOSURE METHOD(s):	DEP Tank ID Number:	001A	019A	020A	021A	002A	022A	023A	026A	032A	033A	041A	087A
Partial Storage Tank System Closure													
Tank ☐ N/A	a. Removal	X	X	X	X	X	X	X	X	X	X	X	X
	b. Closure-in-Place												
	c. Change-in-Service												
Piping ☐ N/A	a. Removal	X	X	X	X	X	X	X	X	X	X	X	X
	b. Closure-in-Place												
	c. Change-in-Service												
Dispenser ☑ N/A	a. Removal												
	b. Closure-in-Place												
	c. Change-in-Service												
Other ____________	a. Removal												
	b. Closure-in-Place												
	c. Change-in-Service												

DATE OF TANK SYSTEM CLOSURE (Month/Day/Year)		6/25/2021	9/3/2021	6/16/2021	6/9/2021	6/7/2021	6/10/2021	5/26/2021	4/15/2021	7/23/2021	7/23/2021	8/18/2021	7/21/2021
Description of Aboveground Storage Tank System		(Complete for each tank system undergoing closure)				(Complete for each tank system undergoing closure)				(Complete for each tank system undergoing closure)			
DEP Tank ID Number		024A	003A	025A	027A	028A	004A	029A	030A	071A	014A	061A	089A
Total Capacity (Gallons)		3,200,400	3,410,400	3,410,400	2,818,200	3,385,200	3,288,600	3,288,600	1,806,000	3,990	1,764	700	2,500
Substance(s) Stored Throughout Operating Life of Tank System (Check All That Apply)	**a. Petroleum**												
	Unleaded Gasoline												
	Leaded Gasoline												
	Aviation Gasoline												
	Pure Ethanol		X	X									
	Blended Ethanol ______%												
	Kerosene												
	Jet Fuel												
	Diesel Fuel				X								
	Biodiesel ______%												
	Fuel Oil No. 1												
	Fuel Oil No. 2												
	Fuel Oil No. 4												
	Fuel Oil No. 5												
	Fuel Oil No. 6												
	New Motor Oil												
	Used Motor Oil												
	Nonpetroleum Oil, Specify												
	Other, Specify	Gasoline Components				15MV1, Distillate	15MV1, Distillate	15MV1, Distillate	15MV2, Distillate				
NOTE: If Hazardous Substance Block is Attach Safety Data Sheets (SDS)	**b. Hazardous Substance** Name of Principal CERCLA Substance									Acid, Phosphoric	Methanol	Methanol	Sodium Hypochlorite
	AND Chemical Abstract Service (CAS) No.									7664-38-2	67-56-1	67-56-1	7681-52-9
	c. Unknown												
CLOSURE METHOD(s):	DEP Tank ID Number:	024A	003A	025A	027A	028A	004A	029A	030A	071A	014A	061A	089A
Partial Storage Tank System Closure													
Tank ☐ N/A	a. Removal	X	X	X	X	X	X	X	X	X	X	X	X
	b. Closure-in-Place												
	c. Change-in-Service												
Piping ☐ N/A	a. Removal	X	X	X	X	X	X	X	X	X	X	X	X
	b. Closure-in-Place												
	c. Change-in-Service												
Dispenser ☑ N/A	a. Removal												
	b. Closure-in-Place												
	c. Change-in-Service												
Other ____________	a. Removal												
	b. Closure-in-Place												
	c. Change-in-Service												

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION II. Tank Handling Information

Facility ID Number 51 - 33620

DEP Tank ID Number(s) 001A, 019A, 020A, 021A, 002A, 022A, 023A, 026A, 032A, 033A, 041A, 087A, 024A, 003A, 025A, 027A, 028A, 004A, 029A, 030A, 071A, 014A, 061A, 089A.

Yes N/A

1. Briefly describe the excavation and initial on-site staging of uncontaminated/contaminated soil and debris:
Removed tank and piping debris was segregated and loaded into roll-off containters during demolition.

2. Briefly describe the method of piping system closure and the closure of the piping systems including the quantity and condition of the piping:

3. Briefly describe the condition of the tanks and any problems encountered during tank handling or tank removal activities:

4. Briefly describe the method used to purge the tanks of and monitor for hazardous or explosive vapors:

☒ ☐ 5. If tanks were cleaned on-site:
   a. Briefly describe the tank cleaning process: Tanks were drained, cut open, rinsed and scrubbed clean of any residuals before demolition.
   b. If subcontracted, name and address of company that performed the tank cleaning:
   NorthStar Contracting Group, Inc., 2250 East Adams Avenue, Philadelphia, PA 19124

☐ ☒ 6. If tanks were "Closed-in-Place", briefly describe how tanks were rendered inoperative, marked permanently closed with date, vented and secured to prevent unauthorized entry:

☐ ☒ 7. If contamination was suspected or observed, the "Notification of Contamination" form was submitted.

I, Kristian Satterthwaite, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to
(Print Name)
unsworn falsification to authorities) that I am the certified remover who performed the tank handling activities associated with the closure of the above referenced storage tank(s) and that the information provided by me in this closure report (Section I) is true, accurate and complete to the best of my knowledge and belief.

Kristian Satterthwaite
Signature of Certified Remover

5 / 4 / 2021
Date

5081
Remover Certification Number

1557
Company Certification Number

JD2 Environmental, Inc.
Company Name

800 East Washington Street
Street

West Chester, PA 19380
City/Town, State, Zip

(610) 430-8151
Phone

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 001A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

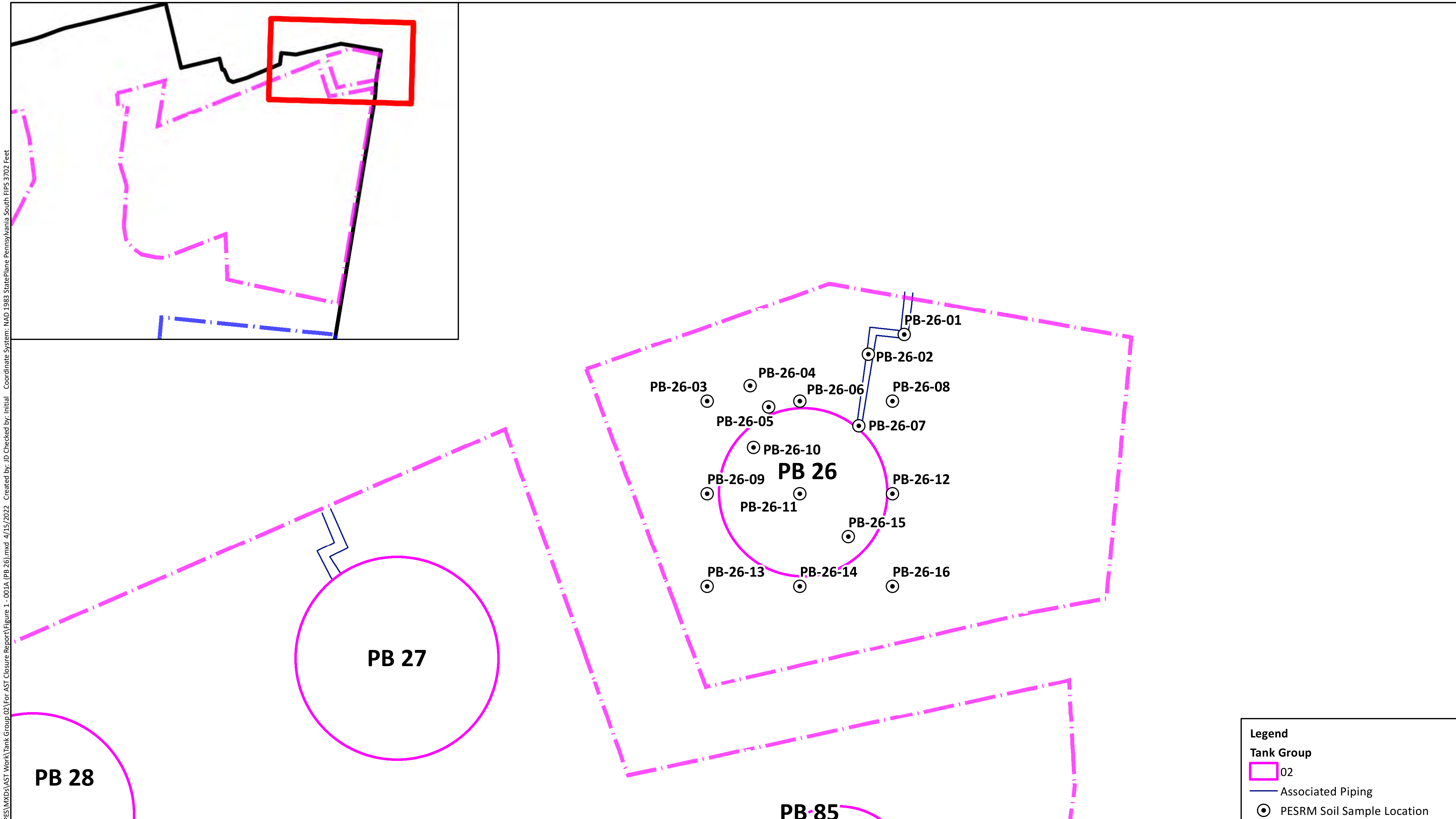
County:

Township/Borough: See Attached Figure.

Table 1 - 001A (PB 26)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-26-01	PB-26-01-SS01	3.5	4.0	Ethanol	SW8015D	Soil	ND	2.55	6/7/2021	6/14/2021
PB-26-02	PB-26-02-SS01	3.0	3.5	Ethanol	SW8015D	Soil	ND	2.34	6/7/2021	6/14/2021
PB-26-03	PB-26-03-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.38	6/7/2021	6/14/2021
PB-26-04	PB-26-04-SS01	4.0	4.5	Ethanol	SW8015D	Soil	ND	2.49	6/7/2021	6/14/2021
PB-26-05	PB-26-05-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.31	6/7/2021	6/14/2021
PB-26-06	PB-26-06-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.34	6/7/2021	6/14/2021
PB-26-07	PB-26-07-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.34	6/7/2021	6/14/2021
PB-26-08	PB-26-08-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.29	6/7/2021	6/15/2021
PB-26-09	PB-26-09-SS01	3.0	3.5	Ethanol	SW8015D	Soil	ND	2.42	6/7/2021	6/15/2021
PB-26-10	PB-26-10-SS01	2.5	3.0	Ethanol	SW8015D	Soil	ND	2.44	6/7/2021	6/15/2021
PB-26-11	PB-26-11-SS01	3.5	4.0	Ethanol	SW8015D	Soil	ND	2.44	6/7/2021	6/15/2021
PB-26-12	PB-26-12-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.43	6/7/2021	6/16/2021
PB-26-13	PB-26-13-SS01	4.5	5.0	Ethanol	SW8015D	Soil	ND	2.4	6/7/2021	6/16/2021
PB-26-14	PB-26-14-SS01	4.0	4.5	Ethanol	SW8015D	Soil	ND	2.48	6/7/2021	6/16/2021
PB-26-15	PB-26-15-SS01	4.0	4.5	Ethanol	SW8015D	Soil	ND	2.44	6/7/2021	6/16/2021
PB-26-16	PB-26-16-SS01	3.5	4.0	Ethanol	SW8015D	Soil	ND	2.4	6/7/2021	6/16/2021

Notes:
SS -- Soil Sample.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Site Location and Sampling Map 001A (PB 26)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 001A (PB 26).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of former Tank 001A (PB 26) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 001A)

NorthStar Contracting Group, Inc.

Jo Dusty

PES Project Load Ticket

#5120103

Load Ticket: 13548

Date: 01-05-2021

Scrap

Sold to: Allegheny
Location: Tank 26
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☒ Other TANK PLATE

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade____
- ☐ Other Alloy, Grade____
- ☐ Mixed
- ☐ Other:____

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:____

Scale Ticket #:

Gross Weight: 79380 lbs

Tare Weight: 38260 lbs

Net Weight: 41120 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location:____

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:____

Carrier:____

Truck #:____

Container #:____

Manifest #:____

Profile / Approval #:____

Scale Info

Scale Ticket #:____

Gross Weight:____

Tare weight:____

Net weight:____

Net Kilogram Conversion (PCB Only):____

NorthStar Rep. Signature:____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026395
Date: 01/05/2021 8:07 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 4020.886
Loads: 287

DT202-1108 - TRACTOR 1108 TRAILER 202
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	20.56 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	79380.00	38260.00	41120.00


13548

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 002A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

____________________ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

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I, Kevin Long ______________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 002A (PB 33)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-33-01	PB-33-01-SS01	4.5	5.0	Lead	SW6010D	Soil	5.89	2.42	6/10/2021	7/2/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.34	0.49	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.061	0.24	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.061	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.24	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Benzene	SW8260C	Soil	1.2	0.061	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Cumene	SW8260C	Soil	2.6	0.12	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.17	0.12	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.093	0.24	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.12	6/10/2021	6/20/2021
PB-33-01	PB-33-01-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.26	0.24	6/10/2021	6/20/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Lead	SW6010D	Soil	9.41	2.44	6/10/2021	7/2/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	7	0.49	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	51	1.2	6/10/2021	6/20/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.062	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	16	0.25	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	6.6	0.062	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.7	0.12	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	29	0.12	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.25	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.53	0.12	6/10/2021	6/21/2021
PB-33-02	PB-33-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	71.7	0.25	6/10/2021	6/21/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Lead	SW6010D	Soil	6.57	2.56	6/10/2021	7/2/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	0.28	0.28	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	5.7	0.14	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.069	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.2	0.14	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.038	0.034	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Cumene	SW8260C	Soil	1.6	0.069	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.22	0.069	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.018	0.14	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.069	6/10/2021	6/20/2021
PB-33-03	PB-33-03-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	1.12	0.14	6/10/2021	6/20/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Lead	SW6010D	Soil	13	2.3	6/10/2021	6/22/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	8.6	1.1	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	130	1.1	6/10/2021	6/20/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.14	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.28	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	43	0.57	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Benzene	SW8260C	Soil	12	0.14	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Cumene	SW8260C	Soil	13	0.28	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	91	0.57	6/10/2021	6/20/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.57	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Toluene	SW8260C	Soil	0.52	0.28	6/10/2021	6/21/2021
PB-33-04	PB-33-04-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	329	1.1	6/10/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Lead	SW6010D	Soil	8.92	2.36	6/11/2021	7/5/2021
PB-33-05	DUP-06	2.0	2.5	Naphthalene	SW8260C	Soil	9.8	1.1	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	150	2.7	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.14	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.27	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	36	0.54	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Benzene	SW8260C	Soil	30	0.14	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Cumene	SW8260C	Soil	7.7	0.27	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Ethyl Benzene	SW8260C	Soil	55	0.27	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.39	0.54	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Toluene	SW8260C	Soil	150	1.4	6/11/2021	6/21/2021
PB-33-05	DUP-06	2.0	2.5	Xylenes (total)	SW8260C	Soil	310	2.7	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Lead	SW6010D	Soil	13	2.37	6/11/2021	7/5/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	15	1.3	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	180	2.5	6/11/2021	6/20/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.16	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.32	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	53	0.63	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Benzene	SW8260C	Soil	46	0.16	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Cumene	SW8260C	Soil	12	0.32	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	83	0.32	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.53	0.63	6/11/2021	6/21/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Toluene	SW8260C	Soil	180	1.3	6/11/2021	6/20/2021
PB-33-05	PB-33-05-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	410	2.5	6/11/2021	6/20/2021
PB-33-05R	PB-33-05R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	6.6	0.06	2/7/2022	2/28/2022
PB-33-05R	PB-33-05R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	5.2	0.053	2/7/2022	2/14/2022
PB-33-05R	PB-33-05R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	21	0.11	2/7/2022	2/14/2022
PB-33-05R	PB-33-05R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	0.19	0.11	2/7/2022	2/14/2022
PB-33-06	PB-33-06-SS01	1.0	1.5	Lead	SW6010D	Soil	6.69	2.29	6/11/2021	7/5/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	0.078	0.2	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.1	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.026	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.051	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.1	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.026	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Cumene	SW8260C	Soil	0.31	0.051	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	ND	0.051	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.1	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.051	6/11/2021	6/20/2021
PB-33-06	PB-33-06-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	ND	0.1	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Lead	SW6010D	Soil	8.06	2.21	6/11/2021	7/5/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0019	0.0036	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0018	0.0018	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00045	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0009	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.01	0.0018	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.14	0.00045	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.01	0.0009	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.056	0.0009	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0074	0.0018	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0009	6/11/2021	6/20/2021
PB-33-07	PB-33-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.06045	0.0018	6/11/2021	6/20/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Lead	SW6010D	Soil	8.52	2.22	6/11/2021	7/5/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.14	0.21	6/11/2021	6/21/2021

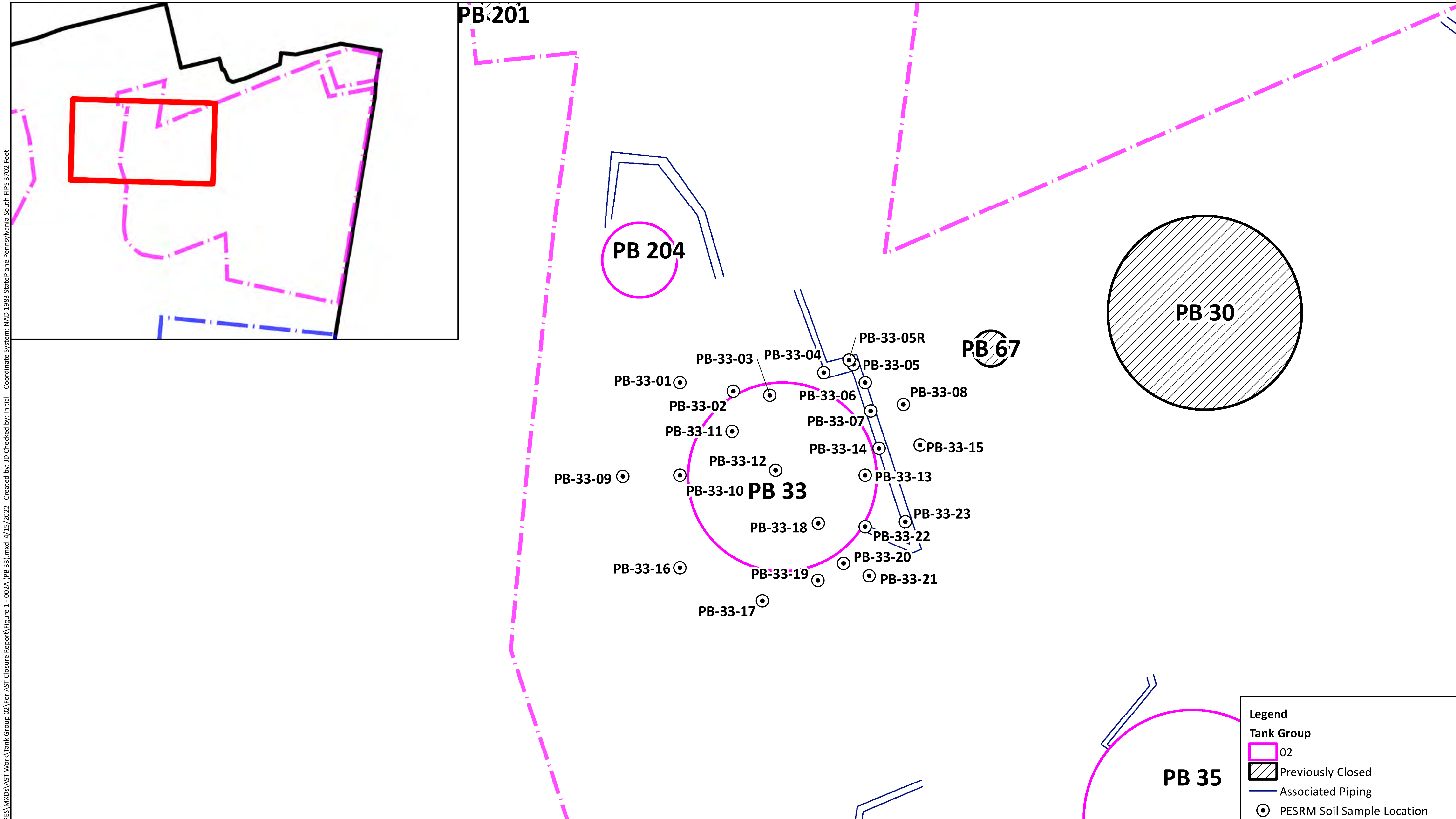
Table 1 - 002A (PB 33)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-33-08	PB-33-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.044	0.1	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.026	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.052	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.1	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.15	0.026	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.7	0.052	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.56	0.052	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.1	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.052	6/11/2021	6/21/2021
PB-33-08	PB-33-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.08	0.1	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Lead	SW6010D	Soil	10.2	2.33	6/11/2021	7/5/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	7.4	1.1	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	67	0.53	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.13	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.27	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	26	0.53	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Benzene	SW8260C	Soil	7.9	0.13	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Cumene	SW8260C	Soil	6.6	0.27	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	53	0.27	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.53	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Toluene	SW8260C	Soil	2.7	0.27	6/11/2021	6/21/2021
PB-33-09	PB-33-09-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	208.3	1.1	6/11/2021	6/21/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Lead	SW6010D	Soil	13	2.25	6/11/2021	7/5/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.056	0.22	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.11	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.056	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.11	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.028	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.015	0.056	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.056	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.056	6/11/2021	6/20/2021
PB-33-10	PB-33-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.11	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Lead	SW6010D	Soil	7.51	2.36	6/11/2021	7/5/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	4.3	0.22	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	34	0.55	6/11/2021	6/21/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.055	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	12	0.11	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Benzene	SW8260C	Soil	12	0.028	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.6	0.055	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	3.6	0.055	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	2.6	0.11	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Toluene	SW8260C	Soil	7	0.055	6/11/2021	6/20/2021
PB-33-11	PB-33-11-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	22.5	0.11	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Lead	SW6010D	Soil	9.05	2.28	6/11/2021	7/5/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	0.72	0.21	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	4.9	0.11	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.027	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.053	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	1.6	0.11	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Benzene	SW8260C	Soil	2.7	0.027	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.67	0.053	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	2.4	0.053	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	0.56	0.11	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.036	0.053	6/11/2021	6/20/2021
PB-33-12	PB-33-12-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	1.936	0.11	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Lead	SW6010D	Soil	6.33	2.31	6/11/2021	7/5/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Naphthalene	SW8260C	Soil	0.0007	0.0034	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0017	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00043	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.00086	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0017	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Benzene	SW8260C	Soil	0.00053	0.00043	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Cumene	SW8260C	Soil	0.0069	0.00086	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Ethyl Benzene	SW8260C	Soil	0.00021	0.00086	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Methyl tert-butyl ether	SW8260C	Soil	0.0023	0.0017	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Toluene	SW8260C	Soil	ND	0.00086	6/11/2021	6/20/2021
PB-33-13	PB-33-13-SS01	0.5	1.0	Xylenes (total)	SW8260C	Soil	ND	0.0017	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Lead	SW6010D	Soil	8.41	2.41	6/11/2021	7/5/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.01	0.0038	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00095	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00029	0.0019	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0011	0.00047	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.086	0.00095	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00019	0.00095	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00066	0.0019	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.00084	0.00095	6/11/2021	6/20/2021
PB-33-14	PB-33-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00168	0.0019	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Lead	SW6010D	Soil	10	2.31	6/11/2021	7/5/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.0043	0.004	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.015	0.002	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0048	0.002	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.0005	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.016	0.001	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.0055	0.001	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.00083	0.001	6/11/2021	6/20/2021
PB-33-15	PB-33-15-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0235	0.002	6/11/2021	6/20/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Lead	SW6010D	Soil	46.7	2.18	6/11/2021	7/5/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.047	0.27	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.14	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.068	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.021	0.14	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.13	0.034	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.1	0.068	6/11/2021	6/21/2021

Table 1 - 002A (PB 33)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-33-16	PB-33-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.028	0.068	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.068	6/11/2021	6/21/2021
PB-33-16	PB-33-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.099	0.14	6/11/2021	6/21/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Lead	SW6010D	Soil	10	2.18	6/11/2021	7/5/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	ND	0.0036	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00045	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0009	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.00045	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Cumene	SW8260C	Soil	0.00042	0.0009	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	ND	0.0009	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	0.00041	0.0018	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.0009	6/11/2021	6/20/2021
PB-33-17	PB-33-17-SS01	1.5	2.0	Xylenes (total)	SW8260C	Soil	ND	0.0018	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Lead	SW6010D	Soil	9.81	2.32	6/11/2021	7/5/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	8	2.2	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	29	1.1	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.27	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.54	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	1.7	1.1	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Benzene	SW8260C	Soil	18	0.27	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Cumene	SW8260C	Soil	8.5	0.54	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	7.2	0.54	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	1.1	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.54	6/11/2021	6/20/2021
PB-33-18	PB-33-18-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	2.37	1.1	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Lead	SW6010D	Soil	61.3	2.21	6/11/2021	7/5/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	0.087	0.27	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	3.7	0.13	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.067	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	1.1	0.13	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Benzene	SW8260C	Soil	0.1	0.033	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Cumene	SW8260C	Soil	0.079	0.067	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	0.32	0.067	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Toluene	SW8260C	Soil	1.7	0.067	6/11/2021	6/20/2021
PB-33-19	PB-33-19-SS01	1.5	2.0	Xylenes (total)	SW8260C	Soil	11.2	0.13	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Lead	SW6010D	Soil	372	2.32	6/11/2021	7/5/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0048	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0006	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0006	0.0006	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-20	PB-33-20-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0024	6/11/2021	6/20/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Lead	SW6010D	Soil	36.6	2.24	6/11/2021	7/5/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.0007	0.0036	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00036	0.0018	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00045	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0009	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.00019	0.00045	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Cumene	SW8260C	Soil	ND	0.0009	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.0009	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.0009	6/11/2021	6/21/2021
PB-33-21	PB-33-21-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	ND	0.0018	6/11/2021	6/21/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Lead	SW6010D	Soil	8.82	2.17	6/11/2021	7/5/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	ND	0.0046	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0023	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00058	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0023	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.0005	0.00058	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Cumene	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.00022	0.0012	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	0.00025	0.0023	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.0012	6/11/2021	6/20/2021
PB-33-22	PB-33-22-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	ND	0.0023	6/11/2021	6/20/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Lead	SW6010D	Soil	8.86	2.31	6/11/2021	7/5/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	7.3	0.57	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	62	1.1	6/11/2021	6/20/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.071	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.14	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	2.4	0.28	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.2	0.071	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Cumene	SW8260C	Soil	4	0.14	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.87	0.14	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.28	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.14	6/11/2021	6/21/2021
PB-33-23	PB-33-23-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	10.07	0.28	6/11/2021	6/21/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-06 is a field duplicate associated with sample PB-33-05-SS01.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 002A (PB 33)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 002A (PB 33).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 002A (PB 33) during the beginning stages of demolition.

Photograph 2:

View of Tank 002A (PB 33) interior during demolition process.

Photograph 3:

Tank 002A (PB 33) during demolition process

Photograph 4:

View of waste pile.

	**Photograph 5:** View of soil after demolition.
	**Photograph 6:** View of soil after demolition.

Product Movement and Waste Disposal Documentation (Tank 002A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 11929

Date: 05-24-21

Scrap

Sold to: Alleghany

Location: Tank 33

Carrier: Alleghany

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade____
- ☐ Other Alloy, Grade____
- ☐ Mixed
- ☐ Other: ____

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ____

Scale Ticket #: ____

Gross Weight: 57740 lbs

Tare Weight: 36580 lbs

Net Weight: 21160 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ____

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ____

Carrier: ____

Truck #: ____

Container #: ____

Manifest #: ____

Profile / Approval #: ____

Scale Info

Scale Ticket #: ____

Gross Weight: ____

Tare weight: ____

Net weight: ____

Net Kilogram Conversion (PCB Only): ____

NorthStar Rep. Signature: ____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20027442
Date: 05/24/2021 9:32 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 17479.016
Loads: 1296

DT202-45 - ALLEGHANY TRUCK 202 W/TRAILER 45
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	**Quantity**	**Price**	**Material $**	**Delivery $**	**Misc $**	**Tax $**	**Line Total $**
SCRAP	10.58 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	57740.00	36580.00	21160.00


11929

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 003A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

____________________ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

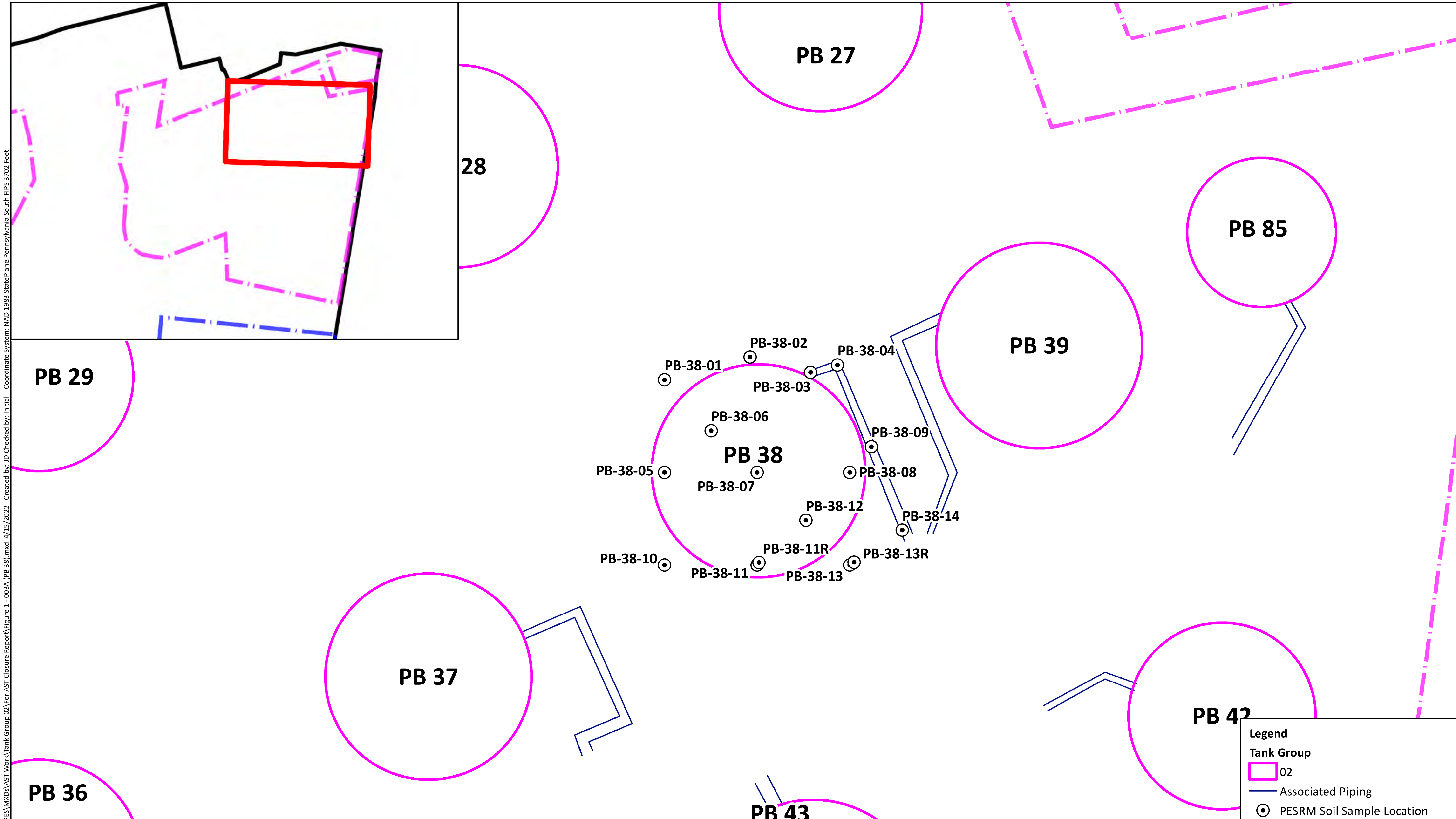
Table 1 - 003A (PB 38)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-38-01	DUP-14	3.0	3.5	Lead	SW6010C	Soil	179	2.2	7/16/2021	7/26/2021
PB-38-01	DUP-14	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.005	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00062	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00062	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0025	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	7/16/2021	7/22/2021
PB-38-01	DUP-14	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0025	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Lead	SW6010C	Soil	110	2.6	7/16/2021	7/24/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0049	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0061	0.0024	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00061	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0062	0.0024	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.1	0.00061	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.028	0.0012	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.005	0.0012	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0024	0.0024	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.015	0.0012	7/16/2021	7/22/2021
PB-38-01	PB-38-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0429	0.0024	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Lead	SW6010C	Soil	22.9	2.4	7/16/2021	7/24/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0041	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00078	0.002	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00088	0.002	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00076	0.00051	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0038	0.001	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0024	0.002	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0008	0.001	7/16/2021	7/22/2021
PB-38-02	PB-38-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0073	0.002	7/16/2021	7/22/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Lead	SW6010C	Soil	96.7	2.4	7/16/2021	7/24/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	2	0.43	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.97	0.21	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.054	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.11	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.13	0.21	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	7.2	0.054	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.5	0.11	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.8	0.11	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.21	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	3.3	0.11	7/16/2021	7/21/2021
PB-38-03	PB-38-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	6.9	0.21	7/16/2021	7/21/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Lead	SW6010C	Soil	188	2.4	7/16/2021	7/26/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	10	0.23	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	5.4	0.12	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	4.3	0.12	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	10	0.029	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	5.5	0.059	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	15	0.059	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	1.2	0.059	7/16/2021	7/22/2021
PB-38-04	PB-38-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	21.9	0.12	7/16/2021	7/22/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Lead	SW6010C	Soil	13.6	2.4	7/16/2021	7/26/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0042	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.009	0.0021	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0032	0.0021	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00054	0.00052	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00035	0.001	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.001	0.001	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0042	0.001	7/16/2021	7/21/2021
PB-38-05	PB-38-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.053	0.0021	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Lead	SW6010C	Soil	17.8	2.5	7/16/2021	7/24/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.00093	0.0043	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0013	0.0022	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00054	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0012	0.0022	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.038	0.00054	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.00073	0.0011	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.00074	0.0011	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.11	0.0022	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0011	0.0011	7/16/2021	7/21/2021
PB-38-06	PB-38-06-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.0036	0.0022	7/16/2021	7/21/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Lead	SW6010C	Soil	81.7	2.4	7/16/2021	7/26/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.001	0.0038	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.00055	0.00048	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.00044	0.00096	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.00043	0.00096	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.00044	0.0019	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.00096	7/16/2021	7/22/2021
PB-38-07	PB-38-07-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.0012	0.0019	7/16/2021	7/22/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Lead	SW6010C	Soil	30.3	2.3	7/16/2021	7/26/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	24	1.2	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	150	1.2	7/16/2021	7/22/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.15	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.3	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	49	0.6	7/16/2021	7/21/2021

Table 1 - 003A (PB 38)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-38-08	PB-38-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	8.4	0.15	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	8	0.3	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	39	0.3	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.6	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	20	0.3	7/16/2021	7/21/2021
PB-38-08	PB-38-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	76	0.6	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Lead	SW6010C	Soil	188	2.4	7/16/2021	7/26/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0041	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0002	0.00051	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00073	0.002	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-38-09	PB-38-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Lead	SW6010C	Soil	464	2.5	7/16/2021	7/26/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.24	0.25	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	1	0.12	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	0.064	0.063	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.28	0.12	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.1	0.031	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.02	0.063	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.4	0.063	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.022	0.12	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	3.9	0.063	7/16/2021	7/21/2021
PB-38-10	PB-38-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	4.95	0.12	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Lead	SW6010C	Soil	780	2.4	7/16/2021	7/26/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0045	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0075	0.0022	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0026	0.0022	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0014	0.00056	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.003	0.0011	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0043	0.0011	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.002	0.0022	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.02	0.0011	7/16/2021	7/21/2021
PB-38-11	PB-38-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.041	0.0022	7/16/2021	7/21/2021
PB-38-11R	PB-38-11R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	22.6	2.21	2/9/2022	2/13/2022
PB-38-11R	PB-38-11R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	18.7	2.15	2/9/2022	2/13/2022
PB-38-12	PB-38-12-SS01	4.5	5.0	Lead	SW6010C	Soil	31.6	3.3	7/16/2021	7/28/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.34	0.51	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.18	0.26	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.064	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.078	0.26	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.04	0.064	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.42	0.13	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.032	0.13	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.059	0.26	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.13	7/16/2021	7/21/2021
PB-38-12	PB-38-12-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.279	0.26	7/16/2021	7/21/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Lead	SW6010C	Soil	12.7	2.4	7/16/2021	7/26/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	12	1	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	98	1.2	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.12	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	0.078	0.25	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	31	0.5	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	19	0.12	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	5.2	0.25	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	28	0.25	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.5	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.75	0.25	7/16/2021	7/22/2021
PB-38-13	PB-38-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	41.7	0.5	7/16/2021	7/22/2021
PB-38-13R	PB-38-13R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.16	0.035	2/9/2022	2/23/2022
PB-38-13R	PB-38-13R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	3	0.024	2/9/2022	2/11/2022
PB-38-14	PB-38-14-SS01	3.0	3.5	Lead	SW6010C	Soil	36.6	2.8	7/16/2021	7/26/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.71	0.32	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.18	0.16	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.04	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.08	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.046	0.16	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.054	0.04	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.1	0.08	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.05	0.08	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.16	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.082	0.08	7/16/2021	7/22/2021
PB-38-14	PB-38-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.306	0.16	7/16/2021	7/22/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-14 is a field duplicate associated with sample PB-38-01-SS01.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

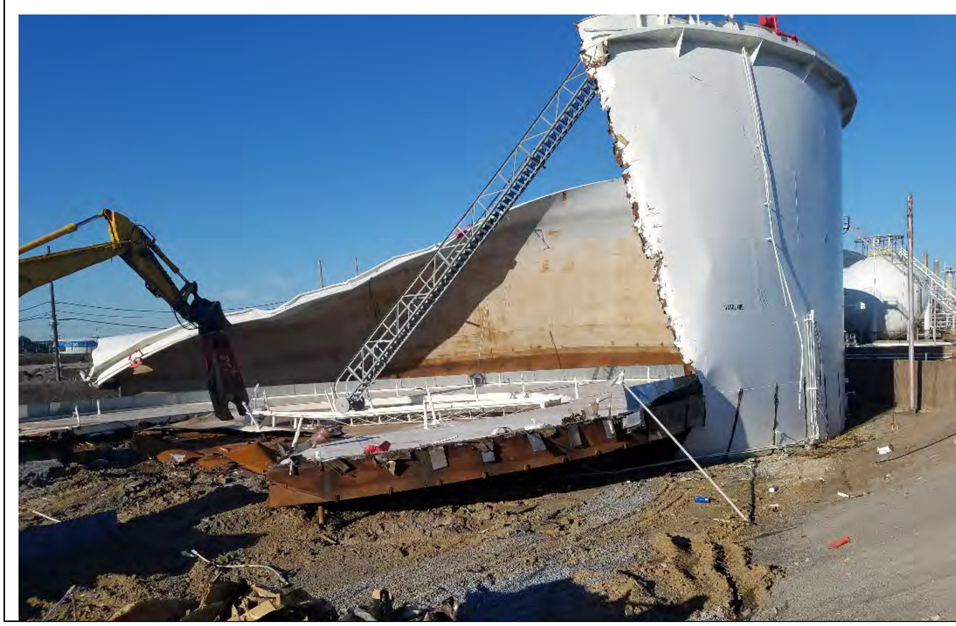
Site Location and Sampling Map 003A (PB 38)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 003A (PB 38).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 003A (PB 38) during the beginning stages of demolition.



Photograph 2:

View of Tank 003A (PB 38) interior during demolition process.

	**Photograph 3:** View of Tank 003A (PB 38) double bottom during the beginning stages of demolition.
	**Photograph 4:** View of waste pile.

	**Photograph 5:** View of waste pile.
	**Photograph 6:** View of soil after demolition.

Product Movement and Waste Disposal Documentation (Tank 003A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 12675

Date: 06 17 21

Scrap

Sold to: Allegheny

Location: TANK 38

Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade______
- ☐ Other Alloy, Grade______
- ☐ Mixed
- ☐ Other: ______

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ______

Scale Ticket #: ______

Gross Weight: 72080 lb

Tare Weight: 40480 lb

Net Weight: 31600 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ______

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ______

Carrier: ______

Truck #: ______

Container #: ______

Manifest #: ______

Profile / Approval #: ______

Scale Info

Scale Ticket #: ______

Gross Weight: ______

Tare weight: ______

Net weight: ______

Net Kilogram Conversion (PCB Only): ______

NorthStar Rep. Signature: ______

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20028025
Date: 06/17/2021 9:49 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 26023.556
Loads: 1877

DT56-1 - TRACTOR 1 TRAILER DT56
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	15.8 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	72080.00	40480.00	31600.00


12675

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 004A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☐ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☒ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): Hydrocarbon vapors were detected within the tank containment dike in the area immediately adjacent to the north side of demolished PES Tank PB-83 (PADEP Tank #004A). A hydrocarbon sheen was also observed on the ponded water in the same area of Tank PB-83. Facility personnel indicated a leak had previously discovered and report to the PA DEP in 2013, resulting from a leak in underground piping. ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☒ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

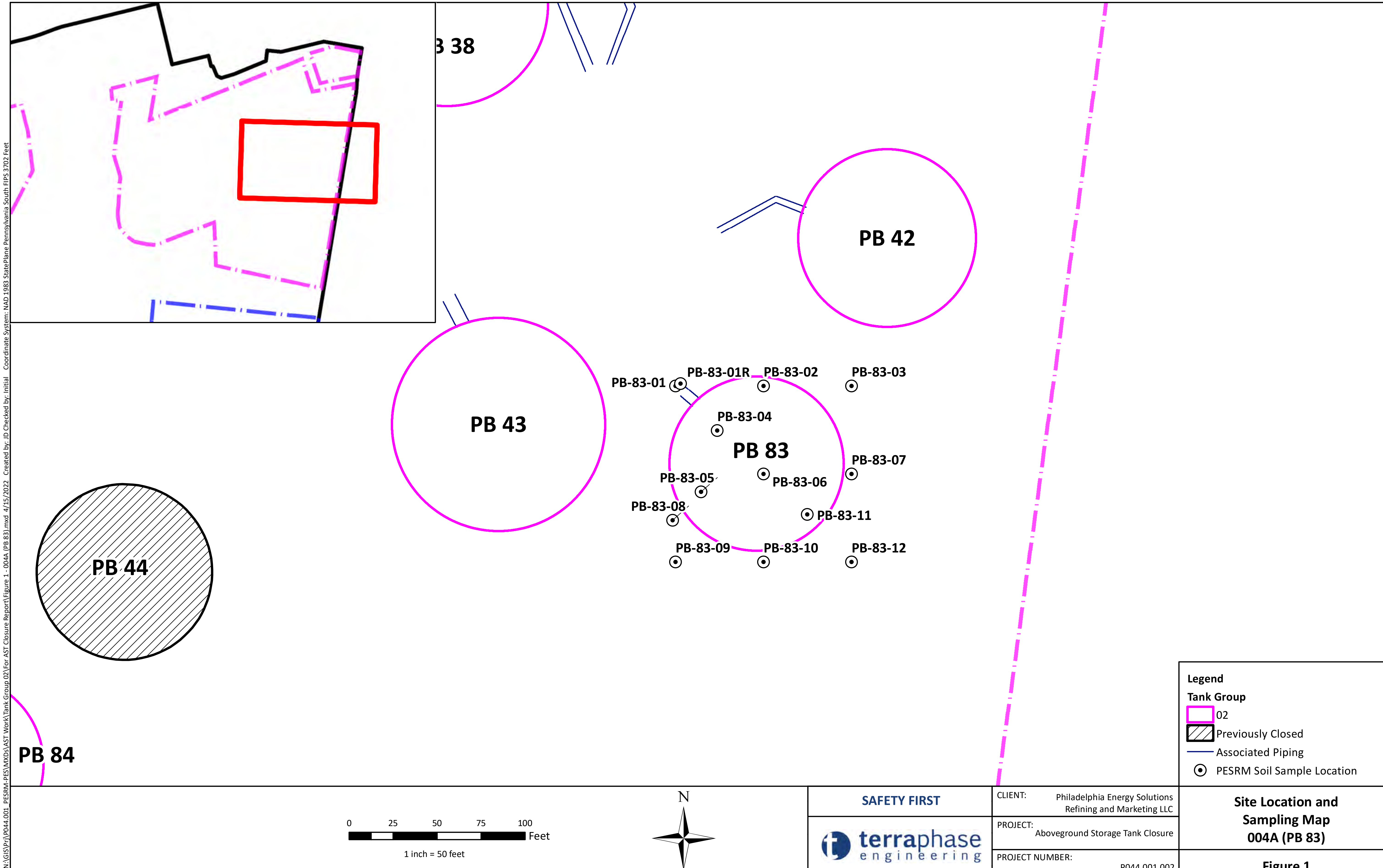
County:

Township/Borough: See Attached Figure.

Table 1 - 004A (PB 83)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-83-01	PB-83-01-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	14	0.51	6/25/2021	7/6/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	51	1.3	6/25/2021	7/3/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	19	0.25	6/25/2021	7/6/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	Benzene	SW8260C	Soil	5	0.064	6/25/2021	7/6/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	Cumene	SW8260C	Soil	9	0.13	6/25/2021	7/6/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	38	0.64	6/25/2021	7/3/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.25	6/25/2021	7/6/2021
PB-83-01	PB-83-01-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.53	0.13	6/25/2021	7/6/2021
PB-83-01R	PB-83-01R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.9	0.037	2/14/2022	2/24/2022
PB-83-01R	PB-83-01R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	1.6	0.039	2/14/2022	2/16/2022
PB-83-02	PB-83-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	1.3	0.25	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	4.8	0.13	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	3.3	0.13	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.64	0.032	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	3	0.064	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	12	0.064	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/25/2021	7/3/2021
PB-83-02	PB-83-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.24	0.064	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.044	0.24	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.051	0.12	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.015	0.12	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.012	0.061	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.016	0.061	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-83-03	PB-83-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.036	0.061	6/25/2021	7/3/2021
PB-83-04	PB-83-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.21	0.13	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.1	0.13	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.46	0.032	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	4.4	0.064	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1	0.064	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.082	0.064	2/14/2022	2/26/2022
PB-83-04	PB-83-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.014	0.0021	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.01	0.0021	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.0035	0.00052	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.12	0.001	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.0073	0.001	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.013	0.001	2/14/2022	2/26/2022
PB-83-05	PB-83-05-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	0.8	0.2	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0062	0.0021	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0019	0.0021	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.0037	0.00053	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.038	0.001	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.0013	0.001	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.0043	0.001	2/14/2022	2/26/2022
PB-83-06	PB-83-06-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	ND	1.3	2/14/2022	2/26/2022
PB-83-07	PB-83-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0051	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0025	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0025	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00063	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0025	6/25/2021	7/3/2021
PB-83-07	PB-83-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	6/25/2021	7/3/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	ND	0.0037	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Benzene	SW8260C	Soil	ND	0.00046	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Cumene	SW8260C	Soil	ND	0.00093	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/25/2021	7/5/2021
PB-83-08	PB-83-08-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.00093	6/25/2021	7/5/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.004	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021
PB-83-09	PB-83-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/25/2021	7/6/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	ND	0.0058	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0029	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00048	0.0029	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.00072	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Cumene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0029	6/25/2021	7/3/2021
PB-83-10	PB-83-10-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-83-11	PB-83-11-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00078	0.0022	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00021	0.0022	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00055	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Cumene	SW8260C	Soil	ND	0.0011	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.0011	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.0011	2/14/2022	2/26/2022
PB-83-11	PB-83-11-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	1.9	0.19	2/14/2022	2/26/2022
PB-83-12	PB-83-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0079	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0039	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0039	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00098	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0039	6/25/2021	7/6/2021
PB-83-12	PB-83-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.002	6/25/2021	7/6/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

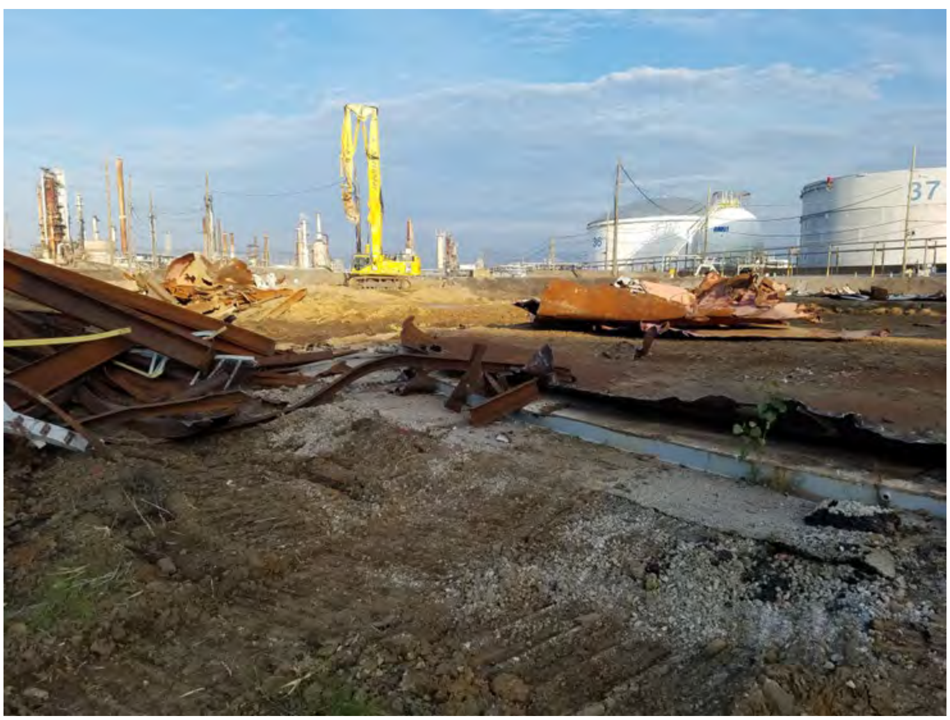
PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 004A (PB 83)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 004A (PB 83).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of Tank 004A (PB 83) during the beginning stages of demolition.
	**Photograph 2:** View of Tank 0XXA (PB XXX) during demolition process.

	**Photograph 3:** View of concrete pad and waste pile following demolition
	**Photograph 4:** View of waste pile.

Photograph 5:

View of sheen on water adjacent to the northern portion of Tank 004A (PB 83).

Photograph 6:

View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 004A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 12518

Date: 06-11-21

Scrap

Sold to: Alleghany

Location: Tank 08

Carrier: Alleghany

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade____________
- ☐ Other Alloy, Grade____________
- ☐ Mixed
- ☐ Other: ____________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ____________

Scale Ticket #: ____________

Gross Weight: 66760 lbs

Tare Weight: 17780 lbs

Net Weight: 48980 lb

NorthStar Rep. Signature: [signature]

Received By: Paul C.

Non-Haz / ACM / Special Waste

Activity Location: ____________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ____________

Carrier: ____________

Truck #: ____________

Container #: ____________

Manifest #: ____________

Profile / Approval #: ____________

Scale Info

Scale Ticket #: ____________

Gross Weight: ____________

Tare weight: ____________

Net weight: ____________

Net Kilogram Conversion (PCB Only): ____________

NorthStar Rep. Signature: ____________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20027890
Date: 06/11/2021 9:31 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 24001.826
Loads: 1742

DT328-1109 - TRACTOR 1109 TRAILER DT328
CARLAD - CARLA DAVILA

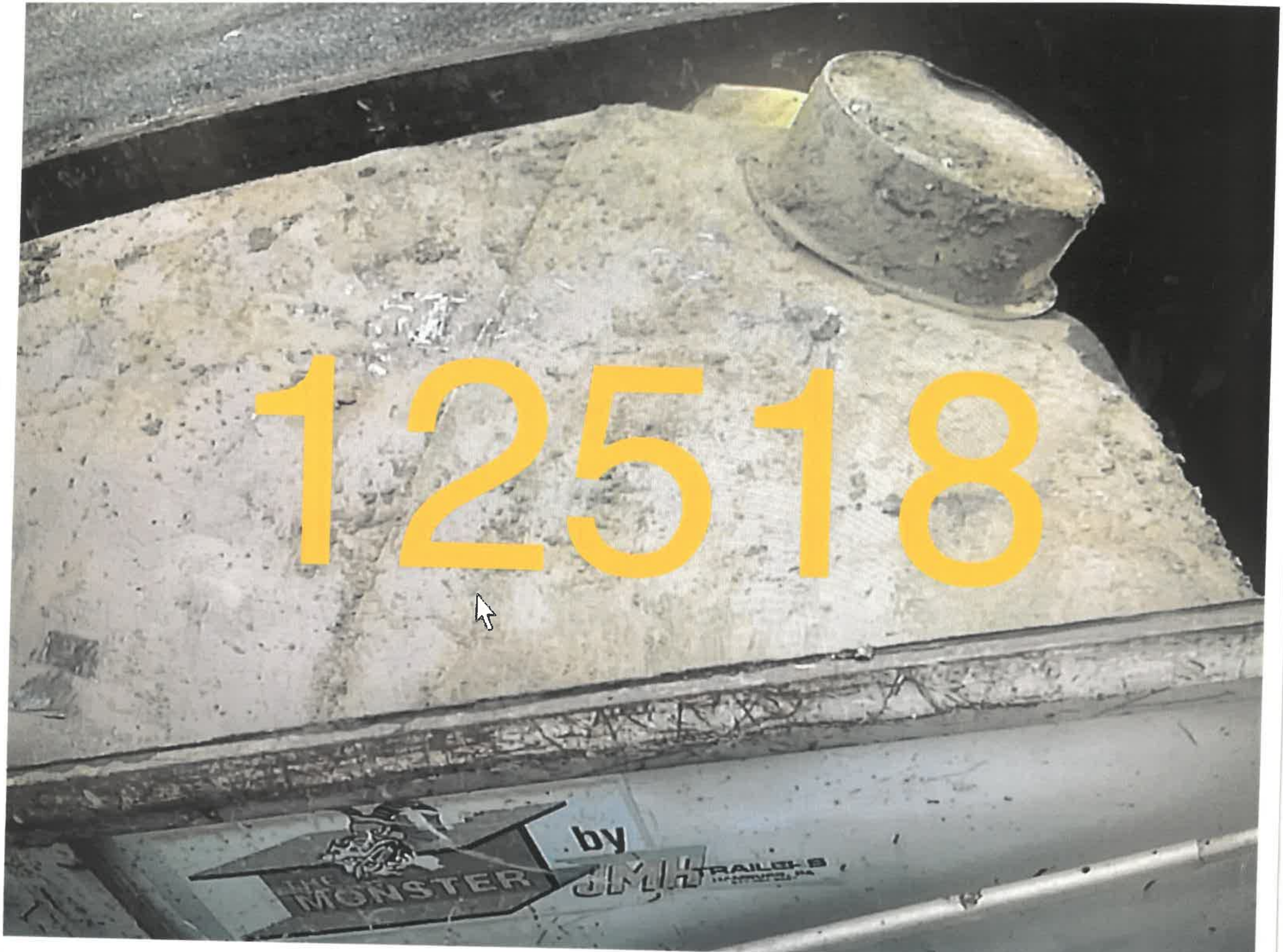
Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	24.24 tn						

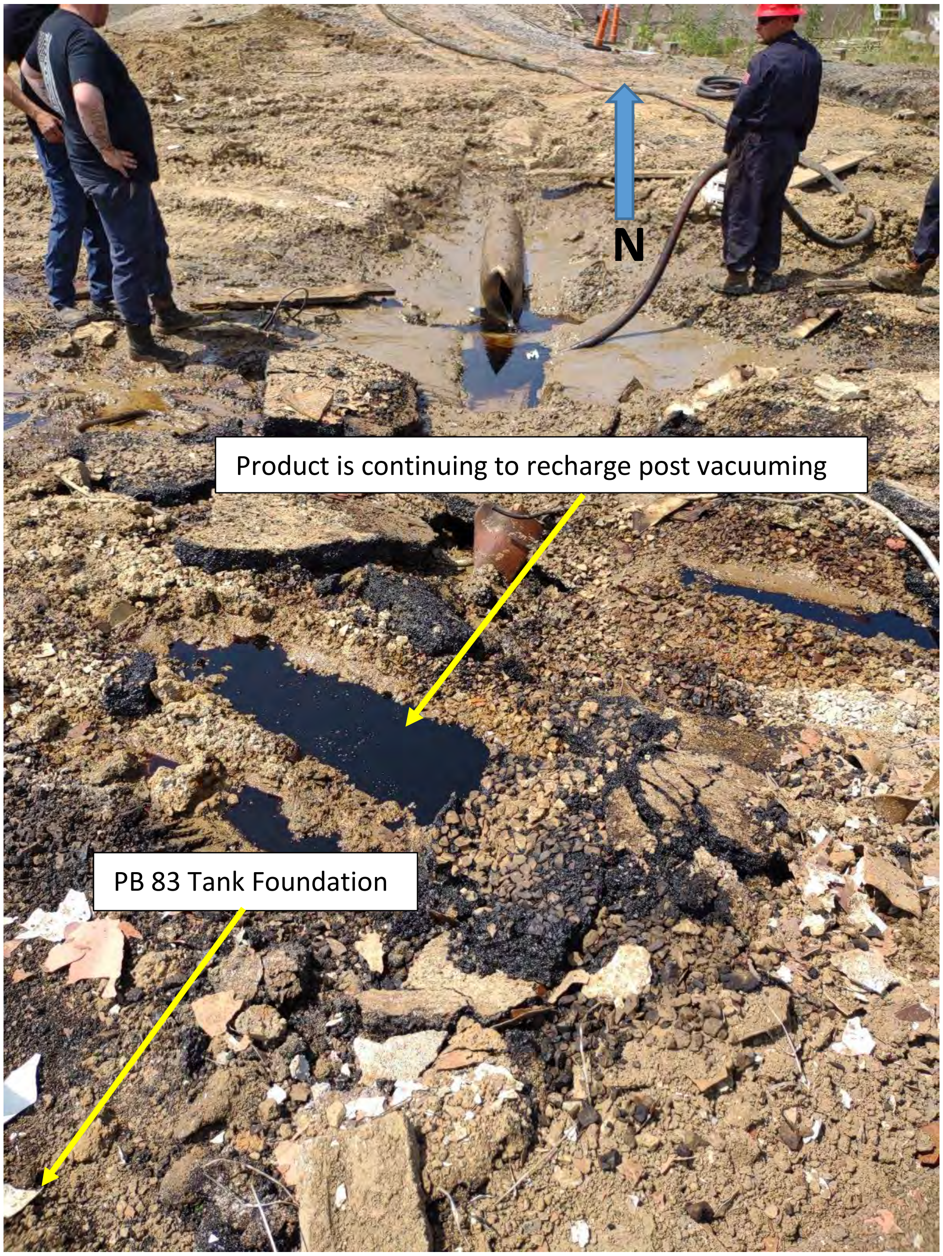
Weight Information

Material	Gross	Tare	Net
SCRAP	90760.00	42280.00	48480.00


12518
THE MONSTER
by
JMH
TRAILERS


PB 83 (004A) foundation looking south
1 load of water and product (3,000 gal.- estimated @ 95% water) removed on 06-10-2021. Water continues to recharge in the area of the product discovered by the inspector. A small trench and sump will be dug tomorrow to facilitate water and product collection/removal.
N
EMERGENCY SHUTOFF
NOTICE


N
Product is appears to be emanating from around or under the foundation of PB 83.


N
Product is continuing to recharge post vacuuming
PB 83 Tank Foundation


PB 83 (004A) Foundation
Broken Asphalt against Foundation Ring Wall
North- northwest perimeter of tank PB 83. (004A) sheen is hard to see due to lighting, but the dark color that appears to be oil is from the asphalt that is dissolving and floating on the surface, the entire perimeter area (soil and gravel has light to moderate surface staining).

NorthStar
Contracting Group, Inc.

PRODUCT MOVEMENT LOG

SUBCONTRACTOR NAME: MPW HVWR617

DATE: 6-10-21 **TIME:** 4:25pm

MATERIAL TYPE: LIQUID ○ SOLID ○ RECOVERED OIL/WATER ⊗

DESCRIPTION OF WASTE: Mixed Rain water & HHO + Asphalt

VOLUME

3000 GALLONS	TONS	CY	OTHER-SPECIFY

ESTIMATE

10 % OIL	90 % WATER	% SOLIDS	% EMULSION

SOURCE OF WASTE: Water pools by 43+83

DISPOSAL POINT: 843

SIGNATURE: [signature] **DATE:** 6-10-21

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 014A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______________________

____

____

____

______________________ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______________________

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

	**Photograph 1:** View of Tank 014A (PB 3V 37) following closure.
	**Photograph 2:** View of Tank 014A (PB 3V 37) interior during closure.

	**Photograph 3:** View of tank and condition of containment.
	**Photograph 4:** View of full tank in containment.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 019A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------➔ Conduct confirmatory sampling -------➔ See end of this section for options on submission and maintenance of closure records -------➔ Do not complete item C.2. below.

☐ YES -------➔ Report release to DEP within 24 hours ------➔ Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):

------➔ Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----➔ Remove or remediate contaminated soil -----➔ Conduct confirmatory sampling -----➔ See end of this section for options on submission and maintenance of closure records.

☐ NO -----➔ Continue Interim Remedial Actions -----➔ See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----➔ Conduct confirmatory sampling -----➔ See end of this section for options on submission and maintenance of closure records.

☐ YES -----➔ Report release to DEP within 24 hours -----➔ Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):

Continue with corrective action -----➔ See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 019A (PB 27)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-27-01	PB-27-01-SS01	2.5	3.0	Lead	SW6010D	Soil	182	2.39	6/7/2021	6/23/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	98	7.5	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	400	3.8	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.94	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	1.9	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	150	3.8	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Benzene	SW8260C	Soil	16	0.94	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Cumene	SW8260C	Soil	33	1.9	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	130	1.9	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	49	3.8	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Toluene	SW8260C	Soil	89	1.9	6/7/2021	6/14/2021
PB-27-01	PB-27-01-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	770	3.8	6/7/2021	6/14/2021
PB-27-01R	PB-27-01R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	273	2.3	2/8/2022	2/13/2022
PB-27-01R	PB-27-01R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	ND	0.2	2/8/2022	2/14/2022
PB-27-01R	PB-27-01R-3.5-4.0	3.5	4.0	Lead	SW6010D	Soil	16.9	2.32	2/8/2022	2/13/2022
PB-27-01R	PB-27-01R-3.5-4.0	3.5	4.0	Naphthalene	SW8270D	Soil	0.63	0.2	2/8/2022	2/14/2022
PB-27-02	PB-27-02-SS01	3.0	3.5	Lead	SW6010D	Soil	1580	2.49	6/7/2021	6/23/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	170	31	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	530	15	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	3.8	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	7.6	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	200	15	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	69	3.8	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	61	7.6	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	250	7.6	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	120	15	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	160	7.6	6/7/2021	6/14/2021
PB-27-02	PB-27-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1400	15	6/7/2021	6/14/2021
PB-27-02R	PB-27-02R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	1210	2.38	2/8/2022	2/13/2022
PB-27-02R	PB-27-02R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	0.036	0.2	2/8/2022	2/14/2022
PB-27-02R	PB-27-02R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	6.6	0.068	2/8/2022	2/23/2022
PB-27-02R	PB-27-02R-14.0-14.5	14.0	14.5	Ethyl Benzene	SW8260C	Soil	31	0.14	2/8/2022	2/23/2022
PB-27-02R	PB-27-02R-14.0-14.5	14.0	14.5	Methyl tert-butyl ether	SW8260C	Soil	0.38	0.27	2/8/2022	2/23/2022
PB-27-02R	PB-27-02R-14.0-14.5	14.0	14.5	Toluene	SW8260C	Soil	12	0.14	2/8/2022	2/23/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	9	2.35	2/8/2022	2/13/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	180	12	2/8/2022	2/9/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	57	0.59	2/8/2022	2/11/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	19	0.15	2/8/2022	2/11/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	100	5.9	2/8/2022	2/9/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Methyl tert-butyl ether	SW8260C	Soil	2.5	0.59	2/8/2022	2/11/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	170	5.9	2/8/2022	2/9/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Xylenes (total)	SW8260C	Soil	460	12	2/8/2022	2/9/2022
PB-27-02R	PB-27-02R-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	0.8	0.2	2/8/2022	2/14/2022
PB-27-03	PB-27-03-SS01	3.5	4.0	Lead	SW6010D	Soil	38.8	2.35	6/8/2021	7/2/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	59	2.7	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	470	5.5	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.34	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.68	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	180	1.4	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Benzene	SW8260C	Soil	39	0.34	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Cumene	SW8260C	Soil	32	0.68	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	200	2.7	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	36	1.4	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Toluene	SW8260C	Soil	370	2.7	6/8/2021	6/16/2021
PB-27-03	PB-27-03-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	1160	5.5	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Lead	SW6010D	Soil	101	2.39	6/8/2021	7/2/2021
PB-27-04	DUP-03	3.5	4.0	Naphthalene	SW8260C	Soil	2.4	0.28	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	6.4	0.14	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.035	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.07	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.3	0.14	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Benzene	SW8260C	Soil	0.64	0.035	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Cumene	SW8260C	Soil	1.9	0.07	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.45	0.07	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.019	0.14	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Toluene	SW8260C	Soil	0.27	0.07	6/8/2021	6/16/2021
PB-27-04	DUP-03	3.5	4.0	Xylenes (total)	SW8260C	Soil	1.21	0.14	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Lead	SW6010D	Soil	392	2.32	6/8/2021	7/2/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	3.3	0.24	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	7.2	0.12	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.061	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.27	0.12	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Benzene	SW8260C	Soil	1.3	0.03	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Cumene	SW8260C	Soil	3.2	0.061	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.56	0.061	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.022	0.12	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.36	0.061	6/8/2021	6/16/2021
PB-27-04	PB-27-04-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	1.33	0.12	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Lead	SW6010D	Soil	63	2.38	6/8/2021	7/2/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	93	7.4	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	480	3.7	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.92	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	1.8	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	180	3.7	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Benzene	SW8260C	Soil	60	0.92	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Cumene	SW8260C	Soil	56	1.8	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	250	1.8	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	9.5	3.7	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Toluene	SW8260C	Soil	31	1.8	6/8/2021	6/16/2021
PB-27-05	PB-27-05-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	1210	3.7	6/8/2021	6/16/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Lead	SW6010D	Soil	22.8	2.4	6/8/2021	7/2/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	27	2.4	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	300	2.4	6/8/2021	6/16/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.3	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.6	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	98	1.2	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Benzene	SW8260C	Soil	39	0.3	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Cumene	SW8260C	Soil	17	0.6	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	110	0.6	6/8/2021	6/17/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	11	2.4	6/8/2021	6/16/2021
PB-27-06	PB-27-06-SS01	4.0	4.5	Toluene	SW8260C	Soil	100	0.6	6/8/2021	6/17/2021

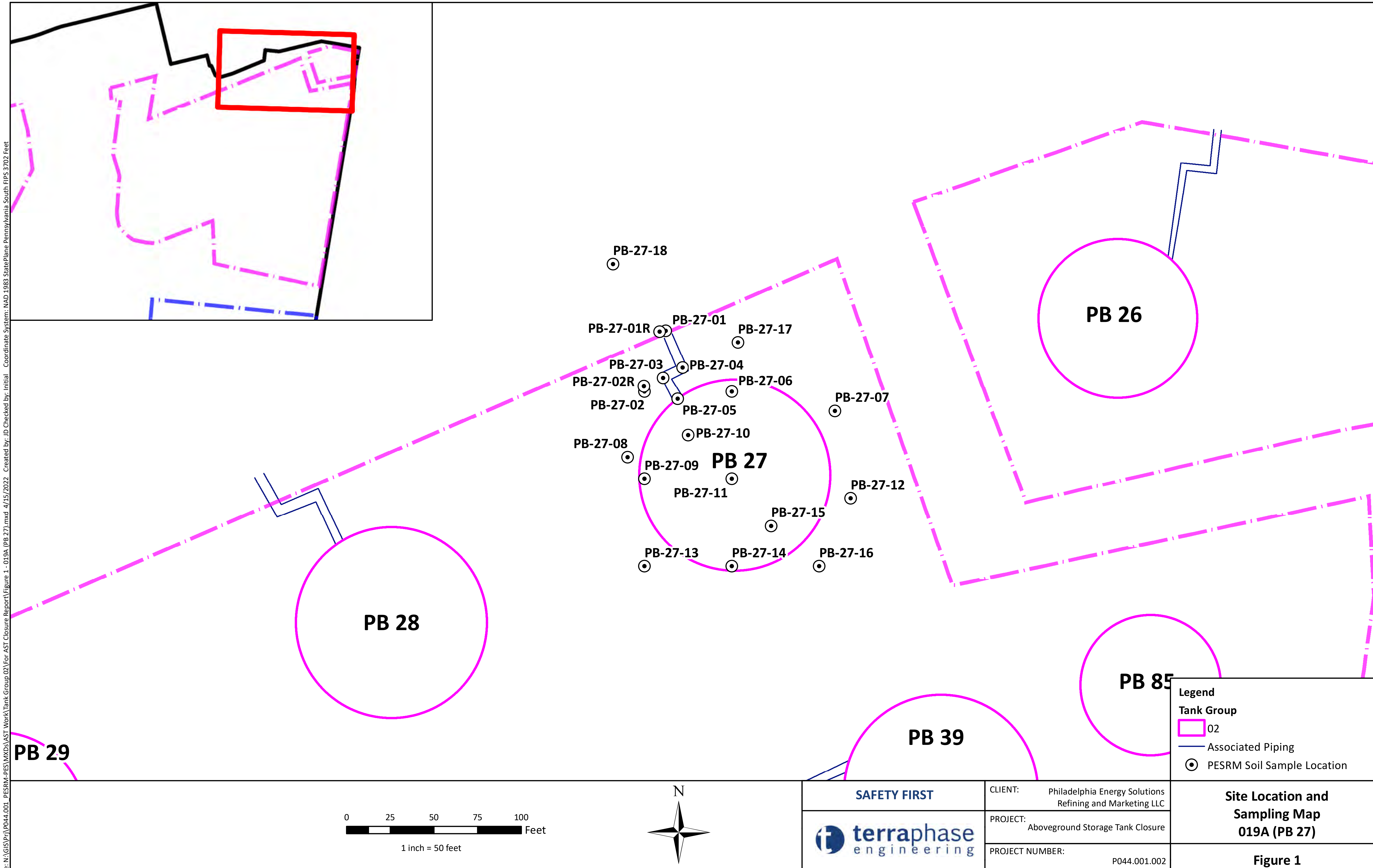
Table 1 - 019A (PB 27)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-27-06	PB-27-06-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	650	2.4	6/8/2021	6/17/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Lead	SW6010D	Soil	224	2.41	6/8/2021	7/2/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	1.3	0.52	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.59	0.26	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.066	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.2	0.26	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	3	0.066	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	9	0.13	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.5	0.13	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.26	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	1	0.13	6/8/2021	6/16/2021
PB-27-07	PB-27-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	2.66	0.26	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Lead	SW6010D	Soil	32.9	2.25	6/8/2021	7/2/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	20	4.7	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	200	2.3	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.58	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.2	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	75	2.3	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Benzene	SW8260C	Soil	30	0.58	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Cumene	SW8260C	Soil	11	1.2	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	97	1.2	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	2.3	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Toluene	SW8260C	Soil	240	1.2	6/8/2021	6/16/2021
PB-27-08	PB-27-08-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	500	2.3	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Lead	SW6010D	Soil	11.3	2.39	6/8/2021	7/2/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	53	4.9	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	250	2.4	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.61	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.2	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	91	2.4	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Benzene	SW8260C	Soil	32	0.61	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Cumene	SW8260C	Soil	30	1.2	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	140	1.2	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	1	2.4	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Toluene	SW8260C	Soil	110	1.2	6/8/2021	6/16/2021
PB-27-09	PB-27-09-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	620	2.4	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Lead	SW6010D	Soil	11.8	2.35	6/8/2021	7/2/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	13	1.2	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	64	0.59	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.15	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.3	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	25	0.59	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Benzene	SW8260C	Soil	17	0.15	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Cumene	SW8260C	Soil	8.6	0.3	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	38	0.3	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	7.2	0.59	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Toluene	SW8260C	Soil	67	0.3	6/8/2021	6/16/2021
PB-27-10	PB-27-10-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	163	0.59	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Lead	SW6010D	Soil	11.7	11.7	6/8/2021	7/3/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	49	2.4	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	150	1.2	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.3	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.61	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	56	1.2	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Benzene	SW8260C	Soil	23	0.3	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Cumene	SW8260C	Soil	17	0.61	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	54	0.61	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	1.3	1.2	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Toluene	SW8260C	Soil	38	0.61	6/8/2021	6/16/2021
PB-27-11	PB-27-11-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	263	1.2	6/8/2021	6/16/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Lead	SW6010D	Soil	112	11.9	6/8/2021	7/3/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.0008	0.004	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00036	0.002	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.0015	0.0005	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.25	0.001	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.0011	0.001	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.0054	0.001	6/8/2021	6/17/2021
PB-27-12	PB-27-12-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.0112	0.002	6/8/2021	6/17/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Lead	SW6010D	Soil	215	2.27	6/8/2021	7/2/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.00079	0.004	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0023	0.002	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0013	0.002	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.043	0.0005	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.036	0.001	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0014	0.001	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.003	0.002	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0024	0.001	6/8/2021	6/16/2021
PB-27-13	PB-27-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.018	0.002	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Lead	SW6010D	Soil	11	2.36	6/8/2021	7/2/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.023	0.0038	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0083	0.0019	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0038	0.0019	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.052	0.00048	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.016	0.00096	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0037	0.00096	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0058	0.0019	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0035	0.00096	6/8/2021	6/16/2021
PB-27-14	PB-27-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0095	0.0019	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Lead	SW6010D	Soil	55.8	12.1	6/8/2021	7/3/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	45	2.4	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	160	1.2	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.3	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.6	6/8/2021	6/16/2021

Table 1 - 019A (PB 27)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-27-15	PB-27-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	59	1.2	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	9.8	0.3	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	18	0.6	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	60	0.6	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.66	1.2	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	16	0.6	6/8/2021	6/16/2021
PB-27-15	PB-27-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	308	1.2	6/8/2021	6/16/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Lead	SW6010D	Soil	120	2.47	6/8/2021	7/2/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.0062	0.0046	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0032	0.0023	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00058	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00044	0.0023	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.0017	0.00058	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.17	0.0012	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.0003	0.0012	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.0021	0.0012	6/8/2021	6/17/2021
PB-27-16	PB-27-16-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0116	0.0023	6/8/2021	6/17/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Lead	SW6010D	Soil	20.7	2.38	6/8/2021	7/2/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.56	0.21	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	2.5	0.11	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.027	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.054	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	6.8	0.11	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.024	0.027	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Cumene	SW8260C	Soil	4.3	0.054	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.93	0.054	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.091	0.054	6/8/2021	6/16/2021
PB-27-17	PB-27-17-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.75	0.11	6/8/2021	6/16/2021
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	330	2.14	2/8/2022	2/28/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0011	0.0022	2/8/2022	2/15/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00058	0.0022	2/8/2022	2/15/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.034	0.026	2/8/2022	2/9/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	Ethyl Benzene	SW8260C	Soil	0.0078	0.051	2/8/2022	2/9/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	Methyl tert-butyl ether	SW8260C	Soil	0.025	0.1	2/8/2022	2/9/2022
PB-27-18	PB-27-18-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	ND	0.18	2/8/2022	2/14/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	32.6	2.4	2/8/2022	2/28/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.033	0.15	2/8/2022	2/11/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.15	2/8/2022	2/11/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.016	0.038	2/8/2022	2/11/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	0.026	0.077	2/8/2022	2/11/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	Methyl tert-butyl ether	SW8260C	Soil	0.017	0.15	2/8/2022	2/11/2022
PB-27-18	PB-27-18-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	ND	0.2	2/8/2022	2/14/2022

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-03 is a field duplicate associated with sample PB-27-04-SS01.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 019A (PB 27)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 019A (PB 27).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of former Tank 019A (PB 27) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 019A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 13979

Date: 2-11-21

Scrap

Sold to: Allegheny
Location: Tank 27
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Mixed [illegible]

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade______
- ☐ Other Alloy, Grade______
- ☐ Mixed
- ☐ Other: ______

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:______

Scale Ticket #:______

Gross Weight: 69060 lbs

Tare Weight: 37960 lbs

Net Weight: 31100 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location:______

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:______

Carrier:______

Truck #:______

Container #:______

Manifest #:______

Profile / Approval #:______

Scale Info

Scale Ticket #:______

Gross Weight:______

Tare weight:______

Net weight:______

Net Kilogram Conversion (PCB Only):______

NorthStar Rep. Signature:______

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026711
Date: 02/11/2021 1:24 PM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 8097.126
Loads: 603

RO-108 - ALLEGHANY ROLL OFF 108
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature:

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	15.55 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	69060.00	37960.00	31100.00

13979

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 020A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 020A (PB 28)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-28-01	PB-28-01-SS01	3.0	3.5	Lead	SW6010D	Soil	6.54	2.41	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	25	0.32	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.08	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.16	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	8.1	0.32	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.2	0.08	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.4	0.16	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	8.2	0.16	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.32	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.5	0.16	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	20.7	0.32	6/8/2021	6/17/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.029	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.13	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	1.4	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.2	0.04	6/8/2021	6/22/2021
PB-28-01	PB-28-01-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0086	0.04	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Lead	SW6010D	Soil	15.6	2.43	6/8/2021	7/2/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	48	0.62	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.062	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.061	0.12	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.13	0.031	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.7	0.062	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	4.3	0.062	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.062	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.12	6/8/2021	6/16/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.03	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.01	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.007	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.1	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	4.4	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.14	0.083	6/8/2021	6/22/2021
PB-28-02	PB-28-02-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.027	0.083	6/8/2021	6/22/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Lead	SW6010D	Soil	7.65	2.46	6/8/2021	7/2/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	56	0.59	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.074	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.15	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	15	0.29	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.049	0.074	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Cumene	SW8260C	Soil	3.2	0.15	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	2.3	0.15	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.29	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.15	0.15	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	1.95	0.29	6/8/2021	6/16/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	0.027	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0046	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0015	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0023	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0014	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	0.0028	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.056	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	0.42	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.11	0.0081	6/8/2021	6/21/2021
PB-28-03	PB-28-03-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.014	0.0081	6/8/2021	6/21/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Lead	SW6010D	Soil	6.66	2.42	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	12	0.12	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.058	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	4.3	0.12	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.18	0.029	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.71	0.058	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	2.9	0.058	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.83	0.058	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	18.9	0.12	6/8/2021	6/17/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0051	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.024	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	1.4	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.033	0.041	6/8/2021	6/22/2021
PB-28-04	PB-28-04-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	ND	0.041	6/8/2021	6/22/2021
PB-28-05	PB-28-05-SS01	3.0	3.5	Lead	SW6010D	Soil	461	12.3	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	46	0.62	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.16	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.31	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	19	0.62	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	3.2	0.16	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	3.4	0.31	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	15	0.31	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.23	0.62	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	2.1	0.31	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	37	0.62	2/8/2022	2/9/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Anthracene	SW8270D	Soil	0.11	0.12	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.13	0.12	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	0.12	0.16	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	0.16	0.12	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	0.087	0.16	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.13	0.12	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.26	0.21	2/8/2022	2/13/2022

Table 1 - 020A (PB 28)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-28-05	PB-28-05-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	11	1	2/8/2022	2/15/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.63	0.12	2/8/2022	2/13/2022
PB-28-05	PB-28-05-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.23	0.12	2/8/2022	2/13/2022
PB-28-06	PB-28-06-SS01	4.0	4.5	Lead	SW6010D	Soil	7.45	2.46	6/8/2021	7/2/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	55	0.63	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.16	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.31	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	18	0.63	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.34	0.16	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Cumene	SW8260C	Soil	2.1	0.31	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.41	0.31	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.63	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.18	0.31	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	5.73	0.63	6/8/2021	6/16/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	0.034	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0068	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0019	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0028	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0013	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	0.0084	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.24	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	0.14	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.31	0.0082	6/8/2021	6/21/2021
PB-28-06	PB-28-06-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.03	0.0082	6/8/2021	6/21/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Lead	SW6010D	Soil	10.9	2.36	6/9/2021	7/5/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	70	0.47	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.12	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.24	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	7.7	0.47	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.12	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Cumene	SW8260C	Soil	7.6	0.24	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	6.9	0.24	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.47	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.24	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	1.992	0.47	6/9/2021	6/16/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	ND	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.03	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	0.045	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.64	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	21	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.92	0.32	6/9/2021	6/23/2021
PB-28-07	PB-28-07-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.12	0.32	6/9/2021	6/23/2021
PB-28-08	PB-28-08-SS01	3.0	3.5	Lead	SW6010D	Soil	8.67	2.39	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.77	0.13	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.067	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.25	0.13	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.3	0.033	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.024	0.067	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.45	0.067	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.49	0.13	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.54	0.067	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	2.3	0.13	2/8/2022	2/9/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.12	0.2	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-08	PB-28-08-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	2/8/2022	2/13/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Lead	SW6010D	Soil	8.5	2.31	2/9/2022	2/13/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.097	0.12	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.036	0.12	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.1	0.03	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.14	0.06	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.26	0.06	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.76	0.12	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.034	0.06	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.228	0.12	2/9/2022	2/15/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.2	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-09	PB-28-09-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Lead	SW6010D	Soil	5.65	2.33	2/9/2022	2/13/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	4.9	0.26	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.066	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.77	0.26	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Benzene	SW8260C	Soil	1.4	0.066	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Cumene	SW8260C	Soil	2.2	0.13	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	5.3	0.13	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.26	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.37	0.13	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	5.39	0.26	2/9/2022	2/11/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Anthracene	SW8270D	Soil	0.086	0.12	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022

Table 1 - 020A (PB 28)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-28-10	PB-28-10-SS01	3.5	4.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Chrysene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Fluorene	SW8270D	Soil	0.45	0.2	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	0.19	0.2	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Phenanthrene	SW8270D	Soil	0.74	0.12	2/9/2022	2/14/2022
PB-28-10	PB-28-10-SS01	3.5	4.0	Pyrene	SW8270D	Soil	0.03	0.12	2/9/2022	2/14/2022
PB-28-11	PB-28-11-SS01	3.0	3.5	Lead	SW6010D	Soil	9.22	2.4	6/9/2021	7/5/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0028	0.0018	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00089	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00093	0.0018	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0017	0.00044	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00037	0.00089	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0052	0.00089	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.049	0.00089	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0269	0.0018	6/9/2021	6/16/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0013	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.0015	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-11	PB-28-11-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	ND	0.0078	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Lead	SW6010D	Soil	8.7	2.42	6/9/2021	7/5/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00046	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00018	0.00093	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00093	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00093	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	6/9/2021	6/16/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-12	PB-28-12-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	ND	0.0082	6/9/2021	6/22/2021
PB-28-13	PB-28-13-SS01	3.0	3.5	Lead	SW6010D	Soil	7.82	2.37	2/9/2022	2/13/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.7	0.27	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.067	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.2	0.27	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.03	0.067	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.2	0.13	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	2.6	0.13	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.27	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.13	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.189	0.27	2/9/2022	2/11/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.17	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.17	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.19	0.21	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	2.6	0.21	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.27	0.12	2/9/2022	2/14/2022
PB-28-13	PB-28-13-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.023	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Lead	SW6010D	Soil	35.5	2.41	2/9/2022	2/13/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.048	0.0025	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00063	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.019	0.0025	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.2	0.00063	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.012	0.0012	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.02	0.0012	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	0.00047	0.0025	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.0041	0.0012	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0282	0.0025	2/9/2022	2/11/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.16	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Chrysene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Fluorene	SW8270D	Soil	ND	0.21	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	ND	0.21	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Phenanthrene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-14	PB-28-14-SS01	4.0	4.5	Pyrene	SW8270D	Soil	ND	0.12	2/9/2022	2/14/2022
PB-28-15	PB-28-15-SS01	3.0	3.5	Lead	SW6010D	Soil	6.85	2.43	6/9/2021	7/5/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00097	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00028	0.0019	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0027	0.00048	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.006	0.00097	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00052	0.00097	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0018	0.0019	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0041	0.00097	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00098	0.0019	6/9/2021	6/16/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021

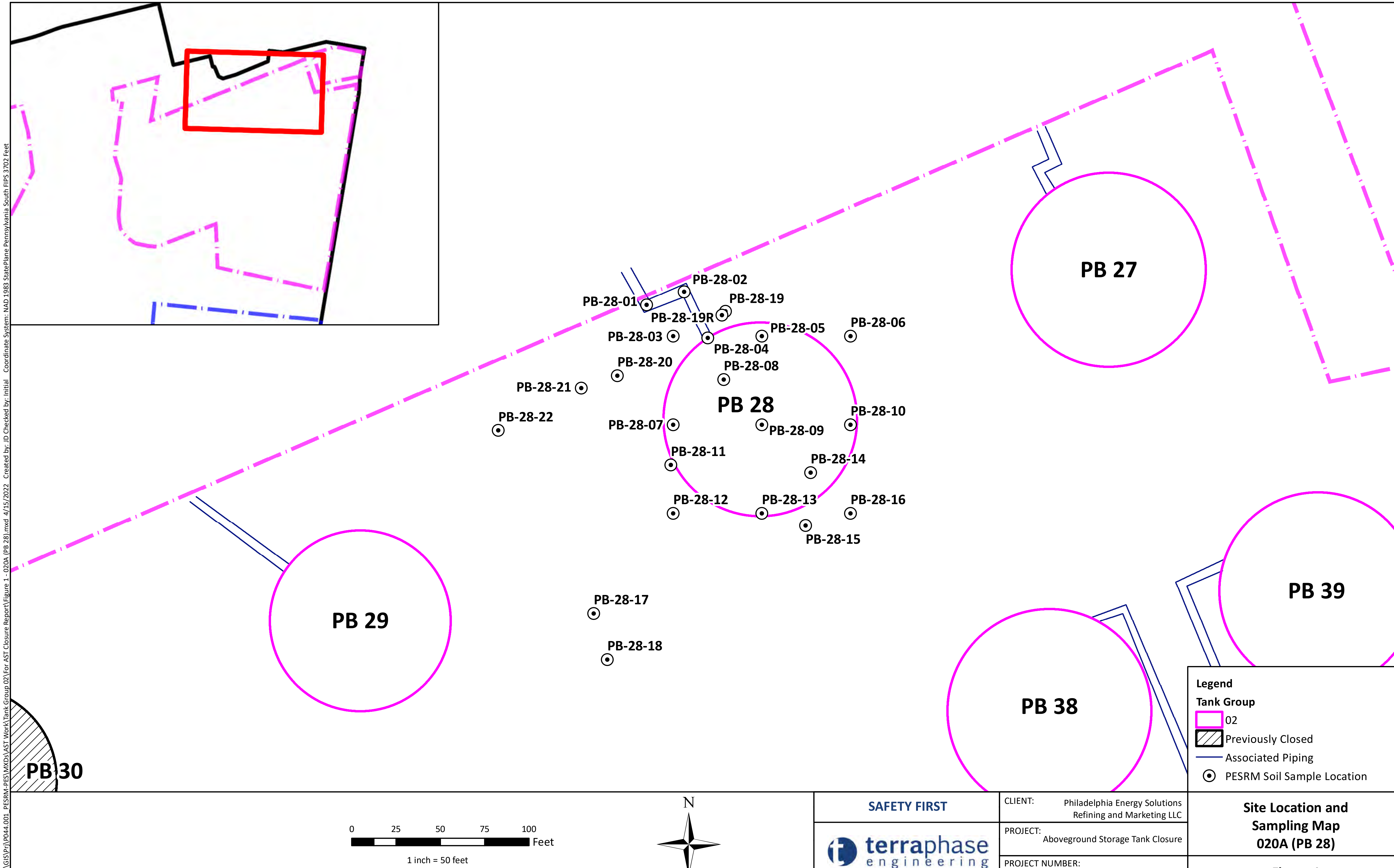
Table 1 - 020A (PB 28)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-28-15	PB-28-15-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0011	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.0018	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.0024	0.0083	6/9/2021	6/22/2021
PB-28-15	PB-28-15-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-16	DUP-04	3.0	3.5	Lead	SW6010D	Soil	7.15	2.37	6/9/2021	7/7/2021
PB-28-16	DUP-04	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00051	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Cumene	SW8260C	Soil	0.016	0.001	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Toluene	SW8260C	Soil	0.00067	0.001	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00174	0.002	6/9/2021	6/18/2021
PB-28-16	DUP-04	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.02	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0011	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.00081	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.00061	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.13	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.0095	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.16	0.0081	6/9/2021	6/24/2021
PB-28-16	DUP-04	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0045	0.0081	6/9/2021	6/24/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Lead	SW6010D	Soil	7.88	2.41	6/9/2021	7/5/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00018	0.00051	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.014	0.001	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00164	0.002	6/9/2021	6/17/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.00099	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0011	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.28	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.042	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.32	0.0083	6/9/2021	6/22/2021
PB-28-16	PB-28-16-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0087	0.0083	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Lead	SW6010D	Soil	19	2.25	6/9/2021	7/5/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0023	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00059	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0018	0.0023	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.0041	0.00059	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.0012	0.0012	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.00052	0.0012	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.0012	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	ND	0.0023	6/9/2021	6/17/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Anthracene	SW8270DSIM	Soil	0.11	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.61	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.82	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.95	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.46	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Chrysene	SW8270DSIM	Soil	0.53	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Fluorene	SW8270DSIM	Soil	0.04	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Naphthalene	SW8270DSIM	Soil	0.078	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Phenanthrene	SW8270DSIM	Soil	0.36	0.039	6/9/2021	6/22/2021
PB-28-17	PB-28-17-SS01	2.0	2.5	Pyrene	SW8270DSIM	Soil	0.62	0.039	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Lead	SW6010D	Soil	313	2.43	6/9/2021	7/5/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0012	0.0035	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00088	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0018	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0011	0.0035	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Benzene	SW8260C	Soil	0.003	0.00088	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Cumene	SW8260C	Soil	0.00023	0.0018	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	ND	0.0018	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	0.00044	0.0035	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Toluene	SW8260C	Soil	0.0017	0.0018	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Xylenes (total)	SW8260C	Soil	0.0054	0.0035	6/9/2021	6/18/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Anthracene	SW8270DSIM	Soil	0.0036	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.021	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.029	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.031	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.027	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Chrysene	SW8270DSIM	Soil	0.017	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Fluorene	SW8270DSIM	Soil	ND	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Naphthalene	SW8270DSIM	Soil	0.024	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Phenanthrene	SW8270DSIM	Soil	0.016	0.0084	6/9/2021	6/22/2021
PB-28-18	PB-28-18-SS01	1.5	2.0	Pyrene	SW8270DSIM	Soil	0.019	0.0084	6/9/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Lead	SW6010D	Soil	7.29	2.46	6/8/2021	7/2/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	870	27	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	1.7	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	3.4	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	400	6.9	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Benzene	SW8260C	Soil	74	1.7	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Cumene	SW8260C	Soil	41	3.4	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	700	3.4	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	6.9	6/8/2021	6/16/2021

Table 1 - 020A (PB 28)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-28-19	PB-28-19-SS01	3.0	3.5	Toluene	SW8260C	Soil	2000	14	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	3290	27	6/8/2021	6/16/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0076	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.054	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	4.9	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.062	0.08	6/8/2021	6/22/2021
PB-28-19	PB-28-19-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.015	0.08	6/8/2021	6/22/2021
PB-28-19R	PB-28-19R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	51	0.32	2/9/2022	2/23/2022
PB-28-19R	PB-28-19R-14.0-14.5	14.0	14.5	Ethyl Benzene	SW8260C	Soil	95	0.65	2/9/2022	2/23/2022
PB-28-19R	PB-28-19R-14.0-14.5	14.0	14.5	Toluene	SW8260C	Soil	9.9	0.65	2/9/2022	2/23/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	240	6.3	2/9/2022	2/11/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	79	6.3	2/9/2022	2/11/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	24	1.6	2/9/2022	2/11/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	120	3.2	2/9/2022	2/11/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	510	3.2	2/9/2022	2/11/2022
PB-28-19R	PB-28-19R-6.0-6.5	6.0	6.5	Xylenes (total)	SW8260C	Soil	750	6.3	2/9/2022	2/11/2022
PB-28-20	PB-28-20-SS01	4.5	5.0	Lead	SW6010D	Soil	9.59	2.33	6/9/2021	7/5/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	4.8	0.13	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.064	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.36	0.032	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Cumene	SW8260C	Soil	1.6	0.064	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	1.7	0.064	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.04	0.064	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.46	0.13	6/9/2021	6/16/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	ND	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0064	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.0042	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	2	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.34	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	3	0.04	6/9/2021	6/23/2021
PB-28-20	PB-28-20-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.098	0.04	6/9/2021	6/23/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Lead	SW6010D	Soil	6.9	2.35	6/9/2021	7/5/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00053	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00053	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Cumene	SW8260C	Soil	1.3	0.06	6/9/2021	6/16/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.017	0.06	6/9/2021	6/16/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.0011	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.00149	0.0021	6/9/2021	6/17/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Anthracene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0023	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.0011	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0014	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Chrysene	SW8270DSIM	Soil	0.0033	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Fluorene	SW8270DSIM	Soil	0.47	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Naphthalene	SW8270DSIM	Soil	0.16	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Phenanthrene	SW8270DSIM	Soil	0.36	0.0081	6/9/2021	6/22/2021
PB-28-21	PB-28-21-SS01	3.5	4.0	Pyrene	SW8270DSIM	Soil	0.018	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Lead	SW6010D	Soil	9.34	2.37	6/9/2021	7/5/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.063	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.031	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Cumene	SW8260C	Soil	1.8	0.063	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.015	0.063	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.063	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.1175	0.12	6/9/2021	6/17/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.0012	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0019	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0011	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.0015	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.0038	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.13	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.0051	0.0081	6/9/2021	6/22/2021
PB-28-22	PB-28-22-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.0032	0.0081	6/9/2021	6/22/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-04 is a field duplicate associated with sample PB-28-16-SS01.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 020A (PB 28)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 020A (PB 28).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of former Tank 020A (PB 28) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 020A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#512010?

Load Ticket: 13819

Date: 1-29-21

Scrap

Sold to: Allegheny
Location: Tank 78
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade__________
- ☐ Other Alloy, Grade__________
- ☐ Mixed
- ☐ Other:__________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:__________

Scale Ticket #:__________

Gross Weight: 74320 lbs

Tare Weight: 47280 lbs

Net Weight: 37040 lbs

NorthStar Rep. Signature: [signature]

Received By: Joe C

Non-Haz / ACM / Special Waste

Activity Location:__________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:__________

Carrier:__________

Truck #:__________

Container #:__________

Manifest #:__________

Profile / Approval #:__________

Scale Info

Scale Ticket #:__________

Gross Weight:__________

Tare weight:__________

Net weight:__________

Net Kilogram Conversion (PCB Only):__________

NorthStar Rep. Signature:__________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026594
Date: 01/28/2021 8:00 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 6672.286
Loads: 486

DT328-1109 - TRACTOR 1109 TRAILER DT328
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature:

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	16.02 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	74320.00	42280.00	32040.00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MONST

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 021A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

______ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM
CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number__51 - 33620______

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-01	PB-29-01-SS01	3.0	3.5	Lead	SW6010D	Soil	6.55	2.4	6/9/2021	7/5/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	32	0.24	6/9/2021	6/17/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	9.6	0.12	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	3.5	0.029	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.1	0.059	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	14	0.059	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.056	0.12	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.28	0.059	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	32.97	0.12	6/9/2021	6/18/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.015	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.024	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.013	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.017	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.013	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.022	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	3.6	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.062	0.08	6/9/2021	6/23/2021
PB-29-01	PB-29-01-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.038	0.08	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Lead	SW6010D	Soil	1180	2.4	6/9/2021	7/5/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	190	2.2	6/9/2021	6/17/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.28	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.56	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	60	1.1	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Benzene	SW8260C	Soil	8.6	0.28	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Cumene	SW8260C	Soil	4.5	0.56	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	62	0.56	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.37	1.1	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Toluene	SW8260C	Soil	110	0.56	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	380	1.1	6/9/2021	6/18/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.083	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.068	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.056	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.048	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.36	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	41	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.49	0.41	6/9/2021	6/23/2021
PB-29-02	PB-29-02-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.19	0.41	6/9/2021	6/23/2021
PB-29-02R	PB-29-02R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	2500	2.34	2/7/2022	2/10/2022
PB-29-02R	PB-29-02R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	9.53	12.2	2/7/2022	2/10/2022
PB-29-03	PB-29-03-SS01	4.5	5.0	Lead	SW6010D	Soil	7.53	2.39	6/9/2021	7/5/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	500	6.1	6/9/2021	6/17/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.61	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	1.2	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	170	2.4	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Benzene	SW8260C	Soil	93	0.61	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Cumene	SW8260C	Soil	19	1.2	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	220	1.2	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	22	2.4	6/9/2021	6/18/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Toluene	SW8260C	Soil	540	3	6/9/2021	6/17/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	1150	6.1	6/9/2021	6/17/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.047	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.063	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.041	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.036	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.12	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	27	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.24	0.39	6/9/2021	6/23/2021
PB-29-03	PB-29-03-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.12	0.39	6/9/2021	6/23/2021
PB-29-03R	PB-29-03R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	3	0.026	2/7/2022	2/28/2022
PB-29-03R	PB-29-03R-14.0-14.5	14.0	14.5	Methyl tert-butyl ether	SW8260C	Soil	0.46	0.1	2/7/2022	2/28/2022
PB-29-03R	PB-29-03R-14.0-14.5	14.0	14.5	Toluene	SW8260C	Soil	0.11	0.051	2/7/2022	2/28/2022
PB-29-03R	PB-29-03R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	110	0.65	2/7/2022	2/14/2022
PB-29-03R	PB-29-03R-6.0-6.5	6.0	6.5	Methyl tert-butyl ether	SW8260C	Soil	4.6	2.6	2/7/2022	2/14/2022
PB-29-03R	PB-29-03R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	200	1.3	2/7/2022	2/14/2022
PB-29-04	PB-29-04-SS01	4.5	5.0	Lead	SW6010D	Soil	8.2	2.37	6/9/2021	7/5/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	19	0.45	6/9/2021	6/17/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.056	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	6.4	0.11	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Benzene	SW8260C	Soil	1.1	0.028	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Cumene	SW8260C	Soil	1.8	0.056	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	14	0.056	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.015	0.11	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.39	0.056	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	83	0.45	6/9/2021	6/18/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	ND	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0066	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0051	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.0031	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.0076	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	4.1	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.012	0.041	6/9/2021	6/23/2021
PB-29-04	PB-29-04-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.0064	0.041	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Lead	SW6010D	Soil	282	2.33	6/9/2021	7/5/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	540	5.8	6/9/2021	6/17/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.58	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	1.2	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	110	2.3	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Benzene	SW8260C	Soil	8.9	0.58	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Cumene	SW8260C	Soil	17	1.2	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	190	1.2	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	2.3	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.67	1.2	6/9/2021	6/18/2021

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-05	PB-29-05-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	405.1	2.3	6/9/2021	6/18/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.06	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.077	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.072	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.087	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.083	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.054	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.2	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	24	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.35	0.31	6/9/2021	6/23/2021
PB-29-05	PB-29-05-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.18	0.31	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Lead	SW6010D	Soil	8.52	2.32	6/9/2021	7/5/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	37	0.48	6/9/2021	6/17/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.06	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	13	0.24	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	5.5	0.06	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.3	0.12	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	19	0.12	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.042	0.24	6/9/2021	6/18/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	37	0.24	6/9/2021	6/17/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	100	0.48	6/9/2021	6/17/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0081	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0086	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0049	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0063	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0035	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0049	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.017	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	2.4	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.032	0.041	6/9/2021	6/23/2021
PB-29-06	PB-29-06-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.015	0.041	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Lead	SW6010D	Soil	8.23	2.38	6/9/2021	7/5/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	24	0.48	6/9/2021	6/17/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	7.9	0.12	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	12	0.03	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	3	0.06	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	10	0.06	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	2.2	0.12	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	7.7	0.06	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	46	0.12	6/9/2021	6/18/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.014	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.014	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0083	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0099	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0038	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.01	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.018	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	2.5	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.058	0.04	6/9/2021	6/23/2021
PB-29-07	PB-29-07-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.03	0.04	6/9/2021	6/23/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Lead	SW6010D	Soil	98.7	2.48	6/9/2021	7/5/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	680	7.3	6/9/2021	6/17/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.91	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.8	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	260	3.6	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Benzene	SW8260C	Soil	22	0.91	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Cumene	SW8260C	Soil	30	1.8	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	290	1.8	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	3.6	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Toluene	SW8260C	Soil	5	1.8	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	1550	7.3	6/9/2021	6/18/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Anthracene	SW8270DSIM	Soil	0.2	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.25	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Chrysene	SW8270DSIM	Soil	ND	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Fluorene	SW8270DSIM	Soil	0.72	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Naphthalene	SW8270DSIM	Soil	79	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Phenanthrene	SW8270DSIM	Soil	1.2	2.1	6/9/2021	6/24/2021
PB-29-08	PB-29-08-SS01	1.0	1.5	Pyrene	SW8270DSIM	Soil	0.52	2.1	6/9/2021	6/24/2021
PB-29-08R	PB-29-08R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0071	0.0025	2/8/2022	2/15/2022
PB-29-08R	PB-29-08R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.019	0.0025	2/8/2022	2/15/2022
PB-29-08R	PB-29-08R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	0.21	0.0012	2/8/2022	2/15/2022
PB-29-08R	PB-29-08R-6.0-6.5	6.0	6.5	Xylenes (total)	SW8260C	Soil	0.0455	0.0025	2/8/2022	2/15/2022
PB-29-08R	PB-29-08R-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	0.032	0.21	2/8/2022	2/14/2022
PB-29-09	PB-29-09-SS01	4.5	5.0	Lead	SW6010D	Soil	17.2	2.33	6/9/2021	7/5/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	320	4.9	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.31	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.62	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	110	1.2	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.1	0.31	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Cumene	SW8260C	Soil	18	0.62	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	150	0.62	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	1.2	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.78	0.62	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	800	4.9	6/9/2021	6/18/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	ND	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.075	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	25	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.11	0.38	6/9/2021	6/23/2021
PB-29-09	PB-29-09-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.048	0.38	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Lead	SW6010D	Soil	9.69	2.3	6/9/2021	7/5/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	82	1.2	6/9/2021	6/18/2021

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-10	PB-29-10-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.12	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.24	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	26	0.48	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Benzene	SW8260C	Soil	24	0.12	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Cumene	SW8260C	Soil	8.5	0.24	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	77	0.6	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.48	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Toluene	SW8260C	Soil	1.5	0.24	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	182.8	1.2	6/9/2021	6/18/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Anthracene	SW8270DSIM	Soil	0.029	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.034	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.018	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Chrysene	SW8270DSIM	Soil	0.018	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Fluorene	SW8270DSIM	Soil	0.084	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Naphthalene	SW8270DSIM	Soil	16	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Phenanthrene	SW8270DSIM	Soil	0.14	0.16	6/9/2021	6/23/2021
PB-29-10	PB-29-10-SS01	1.0	1.5	Pyrene	SW8270DSIM	Soil	0.067	0.16	6/9/2021	6/23/2021
PB-29-11	DUP-05	1.0	1.5	Lead	SW6010D	Soil	8.85	2.23	6/10/2021	6/22/2021
PB-29-11	DUP-05	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.44	0.11	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	6/10/2021	6/19/2021
PB-29-11	DUP-05	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00092	6/10/2021	6/19/2021
PB-29-11	DUP-05	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.16	0.11	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Benzene	SW8260C	Soil	3.6	0.027	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Cumene	SW8260C	Soil	0.028	0.054	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Ethyl Benzene	SW8260C	Soil	0.52	0.054	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	2	0.11	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Toluene	SW8260C	Soil	0.16	0.054	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Xylenes (total)	SW8260C	Soil	0.94	0.11	6/10/2021	6/20/2021
PB-29-11	DUP-05	1.0	1.5	Anthracene	SW8270DSIM	Soil	0.002	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0036	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0029	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.004	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0035	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Chrysene	SW8270DSIM	Soil	0.0029	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Fluorene	SW8270DSIM	Soil	0.0056	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Naphthalene	SW8270DSIM	Soil	0.44	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Phenanthrene	SW8270DSIM	Soil	0.011	0.0075	6/10/2021	6/24/2021
PB-29-11	DUP-05	1.0	1.5	Pyrene	SW8270DSIM	Soil	0.0055	0.0075	6/10/2021	6/24/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Lead	SW6010D	Soil	5.15	2.35	6/10/2021	6/24/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	8.6	0.12	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.7	0.12	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Benzene	SW8260C	Soil	1.2	0.03	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Cumene	SW8260C	Soil	0.17	0.059	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	1.3	0.059	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	0.92	0.12	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Toluene	SW8260C	Soil	0.53	0.059	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	6.4	0.12	6/10/2021	6/19/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Anthracene	SW8270DSIM	Soil	0.014	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.031	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.018	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.022	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.016	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Chrysene	SW8270DSIM	Soil	0.018	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Fluorene	SW8270DSIM	Soil	0.04	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Naphthalene	SW8270DSIM	Soil	2.6	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Phenanthrene	SW8270DSIM	Soil	0.073	0.04	6/10/2021	6/25/2021
PB-29-11	PB-29-11-SS01	1.0	1.5	Pyrene	SW8270DSIM	Soil	0.044	0.04	6/10/2021	6/25/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Lead	SW6010D	Soil	7.89	2.4	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.64	0.12	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.062	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.19	0.12	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	6.6	0.031	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.3	0.062	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.75	0.062	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	12	0.12	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.1	0.062	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.76	0.12	6/10/2021	6/19/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.00085	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.00089	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.02	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.0011	0.0081	6/10/2021	6/24/2021
PB-29-12	PB-29-12-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.001	0.0081	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Lead	SW6010D	Soil	9.68	2.45	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	13	0.16	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.039	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.078	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	4	0.16	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.84	0.039	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.78	0.078	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	6.3	0.078	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.02	0.16	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.14	0.078	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	27.8	0.16	6/10/2021	6/19/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0013	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.16	0.0084	6/10/2021	6/24/2021
PB-29-13	PB-29-13-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.0018	0.0084	6/10/2021	6/24/2021

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-13	PB-29-13-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0008	0.0084	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Lead	SW6010D	Soil	84.5	2.38	6/10/2021	6/28/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0023	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00058	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0023	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00058	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0023	6/10/2021	6/19/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.043	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.17	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.2	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.25	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.12	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.14	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.016	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.011	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.19	0.0079	6/10/2021	6/24/2021
PB-29-14	PB-29-14-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.22	0.0079	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Lead	SW6010D	Soil	2110	2.32	6/10/2021	7/2/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00033	0.0018	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	0.00025	0.00091	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00029	0.00046	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00022	0.00091	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00091	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00091	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	6/10/2021	6/19/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0013	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.012	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.019	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.023	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.015	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0095	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	ND	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.0062	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.0043	0.0081	6/10/2021	6/24/2021
PB-29-15	PB-29-15-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0079	0.0081	6/10/2021	6/24/2021
PB-29-15R	PB-29-15R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	4.57	11.3	2/8/2022	2/13/2022
PB-29-15R	PB-29-15R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	4.39	2.37	2/8/2022	2/13/2022
PB-29-16	PB-29-16-SS01	3.5	4.0	Lead	SW6010D	Soil	6.72	2.34	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.28	0.12	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.062	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.28	0.12	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Benzene	SW8260C	Soil	8.3	0.031	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Cumene	SW8260C	Soil	2.2	0.062	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	14	0.062	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.42	0.062	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	3.89	0.12	6/10/2021	6/20/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Anthracene	SW8270DSIM	Soil	0.00088	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0013	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Chrysene	SW8270DSIM	Soil	0.00072	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Fluorene	SW8270DSIM	Soil	0.0024	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Naphthalene	SW8270DSIM	Soil	0.27	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Phenanthrene	SW8270DSIM	Soil	0.0032	0.008	6/10/2021	6/24/2021
PB-29-16	PB-29-16-SS01	3.5	4.0	Pyrene	SW8270DSIM	Soil	0.002	0.008	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Lead	SW6010D	Soil	105	2.49	6/10/2021	7/2/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.025	0.14	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.035	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.07	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.14	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.035	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.026	0.07	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.032	0.07	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.014	0.14	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.07	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	ND	0.14	6/10/2021	6/19/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.0026	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.029	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.05	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.061	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.041	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.019	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.0027	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.0064	0.0084	6/10/2021	6/24/2021
PB-29-17	PB-29-17-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.013	0.0084	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Lead	SW6010D	Soil	96.2	2.28	6/10/2021	7/2/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00055	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.00094	0.00055	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.0006	0.0011	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.0011	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	ND	0.0022	6/10/2021	6/19/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	0.017	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.076	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.2	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.28	0.038	6/10/2021	6/24/2021

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-18	PB-29-18-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.22	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	0.08	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	ND	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	0.012	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.044	0.038	6/10/2021	6/24/2021
PB-29-18	PB-29-18-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.076	0.038	6/10/2021	6/24/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Lead	SW6010D	Soil	10.8	2.4	6/10/2021	6/28/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	190	2.5	6/10/2021	6/19/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.16	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.32	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	66	0.63	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Benzene	SW8260C	Soil	23	0.16	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Cumene	SW8260C	Soil	5.9	0.32	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	82	0.32	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.63	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Toluene	SW8260C	Soil	22	0.32	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	383	2.5	6/10/2021	6/20/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0016	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	ND	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.0021	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	0.38	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.0037	0.0084	6/10/2021	6/25/2021
PB-29-19	PB-29-19-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.0012	0.0084	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Lead	SW6010D	Soil	37.3	2.18	6/10/2021	6/28/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	2.6	0.09	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	6/10/2021	6/19/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	6/10/2021	6/19/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.7	0.09	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Benzene	SW8260C	Soil	1.4	0.022	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Cumene	SW8260C	Soil	0.11	0.045	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	1.1	0.045	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	0.57	0.09	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Toluene	SW8260C	Soil	0.088	0.045	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Xylenes (total)	SW8260C	Soil	0.924	0.09	6/10/2021	6/20/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Anthracene	SW8270DSIM	Soil	0.0038	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.011	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.01	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.011	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.013	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Chrysene	SW8270DSIM	Soil	0.0056	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Fluorene	SW8270DSIM	Soil	0.0084	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Naphthalene	SW8270DSIM	Soil	0.9	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Phenanthrene	SW8270DSIM	Soil	0.018	0.015	6/10/2021	6/25/2021
PB-29-20	PB-29-20-SS01	1.5	2.0	Pyrene	SW8270DSIM	Soil	0.011	0.015	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Lead	SW6010D	Soil	11.9	2.29	6/10/2021	6/24/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	210	5.5	6/10/2021	6/20/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.28	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.55	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	79	1.1	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Benzene	SW8260C	Soil	29	0.28	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Cumene	SW8260C	Soil	9.9	0.55	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	100	0.55	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	1.1	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Toluene	SW8260C	Soil	150	0.55	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	460	5.5	6/10/2021	6/19/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	0.016	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.046	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	ND	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.064	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	13	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.098	0.16	6/10/2021	6/25/2021
PB-29-21	PB-29-21-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	0.044	0.16	6/10/2021	6/25/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Lead	SW6010D	Soil	10.7	2.33	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	140	1.3	6/10/2021	6/19/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.16	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.32	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	50	0.64	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Benzene	SW8260C	Soil	25	0.16	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Cumene	SW8260C	Soil	7	0.32	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	72	0.32	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.64	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Toluene	SW8260C	Soil	3.6	0.32	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	312	1.3	6/10/2021	6/20/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	ND	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	1.6	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.011	0.041	6/10/2021	6/28/2021
PB-29-22	PB-29-22-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.0069	0.041	6/10/2021	6/28/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Lead	SW6010D	Soil	7.46	2.53	6/10/2021	6/28/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	190	1.3	6/10/2021	6/19/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.17	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.33	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	70	0.67	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Benzene	SW8260C	Soil	30	0.17	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Cumene	SW8260C	Soil	7.4	0.33	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	110	0.67	6/10/2021	6/19/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.67	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Toluene	SW8260C	Soil	58	0.33	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	450	1.3	6/10/2021	6/20/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Anthracene	SW8270DSIM	Soil	0.0014	0.017	6/10/2021	6/25/2021

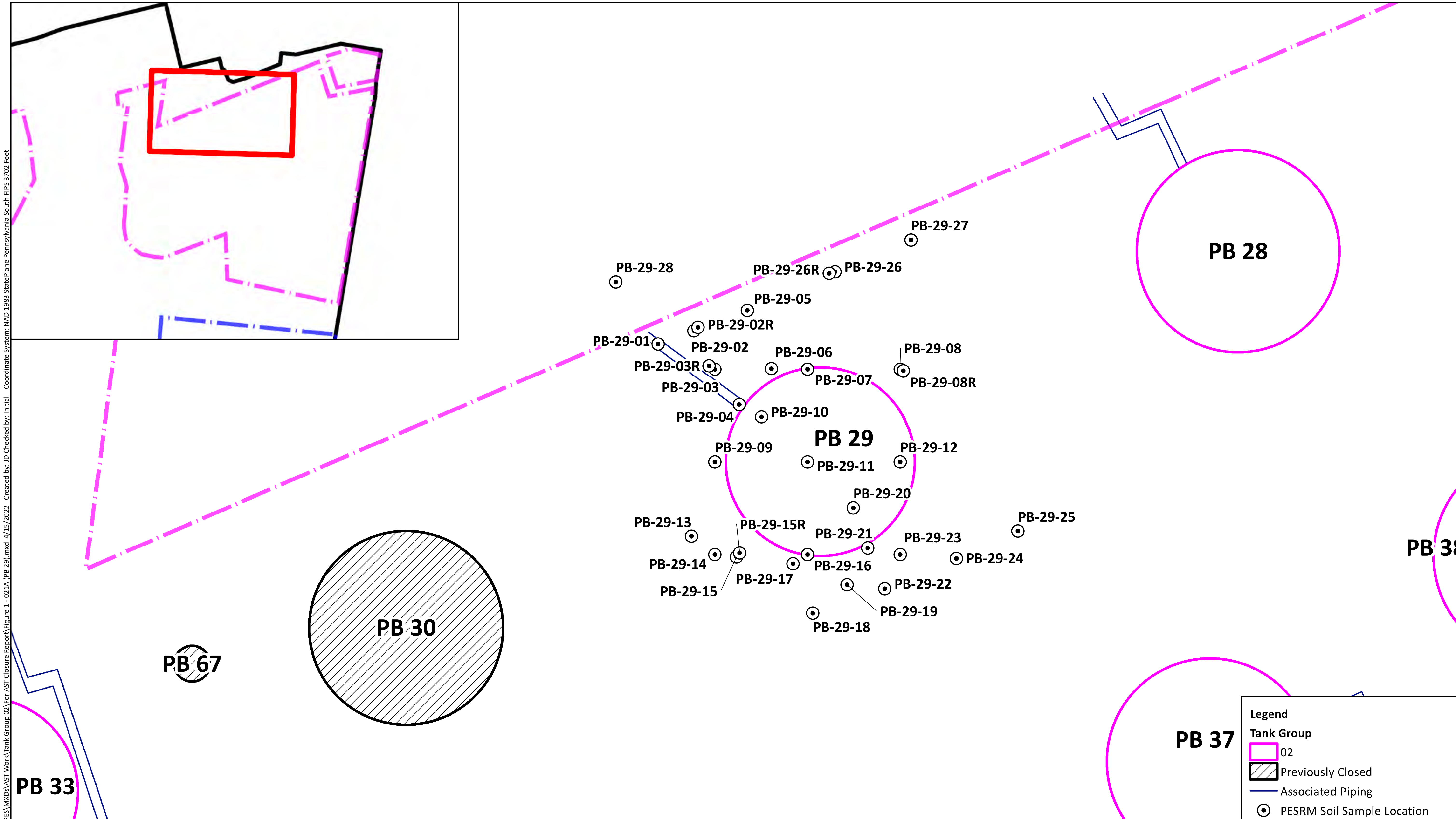
Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-23	PB-29-23-SS01	3.5	4.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0037	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Chrysene	SW8270DSIM	Soil	ND	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Fluorene	SW8270DSIM	Soil	0.0056	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Naphthalene	SW8270DSIM	Soil	1.3	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Phenanthrene	SW8270DSIM	Soil	0.0074	0.017	6/10/2021	6/25/2021
PB-29-23	PB-29-23-SS01	3.5	4.0	Pyrene	SW8270DSIM	Soil	0.003	0.017	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Lead	SW6010D	Soil	18	2.39	6/10/2021	6/28/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	380	6.5	6/10/2021	6/20/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.32	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.65	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	150	1.3	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Benzene	SW8260C	Soil	76	0.32	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Cumene	SW8260C	Soil	18	0.65	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	220	3.2	6/10/2021	6/20/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	1.3	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Toluene	SW8260C	Soil	6.3	0.65	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	830	6.5	6/10/2021	6/21/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.0022	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0077	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.0049	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0074	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.004	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.0052	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.0074	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	1	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.011	0.016	6/10/2021	6/25/2021
PB-29-24	PB-29-24-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.0056	0.016	6/10/2021	6/25/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Lead	SW6010D	Soil	63.6	2.42	6/10/2021	6/28/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.63	0.15	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.038	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.077	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.11	0.15	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Benzene	SW8260C	Soil	2	0.038	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Cumene	SW8260C	Soil	5.2	0.077	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.71	0.077	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.49	0.077	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.86	0.15	6/10/2021	6/20/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.0043	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0082	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.0071	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0095	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0072	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.007	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.014	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.21	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.02	0.0082	6/10/2021	6/24/2021
PB-29-25	PB-29-25-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.014	0.0082	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Lead	SW6010D	Soil	6.93	2.4	6/10/2021	6/28/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	2.1	0.15	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.037	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.074	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.52	0.15	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Benzene	SW8260C	Soil	11	0.037	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Cumene	SW8260C	Soil	5.1	0.074	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	1.6	0.074	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.43	0.15	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Toluene	SW8260C	Soil	1.5	0.074	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	10.7	0.15	6/10/2021	6/20/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.044	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.0092	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.0043	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0064	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.002	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.0079	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.088	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.12	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.18	0.0083	6/10/2021	6/24/2021
PB-29-26	PB-29-26-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.028	0.0083	6/10/2021	6/24/2021
PB-29-26R	PB-29-26R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	274	2.06	2/8/2022	2/13/2022
PB-29-26R	PB-29-26R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	0.026	0.18	2/8/2022	2/14/2022
PB-29-27	PB-29-27-SS01	4.0	4.5	Lead	SW6010D	Soil	7.15	2.4	6/10/2021	6/28/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	1.7	0.13	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.066	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.68	0.13	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.033	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.8	0.066	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.012	0.066	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.066	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.072	0.13	6/10/2021	6/20/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Anthracene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.00082	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Chrysene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Fluorene	SW8270DSIM	Soil	0.002	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Naphthalene	SW8270DSIM	Soil	0.012	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Phenanthrene	SW8270DSIM	Soil	0.0022	0.0082	6/10/2021	6/24/2021
PB-29-27	PB-29-27-SS01	4.0	4.5	Pyrene	SW8270DSIM	Soil	ND	0.0082	6/10/2021	6/24/2021
PB-29-28	PB-29-28-0.0-0.5	0.0	0.5	Naphthalene	SW8260C	Soil	ND	0.0059	2/8/2022	2/9/2022
PB-29-28	PB-29-28-0.0-0.5	0.0	0.5	Benzene	SW8260C	Soil	0.0027	0.00073	2/8/2022	2/9/2022
PB-29-28	PB-29-28-0.0-0.5	0.0	0.5	Toluene	SW8260C	Soil	0.0015	0.0015	2/8/2022	2/9/2022
PB-29-28	PB-29-28-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	92.3	11.9	2/8/2022	3/2/2022
PB-29-28	PB-29-28-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	6	0.032	2/8/2022	2/24/2022
PB-29-28	PB-29-28-6.0-6.5	6.0	6.5	Naphthalene	SW8260C	Soil	2.3	0.28	2/8/2022	2/11/2022
PB-29-28	PB-29-28-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	7	0.035	2/8/2022	2/11/2022

Table 1 - 021A (PB 29)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-29-28	PB-29-28-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	8.1	0.07	2/8/2022	2/11/2022

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100 Feet

1 inch = 50 feet

N

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 021A (PB 29).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 021A (PB 29)

Figure 1

Photograph 1:

View of former Tank 021A (PB 29) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 021A)

Joel

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#6/20103

Load Ticket: 13921

Date: 2-8-21

Scrap

Sold to: Mcglaney

Location: Tank 79

Carrier: Mcglaney

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade______
- ☐ Other Alloy, Grade______
- ☐ Mixed
- ☐ Other: ______

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ______

Scale Ticket #: ______

Gross Weight: 66460 lbs

Tare Weight: 42280 lbs

Net Weight: 24180 lbs

NorthStar Rep. Signature: [signature]

Received By: Joel C.

Non-Haz / ACM / Special Waste

Activity Location: ______

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ______

Carrier: ______

Truck #: ______

Container #: ______

Manifest #: ______

Profile / Approval #: ______

Scale Info

Scale Ticket #: ______

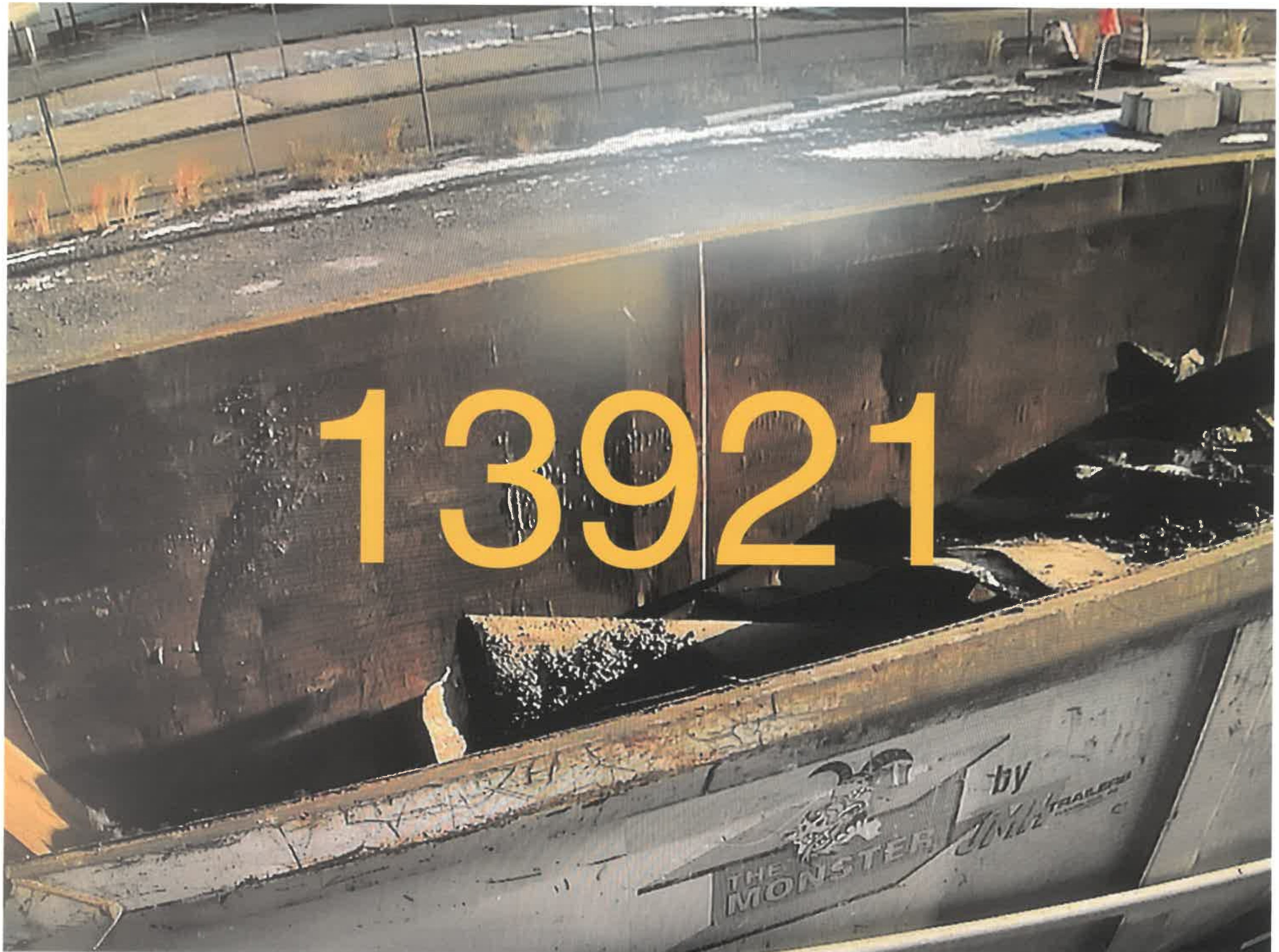
Gross Weight: ______

Tare weight: ______

Net weight: ______

Net Kilogram Conversion (PCB Only): ______

NorthStar Rep. Signature: ______



13921
THE MONSTER
by

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 022A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

______ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long (Print Name), hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

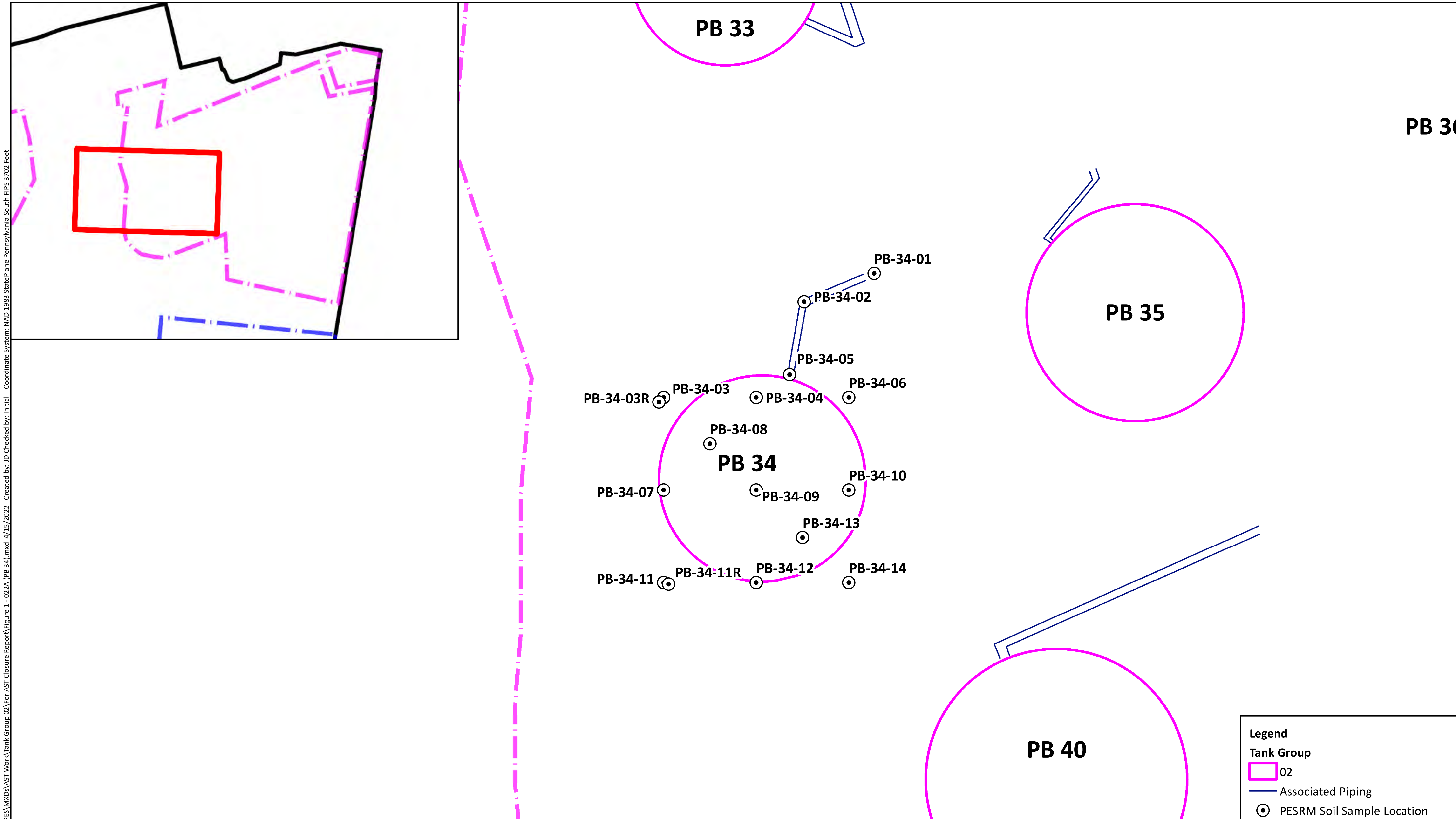
Table 1 - 022A (PB 34)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-34-01	PB-34-01-SS01	3.5	4.0	Lead	SW6010D	Soil	177	2.55	6/21/2021	7/14/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	ND	0.0074	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0037	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00093	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0018	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0037	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.004	0.00093	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Cumene	SW8260C	Soil	ND	0.0018	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.00068	0.0018	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0037	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0013	0.0018	6/21/2021	6/30/2021
PB-34-01	PB-34-01-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	ND	0.0037	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Lead	SW6010D	Soil	20	2.31	6/21/2021	7/14/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	1.7	0.23	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	8.8	0.12	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.1	0.12	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.31	0.029	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.61	0.059	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	4.1	0.059	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.12	0.059	6/21/2021	6/30/2021
PB-34-02	PB-34-02-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	3.49	0.12	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Lead	SW6010D	Soil	1330	2.25	6/21/2021	7/14/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	0.42	0.21	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.3	0.1	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.026	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.052	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.6	0.1	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.088	0.026	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Cumene	SW8260C	Soil	1.3	0.052	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.24	0.052	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.1	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Toluene	SW8260C	Soil	0.052	0.052	6/21/2021	6/30/2021
PB-34-03	PB-34-03-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	0.149	0.1	6/21/2021	6/30/2021
PB-34-03R	PB-34-03R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	488	12.7	2/11/2022	2/17/2022
PB-34-03R	PB-34-03R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	47.2	2.28	2/11/2022	2/17/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Lead	SW6010D	Soil	8	2.41	2/11/2022	2/17/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.063	0.23	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.057	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.11	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.03	0.23	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.39	0.057	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.99	0.11	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.033	0.11	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.23	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.11	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.23	2/11/2022	2/15/2022
PB-34-04	PB-34-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.037	0.2	2/11/2022	2/18/2022
PB-34-05	PB-34-05-SS01	4.0	4.5	Lead	SW6010D	Soil	244	2.27	6/21/2021	7/14/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	1.3	0.27	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.28	0.14	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.068	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.078	0.14	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.2	0.034	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.8	0.068	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.19	0.068	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.18	0.068	6/21/2021	6/30/2021
PB-34-05	PB-34-05-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.676	0.14	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Lead	SW6010D	Soil	6.84	2.24	6/21/2021	7/14/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.12	0.24	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.013	0.059	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.059	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.059	6/21/2021	6/30/2021
PB-34-06	PB-34-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Lead	SW6010D	Soil	124	2.7	6/21/2021	7/14/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.71	0.3	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.05	0.15	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.037	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.075	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.014	0.15	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.037	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.74	0.075	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.018	0.075	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.075	6/21/2021	6/30/2021
PB-34-07	PB-34-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.15	6/21/2021	6/30/2021
PB-34-08	PB-34-08-SS01	2.5	3.0	Lead	SW6010D	Soil	5.27	2.34	2/11/2022	2/17/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.057	0.26	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.065	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.26	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.065	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Cumene	SW8260C	Soil	2.8	0.13	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.042	0.13	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.26	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	ND	0.26	2/11/2022	2/15/2022
PB-34-08	PB-34-08-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	0.14	0.2	2/11/2022	2/18/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Lead	SW6010D	Soil	6.87	12.6	2/11/2022	2/17/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.066	2/11/2022	2/15/2022

Table 1 - 022A (PB 34)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-34-09	PB-34-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.033	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.079	0.066	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.011	0.066	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.066	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.13	2/11/2022	2/15/2022
PB-34-09	PB-34-09-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.032	0.21	2/11/2022	2/18/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Lead	SW6010D	Soil	8.27	11.3	2/11/2022	2/17/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.6	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.15	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.3	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.6	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Benzene	SW8260C	Soil	ND	0.15	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.089	0.3	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.048	0.3	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.6	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.3	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	ND	0.6	2/11/2022	2/15/2022
PB-34-10	PB-34-10-SS01	2.0	2.5	Naphthalene	SW8270D	Soil	0.048	0.19	2/11/2022	2/18/2022
PB-34-11	PB-34-11-SS01	4.0	4.5	Lead	SW6010D	Soil	34.8	2.51	6/21/2021	7/14/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	3.3	0.27	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	13	0.14	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.068	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	4.5	0.14	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Benzene	SW8260C	Soil	4.1	0.034	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.24	0.068	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	13	0.068	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Toluene	SW8260C	Soil	2.3	0.068	6/21/2021	6/30/2021
PB-34-11	PB-34-11-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	59.4	0.27	6/21/2021	6/30/2021
PB-34-11R	PB-34-11R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	180	1.5	2/11/2022	2/23/2022
PB-34-11R	PB-34-11R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	1.4	0.039	2/11/2022	2/17/2022
PB-34-12	PB-34-12-SS01	2.0	2.5	Lead	SW6010D	Soil	66.2	2.51	6/21/2021	7/14/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	2	0.59	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.84	0.29	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.074	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.15	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.17	0.29	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Benzene	SW8260C	Soil	1.4	0.074	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Cumene	SW8260C	Soil	3.6	0.15	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.28	0.15	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.29	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Toluene	SW8260C	Soil	0.76	0.15	6/21/2021	6/29/2021
PB-34-12	PB-34-12-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	1.9	0.29	6/21/2021	6/29/2021
PB-34-13	PB-34-13-SS01	4.5	5.0	Lead	SW6010D	Soil	44.3	10.9	2/11/2022	2/17/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.08	0.0018	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00045	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0009	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0074	0.0018	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.016	0.00045	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.046	0.0009	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.042	0.0009	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.0013	0.0018	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.0039	0.0009	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.03	0.0018	2/11/2022	2/16/2022
PB-34-13	PB-34-13-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	0.29	0.19	2/11/2022	2/18/2022
PB-34-14	PB-34-14-SS01	2.0	2.5	Lead	SW6010D	Soil	144	2.17	6/21/2021	7/14/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	0.00062	0.0037	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00092	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.0011	0.00046	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.00014	0.00092	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.00092	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.00058	0.0018	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.00092	6/21/2021	6/29/2021
PB-34-14	PB-34-14-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	6/21/2021	6/29/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100
Feet
1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Site Location and Sampling Map 022A (PB 34)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 022A (PB 34).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 022A (PB 34) during the beginning stages of demolition.

Photograph 2:

View of Tank 022A (PB 34) interior bottom during demolition process.

terraphase engineering

Client: Former Philadelphia Refinery

Project: Tank 022A, PB 34 Group 02 – AST Closure Report Forms

Project Number: P044.001.002

Photo Log

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of concrete pad beneath tank after demolition.

Photograph 5:

View of concrete pad beneath tank after demolition.

Photograph 6:

View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 022A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 11298

Date: 04-07-21

Scrap

Sold to: Allegheny
Location: Tank 34
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade ____
- ☐ Other Alloy, Grade ____
- ☐ Mixed
- ☐ Other: ____

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ____

Scale Ticket #: ____

Gross Weight: 71000 lb

Tare Weight: 39920 lbs

Net Weight: 31080 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ____

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ____

Carrier: ____

Truck #: ____

Container #: ____

Manifest #: ____

Profile / Approval #: ____

Scale Info

Scale Ticket #: ____

Gross Weight: ____

Tare weight: ____

Net weight: ____

Net Kilogram Conversion (PCB Only): ____

NorthStar Rep. Signature: ____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20027005
Date: 04/07/2021 7:35 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 11640.766
Loads: 878

DT261-55 - TRACTOR 55 TRAILER DT261
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	15.54 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	71000.00	39920.00	31080.00


11298

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 023A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long (Print Name), hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM
CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number__51 - 33620______

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

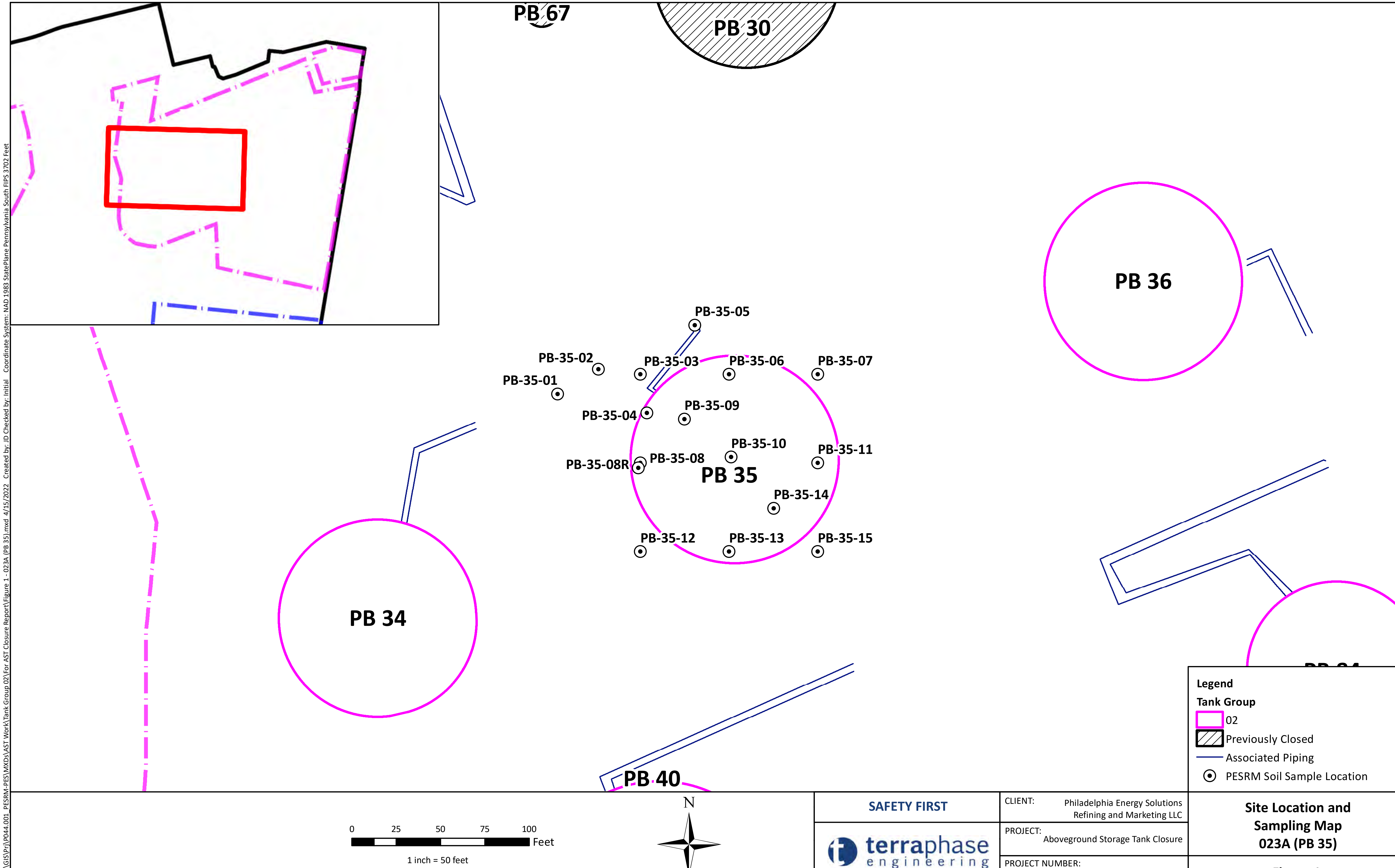
Table 1 - 023A (PB 35)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-35-01	PB-35-01-SS01	1.5	2.0	Lead	SW6010D	Soil	68.8	2.46	6/21/2021	7/14/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	0.18	0.48	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.057	0.24	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.06	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.24	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Benzene	SW8260C	Soil	0.035	0.06	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Cumene	SW8260C	Soil	2.3	0.12	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	0.042	0.12	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.24	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-01	PB-35-01-SS01	1.5	2.0	Xylenes (total)	SW8260C	Soil	0.26	0.24	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Lead	SW6010D	Soil	6.32	2.45	6/21/2021	7/14/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.094	0.24	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.036	0.12	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.03	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.54	0.06	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.06	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.06	6/21/2021	6/29/2021
PB-35-02	PB-35-02-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Lead	SW6010D	Soil	417	2.16	6/21/2021	7/14/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0041	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00052	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/21/2021	6/29/2021
PB-35-03	PB-35-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0021	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Lead	SW6010D	Soil	8.32	2.41	6/21/2021	7/14/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	5.2	0.23	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	28	0.59	6/21/2021	6/30/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.059	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	10	0.12	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.41	0.029	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.8	0.059	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	7.9	0.059	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.89	0.059	6/21/2021	6/29/2021
PB-35-04	PB-35-04-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	39.8	0.12	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Lead	SW6010D	Soil	84.4	2.26	6/21/2021	7/14/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.98	0.26	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.049	0.13	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.064	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.014	0.13	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.032	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Cumene	SW8260C	Soil	1.3	0.064	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.064	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.043	0.064	6/21/2021	6/29/2021
PB-35-05	PB-35-05-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.62	0.13	6/21/2021	6/29/2021
PB-35-06	PB-35-06-SS01	3.0	3.5	Lead	SW6010D	Soil	79.2	2.31	2/10/2022	2/16/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.095	0.16	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.04	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.079	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.028	0.16	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.89	0.04	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.37	0.079	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.8	0.079	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.082	0.16	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.07	0.079	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.237	0.16	2/10/2022	2/14/2022
PB-35-06	PB-35-06-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.48	0.19	2/10/2022	2/15/2022
PB-35-07	PB-35-07-SS01	3.5	4.0	Lead	SW6010D	Soil	7.54	2.36	6/21/2021	7/14/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.045	0.28	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.14	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.035	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.07	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.14	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.032	0.035	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.25	0.07	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.65	0.07	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.07	6/21/2021	6/29/2021
PB-35-07	PB-35-07-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	ND	0.14	6/21/2021	6/29/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Lead	SW6010D	Soil	7.41	2.36	6/21/2021	7/14/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	7.2	0.56	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	50	0.56	6/21/2021	6/29/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.07	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.14	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	15	0.28	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.89	0.07	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Cumene	SW8260C	Soil	1.2	0.14	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	12	0.14	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.28	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Toluene	SW8260C	Soil	10	0.14	6/21/2021	6/30/2021
PB-35-08	PB-35-08-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	54.4	0.28	6/21/2021	6/30/2021
PB-35-08R	PB-35-08R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.24	0.051	2/10/2022	2/24/2022
PB-35-08R	PB-35-08R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	2.5	0.15	2/10/2022	2/15/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Lead	SW6010D	Soil	1520	11.5	2/10/2022	2/16/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.62	0.1	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.025	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.051	2/10/2022	2/14/2022

Table 1 - 023A (PB 35)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-35-09	PB-35-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.28	0.1	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.31	0.025	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.035	0.051	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.1	0.051	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.077	0.1	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.051	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.35	0.1	2/10/2022	2/14/2022
PB-35-09	PB-35-09-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	5.9	0.2	2/10/2022	2/15/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Lead	SW6010D	Soil	57.6	2.33	2/10/2022	2/16/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.09	0.14	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.036	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.072	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.028	0.14	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.2	0.036	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.3	0.072	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.9	0.072	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.035	0.14	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.06	0.072	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.12	0.14	2/10/2022	2/14/2022
PB-35-10	PB-35-10-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Lead	SW6010D	Soil	1500	11.5	2/10/2022	2/16/2022
PB-35-11	DUP-26	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	37	1.7	2/10/2022	2/14/2022
PB-35-11	DUP-26	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.043	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.086	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	13	0.17	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Benzene	SW8260C	Soil	2.6	0.043	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Cumene	SW8260C	Soil	1.2	0.086	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Ethyl Benzene	SW8260C	Soil	19	0.086	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.17	2/10/2022	2/15/2022
PB-35-11	DUP-26	3.0	3.5	Toluene	SW8260C	Soil	42	0.86	2/10/2022	2/14/2022
PB-35-11	DUP-26	3.0	3.5	Xylenes (total)	SW8260C	Soil	110	1.7	2/10/2022	2/14/2022
PB-35-11	DUP-26	3.0	3.5	Naphthalene	SW8270D	Soil	0.13	0.19	2/10/2022	2/15/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Lead	SW6010D	Soil	173	2.29	2/10/2022	2/16/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.052	0.1	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.026	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.053	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.1	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.73	0.026	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.03	0.053	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.15	0.053	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.066	0.1	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.053	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.1	2/10/2022	2/14/2022
PB-35-11	PB-35-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.62	0.19	2/10/2022	2/15/2022
PB-35-12	PB-35-12-SS01	4.0	4.5	Lead	SW6010D	Soil	6.73	2.4	6/21/2021	7/14/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.88	0.48	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.24	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.061	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.24	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.71	0.061	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Cumene	SW8260C	Soil	4.8	0.12	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.1	0.12	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.24	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.085	0.12	6/21/2021	6/29/2021
PB-35-12	PB-35-12-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.31	0.24	6/21/2021	6/29/2021
PB-35-13	PB-35-13-SS01	2.5	3.0	Lead	SW6010D	Soil	63.2	2.27	2/10/2022	2/16/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.3	0.12	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.058	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.03	0.12	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.89	0.029	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.29	0.058	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	2	0.058	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.074	0.058	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	0.344	0.12	2/10/2022	2/14/2022
PB-35-13	PB-35-13-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	6.9	0.19	2/10/2022	2/15/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Lead	SW6010D	Soil	7.51	11.6	2/10/2022	2/16/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.13	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.066	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.54	0.033	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.24	0.066	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.037	0.066	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.05	0.066	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.079	0.13	2/10/2022	2/14/2022
PB-35-14	PB-35-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.062	0.2	2/10/2022	2/15/2022
PB-35-15	PB-35-15-SS01	3.0	3.5	Lead	SW6010D	Soil	7.62	2.31	6/21/2021	7/14/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.4	0.23	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.11	0.12	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.058	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.052	0.12	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	2	0.058	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.03	0.058	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.039	0.058	6/21/2021	6/30/2021
PB-35-15	PB-35-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.27	0.12	6/21/2021	6/30/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-26 is a field duplicate associated with sample PB-35-11-SS01.



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CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Site Location and Sampling Map 023A (PB 35)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 023A (PB 35).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

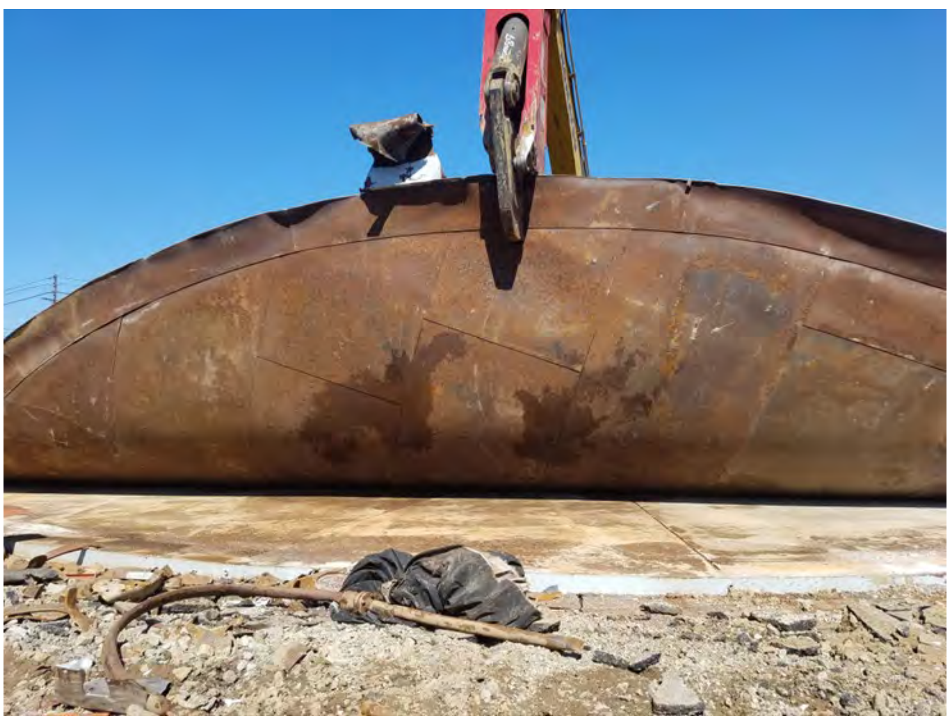
View of Tank 023A (PB 35) during the beginning stages of demolition.

Photograph 2:

View of Tank 023A (PB 35) interior bottom during demolition process.

Photograph 3:

View of base of tank and waste pile.



Photograph 4:

View of concrete pad beneath base of the tank.

	**Photograph 5:** View of concrete pad after demolition.
	**Photograph 6:** View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 023A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 11230

Date: 04-01-21

Scrap

Sold to: Allegheny
Location: Tank 25
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade________
- ☐ Other Alloy, Grade________
- ☐ Mixed
- ☐ Other:________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:________

Scale Ticket #:________

Gross Weight: 69940 lbs

Tare Weight: 41240 lbs

Net Weight: 28700 lbs

NorthStar Rep. Signature:

Received By:

Non-Haz / ACM / Special Waste

Activity Location:________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:________

Carrier:________

Truck #:________

Container #:________

Manifest #:________

Profile / Approval #:________

Scale Info

Scale Ticket #:________

Gross Weight:________

Tare weight:________

Net weight:________

Net Kilogram Conversion (PCB Only):________

NorthStar Rep. Signature:________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026950
Date: 04/01/2021 12:30 PM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 11051.606
Loads: 833

DT260-50 - TRUCK 260 W/ TRAILER 50
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	14.35 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	69940.00	41240.00	28700.00


11230

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 024A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________

____________ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long ______________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 024A (PB 37)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-37-01	PB-37-01-SS01	3.0	3.5	Lead	SW6010C	Soil	449	2.4	7/27/2021	8/4/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0024	0.0044	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00068	0.0022	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00056	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0036	0.0011	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	7/27/2021	7/30/2021
PB-37-01	PB-37-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00206	0.0022	7/27/2021	7/30/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Lead	SW6010C	Soil	131	1.6	7/27/2021	8/4/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.28	0.28	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	1	0.14	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.035	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.069	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.14	0.14	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.035	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.071	0.069	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.24	0.069	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.069	7/27/2021	8/2/2021
PB-37-02	PB-37-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.4045	0.14	7/27/2021	8/2/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Lead	SW6010C	Soil	61.2	2.2	7/27/2021	8/4/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	1.8	0.37	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	32	0.94	7/27/2021	8/2/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.047	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.094	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	10	0.19	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Benzene	SW8260C	Soil	0.8	0.047	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Cumene	SW8260C	Soil	1.4	0.094	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	15	0.094	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.19	7/27/2021	7/30/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Toluene	SW8260C	Soil	65	0.47	7/27/2021	8/2/2021
PB-37-03	PB-37-03-SS01	1.0	1.5	Xylenes (total)	SW8260C	Soil	85	0.94	7/27/2021	8/2/2021
PB-37-04	PB-37-04-SS01	3.0	3.5	Lead	SW6010D	Soil	12.4	2.04	2/9/2022	2/13/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0004	0.0018	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00092	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00024	0.00046	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00092	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00016	0.00092	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0029	0.0018	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00092	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	2/9/2022	2/11/2022
PB-37-04	PB-37-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/9/2022	2/14/2022
PB-37-05	PB-37-05-SS01	3.0	3.5	Lead	SW6010C	Soil	85	2.4	7/27/2021	8/4/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	1.9	0.29	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	10	0.14	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.036	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.072	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.8	0.14	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.3	0.036	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.32	0.072	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	3.8	0.072	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	9.8	0.072	7/27/2021	7/30/2021
PB-37-05	PB-37-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	18.7	0.14	7/27/2021	7/30/2021
PB-37-05R	PB-37-05R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.008	0.0005	2/9/2022	2/26/2022
PB-37-05R	PB-37-05R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	11	1.7	2/9/2022	2/11/2022
PB-37-06	PB-37-06-SS01	2.0	2.5	Lead	SW6010C	Soil	9.4	2.3	7/27/2021	8/4/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	ND	0.0047	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0091	0.0024	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00059	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.027	0.0024	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.0085	0.00059	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.018	0.0012	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.004	0.0012	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Toluene	SW8260C	Soil	0.0067	0.0012	7/27/2021	8/2/2021
PB-37-06	PB-37-06-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	0.0688	0.0024	7/27/2021	8/2/2021
PB-37-07	PB-37-07-SS01	3.5	4.0	Lead	SW6010D	Soil	5.19	2.03	2/9/2022	2/13/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.15	0.0018	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.00089	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.074	0.0018	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.021	0.00044	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.031	0.00089	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.081	0.00089	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.012	0.0018	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.012	0.00089	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.138	0.0018	2/9/2022	2/11/2022
PB-37-07	PB-37-07-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	ND	0.18	2/9/2022	2/14/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Lead	SW6010D	Soil	15.9	2.12	2/9/2022	2/13/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00019	0.0005	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00015	0.001	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00072	0.002	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	2/9/2022	2/11/2022
PB-37-08	PB-37-08-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	2/9/2022	2/14/2022
PB-37-09	PB-37-09-SS01	3.0	3.5	Lead	SW6010C	Soil	8.7	2.2	7/27/2021	8/4/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0049	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0035	0.0024	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00061	7/27/2021	7/30/2021

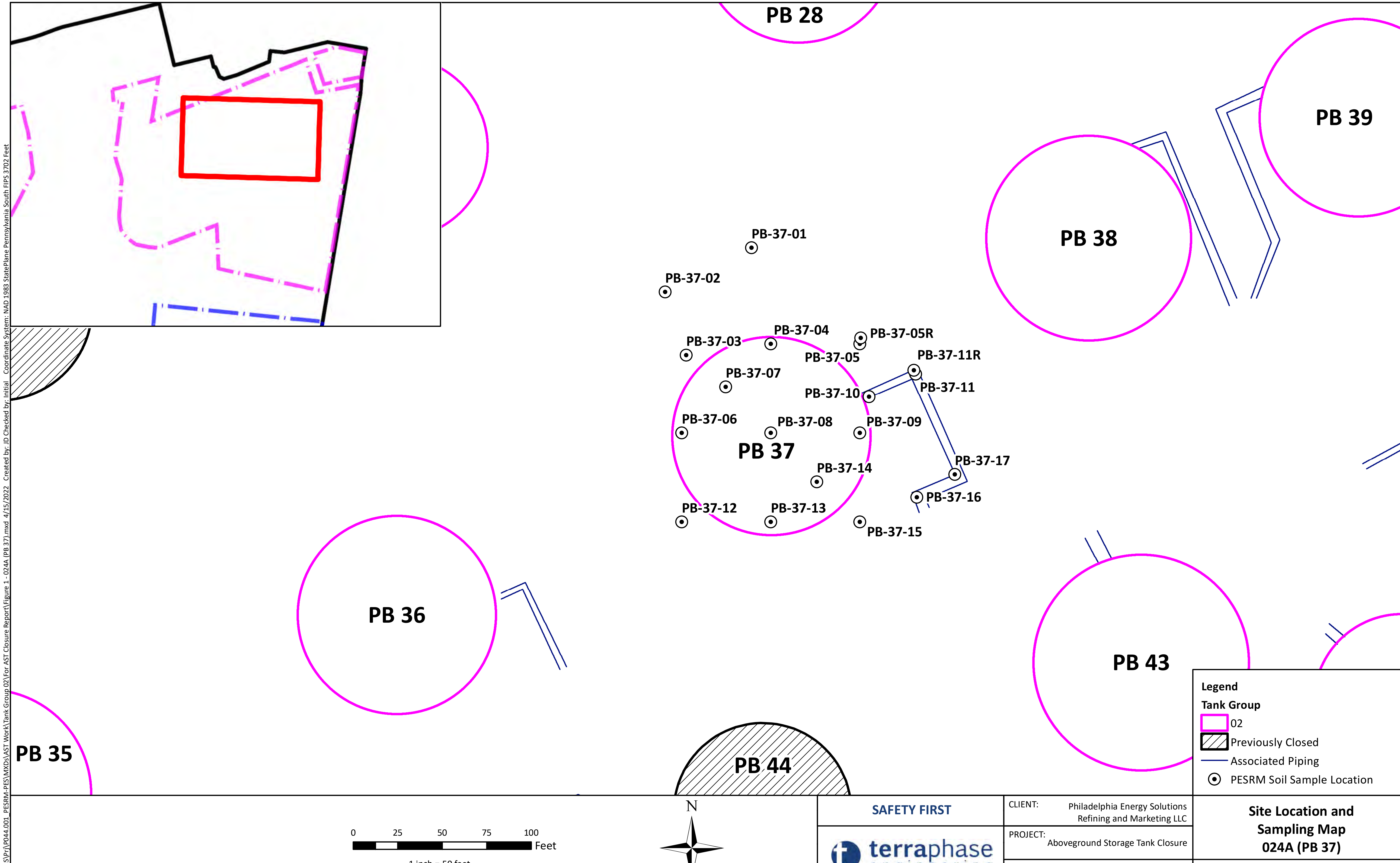
Table 1 - 024A (PB 37)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-37-09	PB-37-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0042	0.0024	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0015	0.00061	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0092	0.0012	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00056	0.0012	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0047	0.0012	7/27/2021	7/30/2021
PB-37-09	PB-37-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00432	0.0024	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Lead	SW6010C	Soil	5.8	2.3	7/27/2021	8/4/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	2.1	0.22	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.059	0.11	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.056	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.27	0.11	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.028	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.88	0.056	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.16	0.056	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.074	0.056	7/27/2021	7/30/2021
PB-37-10	PB-37-10-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	0.137	0.11	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Lead	SW6010C	Soil	2740	12	7/27/2021	8/5/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0048	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0006	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0006	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0005	0.0012	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	7/27/2021	7/30/2021
PB-37-11	PB-37-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0024	7/27/2021	7/30/2021
PB-37-11R	PB-37-11R-14.0-14.5	14.0	14.5	Lead	SW6010D	Soil	52.2	2.38	2/9/2022	3/2/2022
PB-37-11R	PB-37-11R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	854	2.26	2/9/2022	2/13/2022
PB-37-11R	PB-37-11R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	161	2.3	2/9/2022	2/13/2022
PB-37-12	PB-37-12-SS01	3.0	3.5	Lead	SW6010C	Soil	119	2.6	7/27/2021	8/4/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.19	0.29	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.47	0.14	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.036	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.072	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.16	0.14	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.26	0.036	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.033	0.072	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.23	0.072	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	2	0.072	7/27/2021	8/2/2021
PB-37-12	PB-37-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.26	0.14	7/27/2021	8/2/2021
PB-37-13	PB-37-13-SS01	3.0	3.5	Lead	SW6010D	Soil	58.5	2.03	2/9/2022	2/13/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.13	0.1	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.025	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.05	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.042	0.1	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.017	0.025	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.27	0.05	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.19	0.05	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.1	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.034	0.05	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.219	0.1	2/9/2022	2/11/2022
PB-37-13	PB-37-13-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/9/2022	2/14/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Lead	SW6010D	Soil	7.42	2.03	2/9/2022	2/13/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	1.1	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.28	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.56	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	1.1	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Benzene	SW8260C	Soil	1.7	0.28	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Cumene	SW8260C	Soil	3.8	0.56	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.56	0.56	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.92	1.1	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.56	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	ND	1.1	2/9/2022	2/11/2022
PB-37-14	PB-37-14-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	ND	0.18	2/9/2022	2/16/2022
PB-37-15	PB-37-15-SS01	2.5	3.0	Lead	SW6010C	Soil	647	2.8	7/27/2021	8/4/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	0.22	0.005	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.2	0.17	7/27/2021	8/2/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00063	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.029	0.0025	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.0053	0.00063	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.042	0.0013	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.046	0.084	7/27/2021	8/2/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	0.00086	0.0025	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.0037	0.0013	7/27/2021	7/30/2021
PB-37-15	PB-37-15-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	0.09	0.17	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Lead	SW6010C	Soil	14.3	2.4	7/27/2021	8/4/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.21	0.99	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.5	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.12	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.25	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.5	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.043	0.12	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	6	0.25	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.18	0.25	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.5	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.25	7/27/2021	7/30/2021
PB-37-16	PB-37-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.5	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Lead	SW6010C	Soil	1850	12	7/27/2021	8/5/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0017	0.004	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.086	0.002	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.001	0.002	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0004	0.00051	7/27/2021	7/30/2021

Table 1 - 024A (PB 37)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-37-17	PB-37-17-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0084	0.001	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0028	0.001	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.00078	0.001	7/27/2021	7/30/2021
PB-37-17	PB-37-17-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.016	0.002	7/27/2021	7/30/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 024A (PB 37)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 024A (PB 37).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 024A (PB 37) during demolition.

Photograph 2:

View of Tank 0XXA (PB XXX) interior during demolition process.

terraphase engineering	**Client:** Former Philadelphia Refinery **Project:** Tank 024A, PB 37 Group 02 – AST Closure Report Forms **Project Number:** P044.001.002	**Photo Log**
		Page 1

Photograph 3:

View of waste pile.

Photograph 4:

View of concrete pad after demolition.

	**Photograph 5:** View of concrete pad after demolition.
	**Photograph 6:** View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 024A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

Load Ticket: 12895

#S120103

Date: 06-25-21

Scrap

Sold to: Allghuny
Location: Tank 37
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade______
- ☐ Other Alloy, Grade______
- ☐ Mixed
- ☐ Other: ______

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ______

Scale Ticket #: ______

Gross Weight: 57860 lbs

Tare Weight: 42400 lbs

Net Weight: 15460 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ______

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ______

Carrier: ______

Truck #: ______

Container #: ______

Manifest #: ______

Profile / Approval #: ______

Scale Info

Scale Ticket #: ______

Gross Weight: ______

Tare weight: ______

Net weight: ______

Net Kilogram Conversion (PCB Only): ______

NorthStar Rep. Signature: ______

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20028213
Date: 06/25/2021 8:26 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 28779.286
Loads: 2062

DT326-1108 - TRACTOR 1108 TRAILER DT326
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	7.73 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	57860.00	42400.00	15460.00


12895
THE MONSTER
JMH TRAILERS

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 025A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. **TANK SYSTEM REMOVED FROM THE GROUND/SITE**

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. **TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE**

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

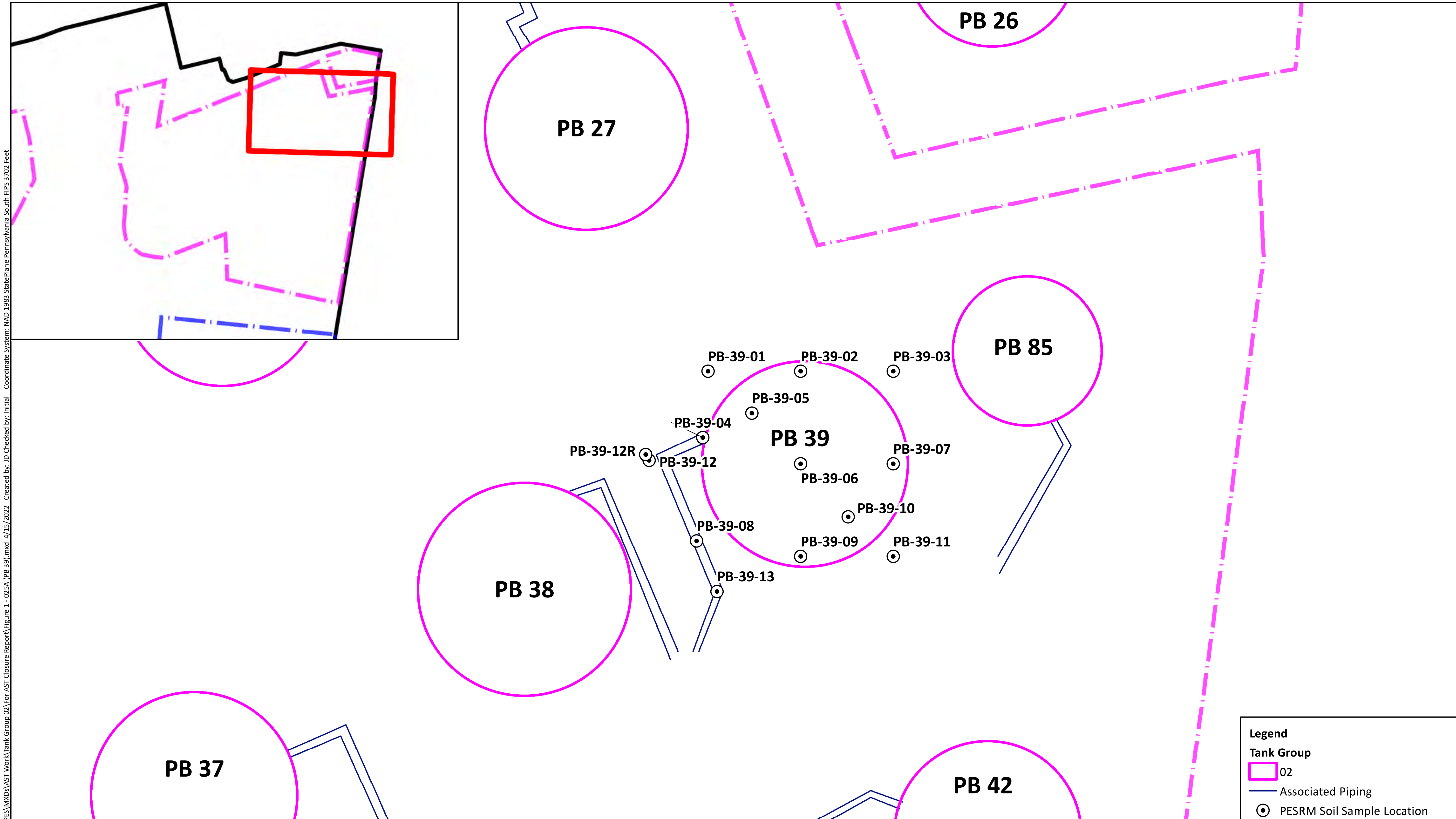
Table 1 - 025A (PB 39)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-39-01	PB-39-01-SS01	3.0	3.5	Lead	SW6010C	Soil	153	2.3	7/15/2021	7/24/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0055	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0028	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00069	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0014	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0028	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0012	0.00069	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00022	0.0014	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0028	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0014	7/15/2021	7/20/2021
PB-39-01	PB-39-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0028	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Lead	SW6010C	Soil	26.1	2.3	7/15/2021	7/24/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.0067	0.004	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.003	0.002	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00099	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00038	0.002	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.00018	0.00049	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.011	0.00099	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.00039	0.00099	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.00099	7/15/2021	7/20/2021
PB-39-02	PB-39-02-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.00319	0.002	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Lead	SW6010C	Soil	19.4	2.4	7/15/2021	7/24/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0066	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0033	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00082	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0016	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0033	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00082	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0016	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0016	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0033	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0016	7/15/2021	7/20/2021
PB-39-03	PB-39-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0033	7/15/2021	7/20/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Lead	SW6010C	Soil	137	2.6	7/15/2021	7/24/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	5.4	0.22	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	13	0.11	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.056	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.7	0.11	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.65	0.028	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.33	0.056	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	5.3	0.056	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.015	0.11	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Toluene	SW8260C	Soil	0.16	0.056	7/15/2021	7/21/2021
PB-39-04	PB-39-04-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	19.38	0.11	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Lead	SW6010C	Soil	268	1.5	7/15/2021	7/24/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0011	0.0068	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0041	0.0034	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00084	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0017	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0024	0.0034	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.015	0.00084	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.07	0.0017	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0051	0.0017	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0037	0.0034	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0077	0.0017	7/15/2021	7/21/2021
PB-39-05	PB-39-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0196	0.0034	7/15/2021	7/21/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Lead	SW6010C	Soil	72.5	2.4	7/15/2021	7/24/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.26	0.4	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.34	0.2	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.05	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.099	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.1	0.2	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.92	0.05	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.72	0.099	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.26	0.099	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.2	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.37	0.099	7/15/2021	7/20/2021
PB-39-06	PB-39-06-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	1.3	0.2	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Lead	SW6010C	Soil	59.4	1.4	7/15/2021	7/24/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.004	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00051	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0047	0.002	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/15/2021	7/20/2021
PB-39-07	PB-39-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	7/15/2021	7/20/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Lead	SW6010C	Soil	28.8	2.3	7/15/2021	7/24/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	10	0.24	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.1	0.12	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.8	0.12	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.72	0.03	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	16	0.06	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.2	0.06	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.015	0.12	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.2	0.06	7/15/2021	7/21/2021
PB-39-08	PB-39-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.55	0.12	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Lead	SW6010C	Soil	130	1.5	7/15/2021	7/24/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.97	0.49	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.5	0.24	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.061	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.14	0.24	7/15/2021	7/21/2021

Table 1 - 025A (PB 39)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-39-09	PB-39-09-SS01	4.5	5.0	Benzene	SW8260C	Soil	1.4	0.061	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Cumene	SW8260C	Soil	7.6	0.12	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.33	0.12	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.24	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.68	0.12	7/15/2021	7/21/2021
PB-39-09	PB-39-09-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	1.42	0.24	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Lead	SW6010C	Soil	419	2.6	7/15/2021	7/24/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0051	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00064	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0025	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00028	0.00064	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0019	0.0025	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	7/15/2021	7/21/2021
PB-39-10	PB-39-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0025	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Lead	SW6010C	Soil	32.5	2.3	7/15/2021	7/26/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.016	0.0058	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0029	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00073	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0015	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0029	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.002	0.00073	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0011	0.0015	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.001	0.0015	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00081	0.0029	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0015	7/15/2021	7/21/2021
PB-39-11	PB-39-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.002	0.0029	7/15/2021	7/21/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Lead	SW6010C	Soil	31.5	2.5	7/15/2021	7/26/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	40	6.3	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	390	3.1	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.78	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.6	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	98	3.1	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	73	0.78	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	11	1.6	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	180	1.6	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.37	3.1	7/15/2021	7/20/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	350	3.1	7/15/2021	7/21/2021
PB-39-12	PB-39-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	920	6.3	7/15/2021	7/21/2021
PB-39-12R	PB-39-12R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	45	0.7	2/10/2022	2/23/2022
PB-39-12R	PB-39-12R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.46	0.12	2/10/2022	2/15/2022
PB-39-12R	PB-39-12R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.094	0.12	2/10/2022	2/15/2022
PB-39-12R	PB-39-12R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	1.7	0.031	2/10/2022	2/15/2022
PB-39-12R	PB-39-12R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	0.35	0.062	2/10/2022	2/15/2022
PB-39-12R	PB-39-12R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	7.1	0.062	2/10/2022	2/15/2022
PB-39-13	PB-39-13-SS01	3.0	3.5	Lead	SW6010C	Soil	84.8	1.5	7/15/2021	7/26/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.041	0.0046	7/15/2021	7/20/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.087	0.13	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.063	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.03	0.13	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.16	0.032	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.6	0.063	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.12	0.063	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.046	0.063	7/15/2021	7/21/2021
PB-39-13	PB-39-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.17	0.13	7/15/2021	7/21/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Site Location and Sampling Map 025A (PB 39)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 025A (PB 39).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of Tank 025A (PB 39) during the beginning stages of demolition.
	**Photograph 2:** View of Tank 025A (PB 39) interior during demolition process.

Photograph 3:

View of waste pile.

Photograph 4:

View of waste pile.

	**Photograph 5:** View of portion of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 025A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 12662

Date: 06-17-21

Scrap

Sold to: Allghery

Location: Tank 39

Carrier: Allghery

Steel / Ferrous

- [x] No. 1 P+S
- [ ] No. 2 Heavy Melt
- [ ] Cast Iron
- [ ] Mixed
- [ ] Pipe
- [ ] Light Iron
- [ ] Re-Bar
- [ ] Other ______

Non-Ferrous

- [ ] Insulated Copper Wire
- [ ] No. 1 Copper Wire
- [ ] Brass
- [ ] Aluminum
- [ ] Stainless, Grade______
- [ ] Other Alloy, Grade______
- [ ] Mixed
- [ ] Other: ______

Condition

- [ ] Prepared
- [ ] Unprepared
- [ ] Green Waste
- [ ] Concrete
- [ ] Masonry
- [ ] Mixed Masonry
- [ ] Wood Only
- [ ] Demo Debris (C&D)
- [ ] Dirt / Fill
- [ ] Sand Fill
- [ ] Crushed Stone
- [ ] Other:______

Scale Ticket #:______

Gross Weight: 62720 lbs

Tare Weight: 41600 lbs

Net Weight: 21120 lbs

NorthStar Rep. Signature:______

Received By:______

Non-Haz / ACM / Special Waste

Activity Location:______

Waste Stream

- [ ] C&D Demolition Debris
- [ ] Non-Friable ACM
- [ ] Friable ACM
- [ ] PB WWTP Sludge
- [ ] GP WWTP Sludge
- [ ] Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- [ ] Process Haz Waste
- [ ] Demo Debris (C&D)
- [ ] Non-Haz Waste (Solid)
- [ ] Non-Haz Waste (Liquid)
- [ ] PCB (Non-TSCA)
- [ ] PCB (TSCA)

Disposal Facility:______

Carrier:______

Truck #:______

Container #:______

Manifest #:______

Profile / Approval #:______

Scale Info

Scale Ticket #:______

Gross Weight:______

Tare weight:______

Net weight:______

Net Kilogram Conversion (PCB Only):______

NorthStar Rep. Signature:______

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20028012
Date: 06/17/2021 7:15 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 25845.326
Loads: 1864

DT260-50 - TRUCK 260 W/ TRAILER 50
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	10.56 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	62720.00	41600.00	21120.00


12662

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 026A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 026A (PB 40)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-40-01	PB-40-01-SS01	2.5	3.0	Lead	SW6010D	Soil	272	2.9	6/22/2021	7/19/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	1.2	0.35	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.18	0.17	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.043	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.087	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.027	0.17	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.04	0.043	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Cumene	SW8260C	Soil	3.9	0.087	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.061	0.087	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.17	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.062	0.087	6/22/2021	6/30/2021
PB-40-01	PB-40-01-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	0.265	0.17	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Lead	SW6010D	Soil	6.14	2.39	6/22/2021	7/16/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	1.8	0.5	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.058	0.25	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.062	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.12	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.25	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.062	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Cumene	SW8260C	Soil	12	0.12	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.044	0.12	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.25	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.12	6/22/2021	6/30/2021
PB-40-02	PB-40-02-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.245	0.25	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Lead	SW6010D	Soil	297	2.64	6/22/2021	7/16/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	1.9	0.52	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.38	0.26	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.065	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.059	0.26	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.039	0.065	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	3.2	0.13	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.14	0.13	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.26	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.1	0.13	6/22/2021	6/30/2021
PB-40-03	PB-40-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.46	0.26	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Lead	SW6010D	Soil	36.3	2.27	6/22/2021	7/16/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.15	0.24	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.086	0.12	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.03	0.12	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.014	0.03	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.49	0.06	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.069	0.06	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.036	0.06	6/22/2021	6/30/2021
PB-40-04	PB-40-04-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.25	0.12	6/22/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Lead	SW6010D	Soil	355	2.19	6/21/2021	7/14/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0038	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00095	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0024	0.00095	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00095	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00095	6/21/2021	6/30/2021
PB-40-05	PB-40-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Lead	SW6010D	Soil	29.8	2.2	6/21/2021	7/13/2021
PB-40-06	DUP-07	3.0	3.5	Naphthalene	SW8260C	Soil	1.9	0.23	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	2.6	0.12	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.029	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.058	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.22	0.12	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Benzene	SW8260C	Soil	0.43	0.029	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Cumene	SW8260C	Soil	0.22	0.058	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.3	0.058	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Toluene	SW8260C	Soil	0.037	0.058	6/21/2021	6/30/2021
PB-40-06	DUP-07	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.647	0.12	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Lead	SW6010D	Soil	247	2.32	6/21/2021	7/14/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.00053	0.0033	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0003	0.0016	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00041	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00082	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0016	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0027	0.00041	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0002	0.00082	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0002	0.00082	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0016	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00082	6/21/2021	6/30/2021
PB-40-06	PB-40-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0011	0.0016	6/21/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Lead	SW6010D	Soil	463	2.3	6/22/2021	7/16/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.12	0.21	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.74	0.1	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.026	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.052	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.23	0.1	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.026	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.064	0.052	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.026	0.052	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.1	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.052	6/22/2021	6/30/2021
PB-40-07	PB-40-07-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.077	0.1	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Lead	SW6010D	Soil	41.1	2.04	6/22/2021	7/16/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.63	0.44	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.22	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.055	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.11	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.22	6/22/2021	6/30/2021

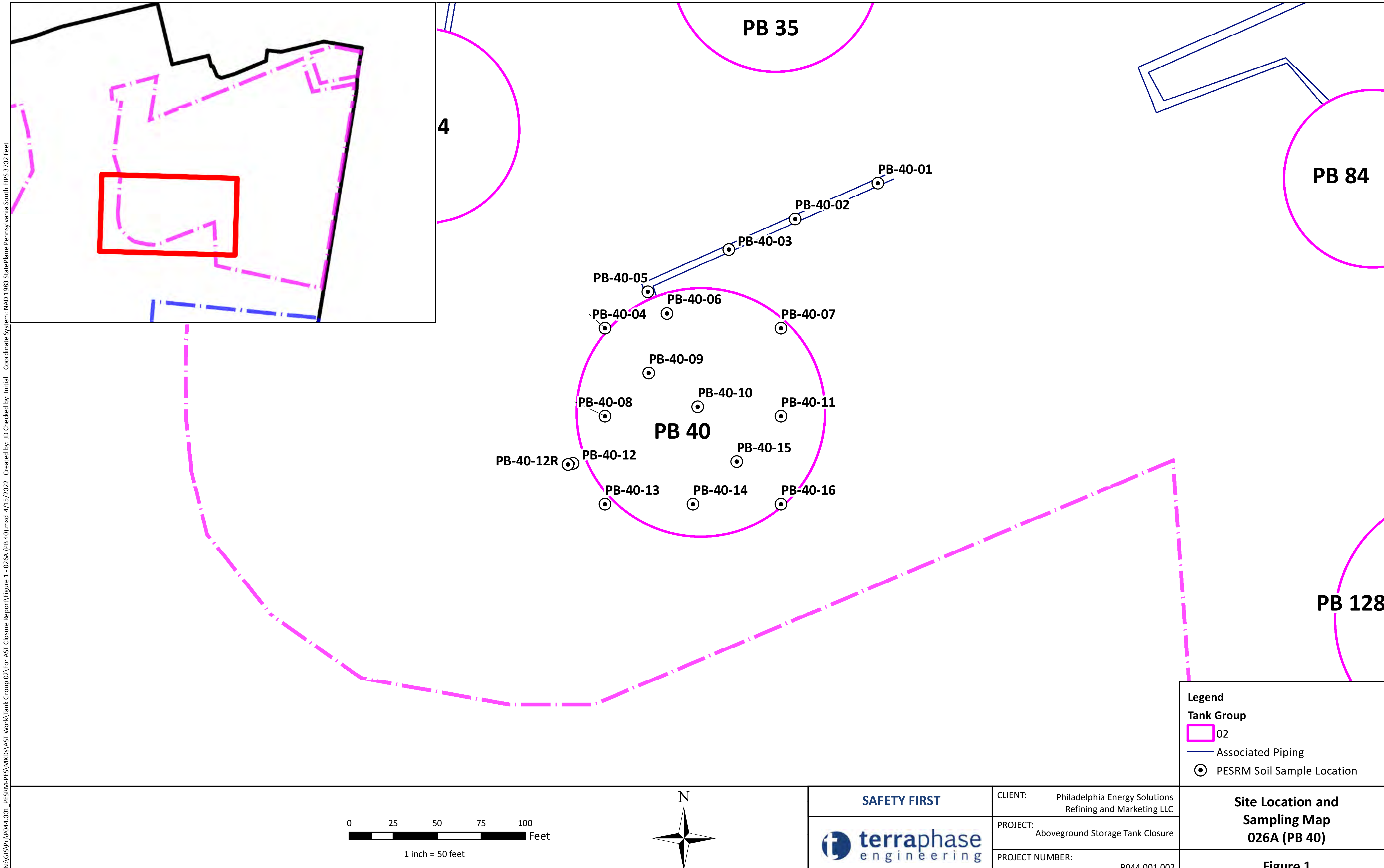
Table 1 - 026A (PB 40)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-40-08	PB-40-08-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.055	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.1	0.11	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.029	0.11	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.22	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.11	6/22/2021	6/30/2021
PB-40-08	PB-40-08-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.179	0.22	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Lead	SW6010D	Soil	15.5	2.08	6/22/2021	7/16/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0024	0.0042	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00052	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0049	0.00052	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0014	0.001	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0012	0.001	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/22/2021	6/30/2021
PB-40-09	PB-40-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0021	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Lead	SW6010D	Soil	58.2	2.2	6/22/2021	7/16/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.5	0.45	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.17	0.22	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.056	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.11	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.22	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.056	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Cumene	SW8260C	Soil	4	0.11	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.24	0.11	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.22	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.11	6/22/2021	6/30/2021
PB-40-10	PB-40-10-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.21	0.22	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Lead	SW6010D	Soil	258	2.3	6/22/2021	7/16/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.035	0.0043	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.11	0.0022	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00054	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.037	0.0022	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.023	0.00054	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.021	0.0011	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.027	0.0011	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.03	0.0011	6/22/2021	6/30/2021
PB-40-11	PB-40-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.125	0.0022	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Lead	SW6010D	Soil	1070	2.42	6/22/2021	7/16/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.79	0.26	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.3	0.13	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.065	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.04	0.13	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.59	0.033	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.4	0.065	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.83	0.065	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.014	0.13	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.17	0.065	6/22/2021	6/30/2021
PB-40-12	PB-40-12-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.054	0.13	6/22/2021	6/30/2021
PB-40-12R	PB-40-12R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	31.2	11.5	2/11/2022	2/18/2022
PB-40-12R	PB-40-12R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.0037	0.00049	2/11/2022	2/17/2022
PB-40-12R	PB-40-12R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	7.08	2.47	2/11/2022	2/17/2022
PB-40-13	PB-40-13-SS01	4.0	4.5	Lead	SW6010D	Soil	8.13	2.35	6/22/2021	7/16/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.0058	0.0053	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00067	0.0026	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00066	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.00095	0.00066	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.038	0.0013	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.00042	0.0013	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.0025	0.0013	6/22/2021	6/30/2021
PB-40-13	PB-40-13-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0032	0.0026	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Lead	SW6010D	Soil	248	2.28	6/22/2021	7/16/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.033	0.0041	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.073	0.002	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.023	0.002	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.12	0.00051	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.017	0.001	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.01	0.001	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0094	0.001	6/22/2021	6/30/2021
PB-40-14	PB-40-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.029	0.002	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Lead	SW6010D	Soil	34.4	2.1	6/22/2021	7/16/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.016	0.004	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.032	0.002	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.012	0.002	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.0018	0.00051	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.0032	0.001	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.0078	0.001	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.0033	0.001	6/22/2021	6/30/2021
PB-40-15	PB-40-15-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0168	0.002	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Lead	SW6010D	Soil	40.1	2.33	6/22/2021	7/16/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.0028	0.0039	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.046	0.002	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00098	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.019	0.002	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.0007	0.00049	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.046	0.00098	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.0025	0.00098	6/22/2021	6/30/2021

Table 1 - 026A (PB 40)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-40-16	PB-40-16-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.0027	0.00098	6/22/2021	6/30/2021
PB-40-16	PB-40-16-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.0312	0.002	6/22/2021	6/30/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-07 is a field duplicate associated with sample PB-40-06-SS01.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 026A (PB 40)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 026A (PB 40).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 026A (PB 40) during the beginning stages of demolition.

Photograph 2:

View of Tank 026A (PB 40) tank bottom during demolition process.

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of concrete pad beneath tank bottom

	**Photograph 5:** View of soil after demolition.
	**Photograph 6:** View of soil after demolition.

Product Movement and Waste Disposal Documentation (Tank 026A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 11166

Date: 03-29-21

Scrap

Sold to: Allegheny
Location: Tank 110
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade____
- ☐ Other Alloy, Grade____
- ☐ Mixed
- ☐ Other: ____

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ____

Scale Ticket #: ____

Gross Weight: 76200 lbs

Tare Weight: 42280 lbs

Net Weight: 33920 lbs

NorthStar Rep. Signature: [signature]

Received By: Joel C.

Non-Haz / ACM / Special Waste

Activity Location: ____

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ____

Carrier: ____

Truck #: ____

Container #: ____

Manifest #: ____

Profile / Approval #: ____

Scale Info

Scale Ticket #: ____

Gross Weight: ____

Tare weight: ____

Net weight: ____

Net Kilogram Conversion (PCB Only): ____

NorthStar Rep. Signature: ____

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026900
Date: 03/29/2021 7:57 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 10419.446
Loads: 791

DT328-1109 - TRACTOR 1109 TRAILER DT328
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	16.96 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	76200.00	42280.00	33920.00


1166
THE MONSTER
by

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 027A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):______________________________

____

____

____

______________________________ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):______________________________

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1” = 10 and 1” = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

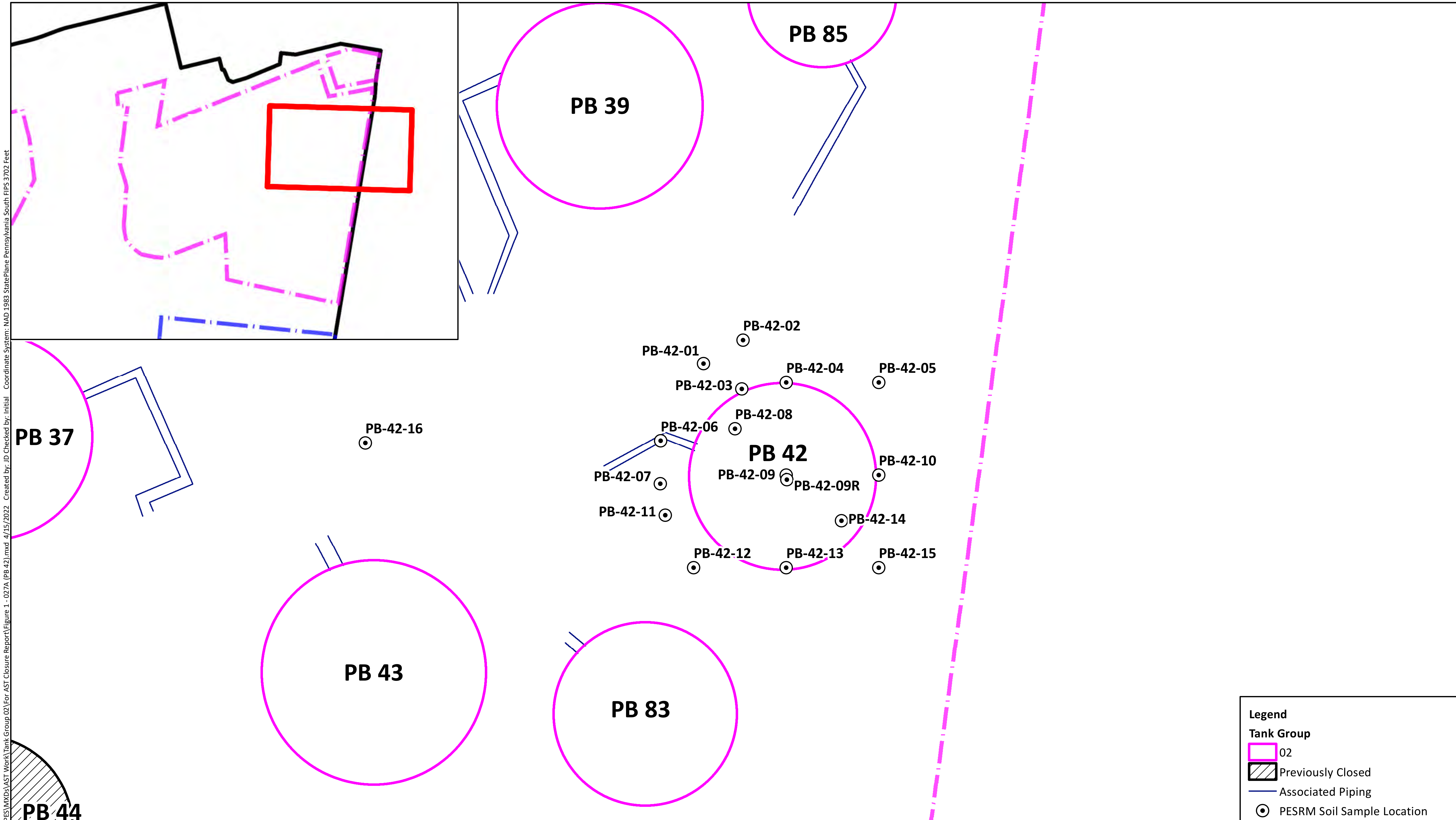
Table 1 - 027A (PB 42)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-42-01	PB-42-01-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	0.0085	0.0046	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0082	0.0023	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00086	0.0023	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.001	0.00057	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.042	0.0011	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.00032	0.0011	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0023	6/24/2021	7/2/2021
PB-42-01	PB-42-01-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.0011	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.75	0.3	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.15	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.15	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.037	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.1	0.075	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.075	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	6/24/2021	7/2/2021
PB-42-02	PB-42-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.075	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.26	0.24	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.17	0.12	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.048	0.12	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.65	0.061	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.061	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/24/2021	7/2/2021
PB-42-03	PB-42-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.061	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	ND	1.7	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.55	0.84	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.84	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.21	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Cumene	SW8260C	Soil	10	0.42	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	0.12	0.42	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.84	6/24/2021	7/2/2021
PB-42-04	PB-42-04-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.42	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.18	0.26	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.036	0.13	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.033	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	1	0.065	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.065	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/24/2021	7/2/2021
PB-42-05	PB-42-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.047	0.065	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	0.012	0.0041	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00089	0.0021	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00021	0.0021	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Benzene	SW8260C	Soil	0.00033	0.00052	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Cumene	SW8260C	Soil	0.066	0.001	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	0.00019	0.001	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	0.00026	0.0021	6/24/2021	7/2/2021
PB-42-06	PB-42-06-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	0.52	0.58	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.2	0.29	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.034	0.29	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.072	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Cumene	SW8260C	Soil	0.59	0.14	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	0.067	0.14	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.29	6/24/2021	7/2/2021
PB-42-07	PB-42-07-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.14	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	0.88	0.45	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	1.3	0.22	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.024	0.22	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.028	0.056	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Cumene	SW8260C	Soil	3	0.11	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	1.2	0.11	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.22	6/24/2021	7/2/2021
PB-42-08	PB-42-08-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.072	0.11	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.74	0.29	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	2.7	0.15	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.24	0.15	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.78	0.037	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.52	0.073	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.21	0.073	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	6/24/2021	7/2/2021
PB-42-09	PB-42-09-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.078	0.073	6/24/2021	7/2/2021
PB-42-09R	PB-42-09R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.18	0.00057	2/14/2022	2/16/2022
PB-42-10	PB-42-10-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.18	0.27	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.15	0.14	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.033	0.14	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.03	0.034	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	Cumene	SW8260C	Soil	1.1	0.068	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.049	0.068	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/24/2021	7/2/2021
PB-42-10	PB-42-10-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.064	0.068	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	2.1	0.46	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.2	0.23	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.028	0.23	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.057	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Cumene	SW8260C	Soil	1.8	0.11	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	0.042	0.11	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.23	6/24/2021	7/2/2021
PB-42-11	PB-42-11-SS01	1.0	1.5	Toluene	SW8260C	Soil	0.068	0.11	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0041	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00051	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00032	0.002	6/24/2021	7/2/2021
PB-42-12	PB-42-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.3	0.49	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.098	0.24	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.026	0.24	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.062	0.061	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.2	0.12	6/24/2021	7/2/2021

Table 1 - 027A (PB 42)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-42-13	PB-42-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.069	0.12	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.24	6/24/2021	7/2/2021
PB-42-13	PB-42-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.12	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Naphthalene	SW8260C	Soil	1.1	0.29	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	4.4	0.14	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.99	0.14	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Benzene	SW8260C	Soil	0.34	0.036	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Cumene	SW8260C	Soil	0.45	0.072	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1	0.072	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/24/2021	7/2/2021
PB-42-14	DUP-10	3.0	3.5	Toluene	SW8260C	Soil	0.087	0.072	6/24/2021	7/2/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.24	0.3	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.79	0.15	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.2	0.15	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.068	0.038	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.073	0.075	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.22	0.075	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.15	6/24/2021	7/3/2021
PB-42-14	PB-42-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.075	6/24/2021	7/3/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.66	0.34	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.17	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.17	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.043	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.3	0.086	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.086	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.17	6/24/2021	7/2/2021
PB-42-15	PB-42-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.064	0.086	6/24/2021	7/2/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.0063	0.0036	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.001	0.0018	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00029	0.0018	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.0004	0.00045	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.012	0.0009	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.00016	0.0009	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/24/2021	7/3/2021
PB-42-16	PB-42-16-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.0009	6/24/2021	7/3/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-10 is a field duplicate associated with sample PB-42-14-SS01.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 027A (PB 42)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 027A (PB 42).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of former Tank 027A (PB 42) location following demolition.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 028A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 /2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number__51 - 33620______

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

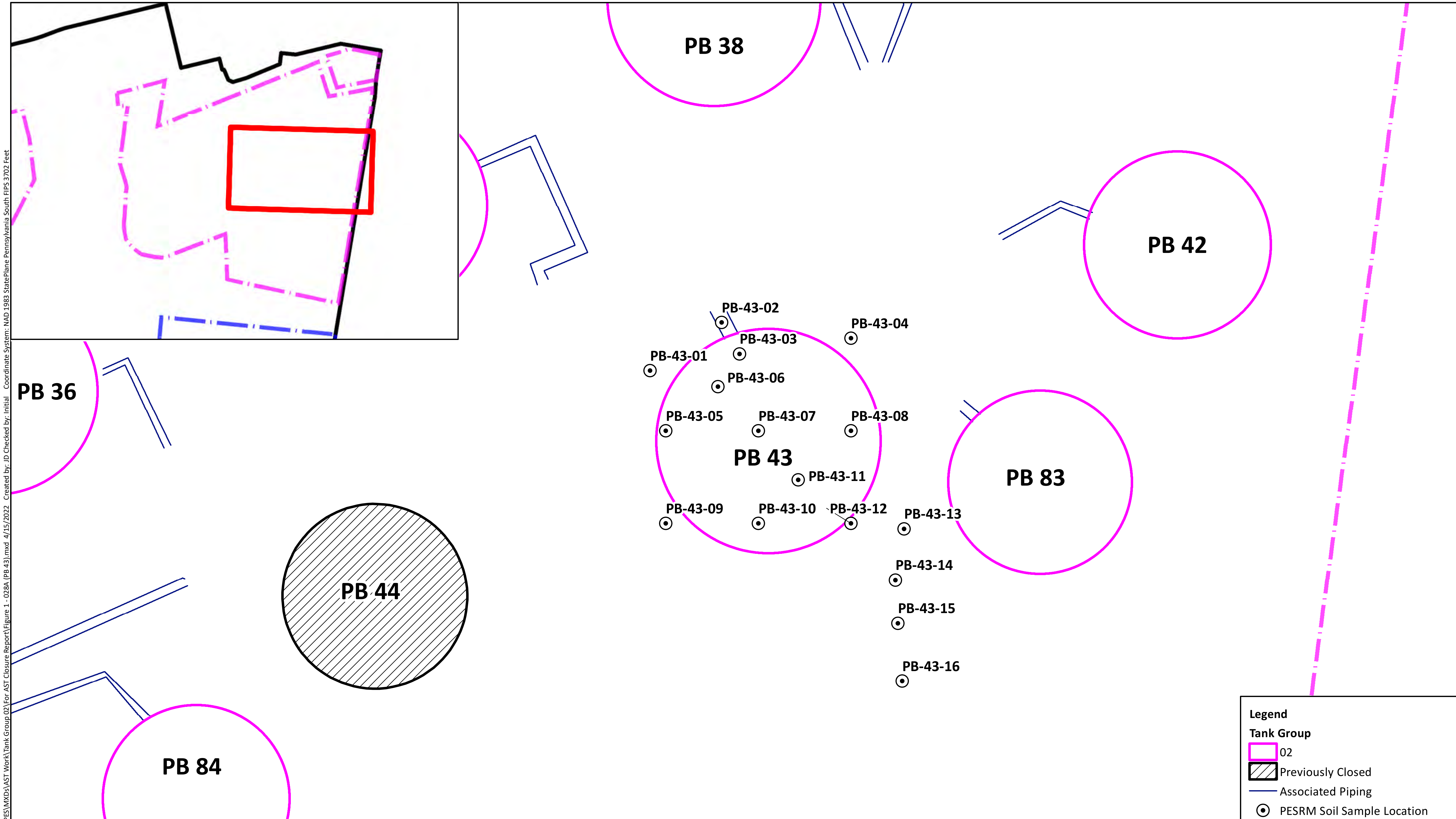
Table 1 - 028A (PB 43)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-43-01	PB-43-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0027	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0027	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00052	0.00068	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00022	0.0014	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0097	0.0027	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0014	2/14/2022	2/26/2022
PB-43-01	PB-43-01-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.024	0.12	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.02	0.12	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.012	0.03	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.38	0.061	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.0016	0.0013	2/14/2022	2/28/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	2/14/2022	2/28/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.033	0.061	2/14/2022	2/26/2022
PB-43-02	PB-43-02-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00084	0.0019	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00021	0.0019	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00047	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.028	0.00094	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.00016	0.00094	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.00088	0.00094	2/14/2022	2/24/2022
PB-43-03	PB-43-03-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-04	PB-43-04-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	ND	0.0038	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.035	0.00047	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.001	0.00095	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.00095	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.0088	0.0019	6/25/2021	7/3/2021
PB-43-04	PB-43-04-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0013	0.00095	6/25/2021	7/3/2021
PB-43-05	PB-43-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0006	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00041	0.0012	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	2/14/2022	2/24/2022
PB-43-05	PB-43-05-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.19	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0017	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0017	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.0007	0.00042	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.014	0.00085	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.00014	0.00085	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0017	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.00085	2/14/2022	2/26/2022
PB-43-06	PB-43-06-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.14	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.14	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.036	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.35	0.072	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.072	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.072	2/14/2022	2/26/2022
PB-43-07	PB-43-07-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0004	0.0019	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00047	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.1	0.00094	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.00094	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.00024	0.0019	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.00075	0.00094	2/14/2022	2/28/2022
PB-43-08	PB-43-08-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	0.34	0.19	2/14/2022	2/26/2022
PB-43-09	PB-43-09-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0038	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00096	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00096	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/25/2021	7/3/2021
PB-43-09	PB-43-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00096	6/25/2021	7/3/2021
PB-43-10	PB-43-10-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.16	0.13	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.066	0.13	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.033	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Cumene	SW8260C	Soil	2.6	0.065	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.16	0.065	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.042	0.065	2/14/2022	2/26/2022
PB-43-10	PB-43-10-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	ND	0.2	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.15	0.18	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.051	0.18	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.044	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.5	0.088	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.62	0.088	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.18	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.088	2/14/2022	2/26/2022
PB-43-11	PB-43-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.24	0.2	2/14/2022	2/26/2022
PB-43-12	PB-43-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.17	0.24	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.059	0.06	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.06	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-43-12	PB-43-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.06	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	0.2	0.24	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.02	0.12	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	Benzene	SW8260C	Soil	ND	0.03	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.076	0.059	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	ND	0.059	6/25/2021	7/3/2021

Table 1 - 028A (PB 43)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-43-13	PB-43-13-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/25/2021	7/3/2021
PB-43-13	PB-43-13-SS01	2.0	2.5	Toluene	SW8260C	Soil	ND	0.059	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0036	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00046	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00091	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00091	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/25/2021	7/3/2021
PB-43-14	PB-43-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00091	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	ND	0.0057	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0028	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0028	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.00071	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Cumene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0028	6/25/2021	7/3/2021
PB-43-15	PB-43-15-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.0014	6/25/2021	7/3/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0039	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0009	0.0019	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0038	0.00048	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00087	0.00097	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00022	0.00097	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/25/2021	7/6/2021
PB-43-16	PB-43-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00097	6/25/2021	7/6/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 028A (PB 43)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 028A (PB 43).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of Tank 028A (PB 43) during demolition.
	**Photograph 2:** View of Tank 028A (PB 43) interior during demolition process.

	**Photograph 3:** View of waste piles.
	**Photograph 4:** View of waste pile.

Photograph 5:

View of soil after demolition.

Product Movement and Waste Disposal Documentation (Tank 028A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 12166

Date: 06-02-21

Scrap

Sold to: Allegheny
Location: Tank 43
Carrier: Allegheny

Steel / Ferrous

- [x] No. 1 P+S
- [ ] No. 2 Heavy Melt
- [ ] Cast Iron
- [ ] Mixed
- [ ] Pipe
- [ ] Light Iron
- [ ] Re-Bar
- [ ] Other ____________________

Non-Ferrous

- [ ] Insulated Copper Wire
- [ ] No. 1 Copper Wire
- [ ] Brass
- [ ] Aluminum
- [ ] Stainless, Grade____________
- [ ] Other Alloy, Grade____________
- [ ] Mixed
- [ ] Other: ____________________

Condition

- [ ] Prepared
- [ ] Unprepared
- [ ] Green Waste
- [ ] Concrete
- [ ] Masonry
- [ ] Mixed Masonry
- [ ] Wood Only
- [ ] Demo Debris (C&D)
- [ ] Dirt / Fill
- [ ] Sand Fill
- [ ] Crushed Stone
- [ ] Other:____________

Scale Ticket #:____________

Gross Weight: 73000 lbs

Tare Weight: ~~40560 lbs~~ CM 41100lbs

Net Weight: ~~32440 lbs~~ CM 31900lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location:____________________

Waste Stream

- [ ] C&D Demolition Debris
- [ ] Non-Friable ACM
- [ ] Friable ACM
- [ ] PB WWTP Sludge
- [ ] GP WWTP Sludge
- [ ] Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- [ ] Process Haz Waste
- [ ] Demo Debris (C&D)
- [ ] Non-Haz Waste (Solid)
- [ ] Non-Haz Waste (Liquid)
- [ ] PCB (Non-TSCA)
- [ ] PCB (TSCA)

Disposal Facility:____________________

Carrier:____________________

Truck #:____________________

Container #:____________________

Manifest #:____________________

Profile / Approval #:____________________

Scale Info

Scale Ticket #:____________________

Gross Weight:____________________

Tare weight:____________________

Net weight:____________________

Net Kilogram Conversion (PCB Only):____________

NorthStar Rep. Signature:____________________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20027638
Date: 06/02/2021 7:33 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 20251.546
Loads: 1495

DT326-1108 - TRACTOR 1108 TRAILER DT326
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	15.95 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	73000.00	41100.00	31900.00


12166
THE
MONSTE

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 029A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):____________________

____

____

____

____________________________ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):____________________

____

____

____

Continue with corrective action-----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM
CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

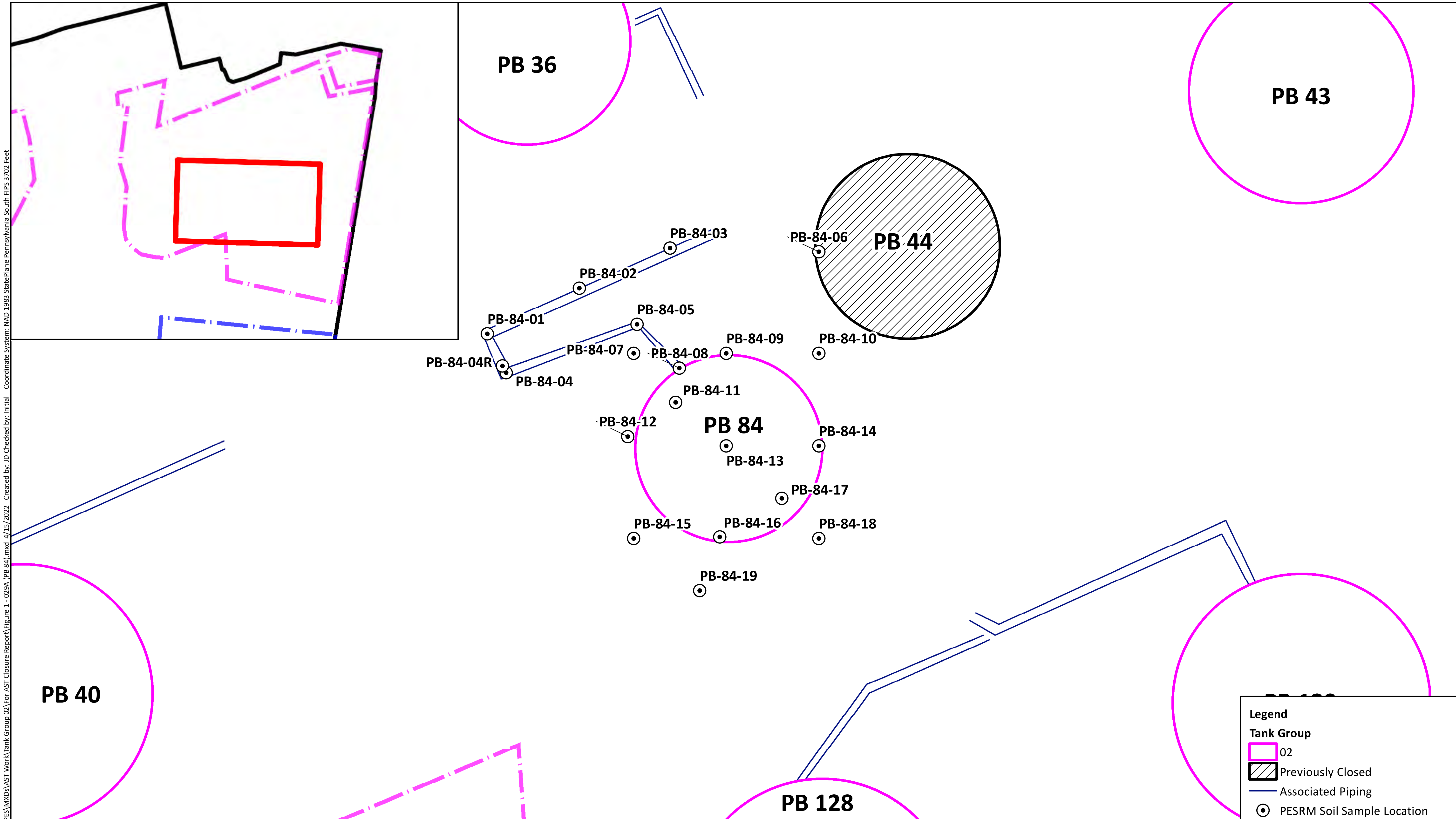
Table 1 - 029A (PB 84)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-84-01	PB-84-01-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	1	0.51	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	23	0.26	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.49	0.26	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.064	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	Cumene	SW8260C	Soil	3.5	0.13	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.13	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.26	6/23/2021	7/2/2021
PB-84-01	PB-84-01-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.13	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	0.81	0.22	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.97	0.11	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.024	0.11	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Benzene	SW8260C	Soil	0.027	0.027	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Cumene	SW8260C	Soil	2.5	0.055	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	0.042	0.055	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	6/23/2021	7/2/2021
PB-84-02	PB-84-02-SS01	1.5	2.0	Toluene	SW8260C	Soil	0.041	0.055	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.55	0.56	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.79	0.28	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.28	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.07	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.9	0.14	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.14	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.28	6/23/2021	7/2/2021
PB-84-03	PB-84-03-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.14	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	74	1	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	110	1	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	29	0.52	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	2.1	0.13	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	5.1	0.26	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	15	0.26	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.52	6/23/2021	7/2/2021
PB-84-04	PB-84-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	3	0.26	6/23/2021	7/2/2021
PB-84-04R	PB-84-04R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.28	0.031	2/15/2022	2/19/2022
PB-84-04R	PB-84-04R-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	ND	0.2	2/15/2022	2/20/2022
PB-84-04R	PB-84-04R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	ND	0.2	2/15/2022	2/20/2022
PB-84-05	PB-84-05-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.4	0.29	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.039	0.14	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.14	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.036	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.63	0.072	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.011	0.072	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/23/2021	7/2/2021
PB-84-05	PB-84-05-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.072	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	0.26	0.2	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.099	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.099	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.047	0.025	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Cumene	SW8260C	Soil	1.3	0.049	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.014	0.049	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.099	6/23/2021	7/2/2021
PB-84-06	PB-84-06-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.049	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	1.2	1.3	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.64	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.64	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.16	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Cumene	SW8260C	Soil	4.9	0.32	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.69	0.32	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.64	6/23/2021	7/2/2021
PB-84-07	PB-84-07-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.32	6/23/2021	7/2/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.049	0.0036	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.028	0.0018	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0021	0.0018	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00046	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.027	0.00091	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00019	0.00091	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/23/2021	7/1/2021
PB-84-08	PB-84-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00091	6/23/2021	7/1/2021
PB-84-09	DUP-09	0.0	0.5	Naphthalene	SW8260C	Soil	14	1.3	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	1,2,4-Trimethylbenzene	SW8260C	Soil	100	1.3	6/24/2021	7/3/2021
PB-84-09	DUP-09	0.0	0.5	1,3,5-Trimethylbenzene	SW8260C	Soil	37	0.67	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	Benzene	SW8260C	Soil	ND	0.17	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	Cumene	SW8260C	Soil	0.67	0.34	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	Ethyl Benzene	SW8260C	Soil	0.45	0.34	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.67	6/24/2021	7/2/2021
PB-84-09	DUP-09	0.0	0.5	Toluene	SW8260C	Soil	ND	0.34	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Naphthalene	SW8260C	Soil	13	1.2	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	1,2,4-Trimethylbenzene	SW8260C	Soil	120	1.2	6/24/2021	7/1/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	1,3,5-Trimethylbenzene	SW8260C	Soil	37	0.62	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Benzene	SW8260C	Soil	ND	0.15	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Cumene	SW8260C	Soil	0.61	0.31	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Ethyl Benzene	SW8260C	Soil	0.42	0.31	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.62	6/24/2021	7/2/2021
PB-84-09	PB-84-09-SS01	0.0	0.5	Toluene	SW8260C	Soil	ND	0.31	6/24/2021	7/2/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Naphthalene	SW8260C	Soil	ND	0.0038	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Benzene	SW8260C	Soil	ND	0.00047	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Cumene	SW8260C	Soil	ND	0.00094	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Ethyl Benzene	SW8260C	Soil	ND	0.00094	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-10	PB-84-10-SS01	1.5	2.0	Toluene	SW8260C	Soil	ND	0.00094	6/24/2021	7/1/2021
PB-84-11	PB-84-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.078	0.0021	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0009	0.0021	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00024	0.00052	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.078	0.001	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.001	0.001	2/15/2022	2/19/2022
PB-84-11	PB-84-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/15/2022	2/20/2022
PB-84-12	PB-84-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.23	0.24	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.084	0.12	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	6/24/2021	7/2/2021

Table 1 - 029A (PB 84)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-84-12	PB-84-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.13	0.06	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.06	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	6/24/2021	7/2/2021
PB-84-12	PB-84-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.06	6/24/2021	7/2/2021
PB-84-13	PB-84-13-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0025	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0025	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.00068	0.00063	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.0024	0.0013	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.0013	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0025	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0014	0.0013	2/15/2022	2/19/2022
PB-84-13	PB-84-13-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	0.17	0.23	2/15/2022	2/20/2022
PB-84-14	DUP-27	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	530	7.6	2/15/2022	2/18/2022
PB-84-14	DUP-27	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	130	1.5	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Benzene	SW8260C	Soil	1.4	0.38	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Cumene	SW8260C	Soil	17	0.76	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Ethyl Benzene	SW8260C	Soil	19	0.76	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	1.5	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Toluene	SW8260C	Soil	2.8	0.76	2/15/2022	2/17/2022
PB-84-14	DUP-27	3.0	3.5	Naphthalene	SW8270D	Soil	0.34	0.18	2/15/2022	2/20/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0028	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0028	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0007	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.022	0.0014	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0014	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0028	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0014	2/15/2022	2/19/2022
PB-84-14	PB-84-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.2	2/15/2022	2/20/2022
PB-84-15	PB-84-15-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	4.2	0.26	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	4.1	0.13	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.032	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.13	0.064	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.064	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	6/24/2021	7/1/2021
PB-84-15	PB-84-15-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.064	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Naphthalene	SW8260C	Soil	0.62	0.28	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	1,2,4-Trimethylbenzene	SW8260C	Soil	2.6	0.14	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.6	0.14	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Benzene	SW8260C	Soil	ND	0.035	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Cumene	SW8260C	Soil	0.024	0.07	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Ethyl Benzene	SW8260C	Soil	0.06	0.07	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	6/24/2021	7/1/2021
PB-84-16	PB-84-16-SS01	1.0	1.5	Toluene	SW8260C	Soil	ND	0.07	6/24/2021	7/1/2021
PB-84-17	PB-84-17-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.001	0.002	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.00028	0.0005	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.017	0.001	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.001	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0015	0.001	2/15/2022	2/19/2022
PB-84-17	PB-84-17-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	ND	0.2	2/15/2022	2/20/2022
PB-84-18	PB-84-18-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	ND	0.0038	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.00047	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	Cumene	SW8260C	Soil	ND	0.00094	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.00094	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	6/24/2021	7/1/2021
PB-84-18	PB-84-18-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.00061	0.00094	6/24/2021	7/1/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.004	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00034	0.002	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0025	0.001	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/24/2021	7/2/2021
PB-84-19	PB-84-19-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	6/24/2021	7/2/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-09 and DUP-27 are field duplicates associated with sample PB-84-09-SS01 and PB-84-14-SS01, respectively.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 029A (PB 84)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 029A (PB 84).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of Tank 029A (PB 84) during the beginning stages of demolition.
	**Photograph 2:** View of Tank 029A (PB 84) during demolition process.

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of waste pile.

Photograph 5:

View of waste pile.

Photograph 6:

View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 029A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#S120103

Load Ticket: 12047

Date: 05 27 21

Scrap

Sold to: Allegheny
Location: / Tank 84
Carrier: Allegheny

Steel / Ferrous

- [x] No. 1 P+S
- [ ] No. 2 Heavy Melt
- [ ] Cast Iron
- [ ] Mixed
- [ ] Pipe
- [ ] Light Iron
- [ ] Re-Bar
- [ ] Other ____________

Non-Ferrous

- [ ] Insulated Copper Wire
- [ ] No. 1 Copper Wire
- [ ] Brass
- [ ] Aluminum
- [ ] Stainless, Grade ____________
- [ ] Other Alloy, Grade ____________
- [ ] Mixed
- [ ] Other: ____________

Condition

- [ ] Prepared
- [ ] Unprepared
- [ ] Green Waste
- [ ] Concrete
- [ ] Masonry
- [ ] Mixed Masonry
- [ ] Wood Only
- [ ] Demo Debris (C&D)
- [ ] Dirt / Fill
- [ ] Sand Fill
- [ ] Crushed Stone
- [ ] Other: ____________

Scale Ticket #: ____________

Gross Weight: 64700 lbs

Tare Weight: 36580 lbs

Net Weight: 28120 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ____________

Waste Stream

- [ ] C&D Demolition Debris
- [ ] Non-Friable ACM
- [ ] Friable ACM
- [ ] PB WWTP Sludge
- [ ] GP WWTP Sludge
- [ ] Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- [ ] Process Haz Waste
- [ ] Demo Debris (C&D)
- [ ] Non-Haz Waste (Solid)
- [ ] Non-Haz Waste (Liquid)
- [ ] PCB (Non-TSCA)
- [ ] PCB (TSCA)

Disposal Facility: ____________

Carrier: ____________

Truck #: 202

Container #: 45

Manifest #: ____________

Profile / Approval #: ____________

Scale Info

Scale Ticket #: ____________

Gross Weight: ____________

Tare weight: ____________

Net weight: ____________

Net Kilogram Conversion (PCB Only): ____________

NorthStar Rep. Signature: ____________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

HILADELPHIA PA, 19145

Ticket #: 20027531
Date: 05/27/2021 7:05 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 18713.016
Loads: 1383

DT202-45 - ALLEGHANY TRUCK 202 W/TRAILER 45
CARLAD - CARLA DAVILA

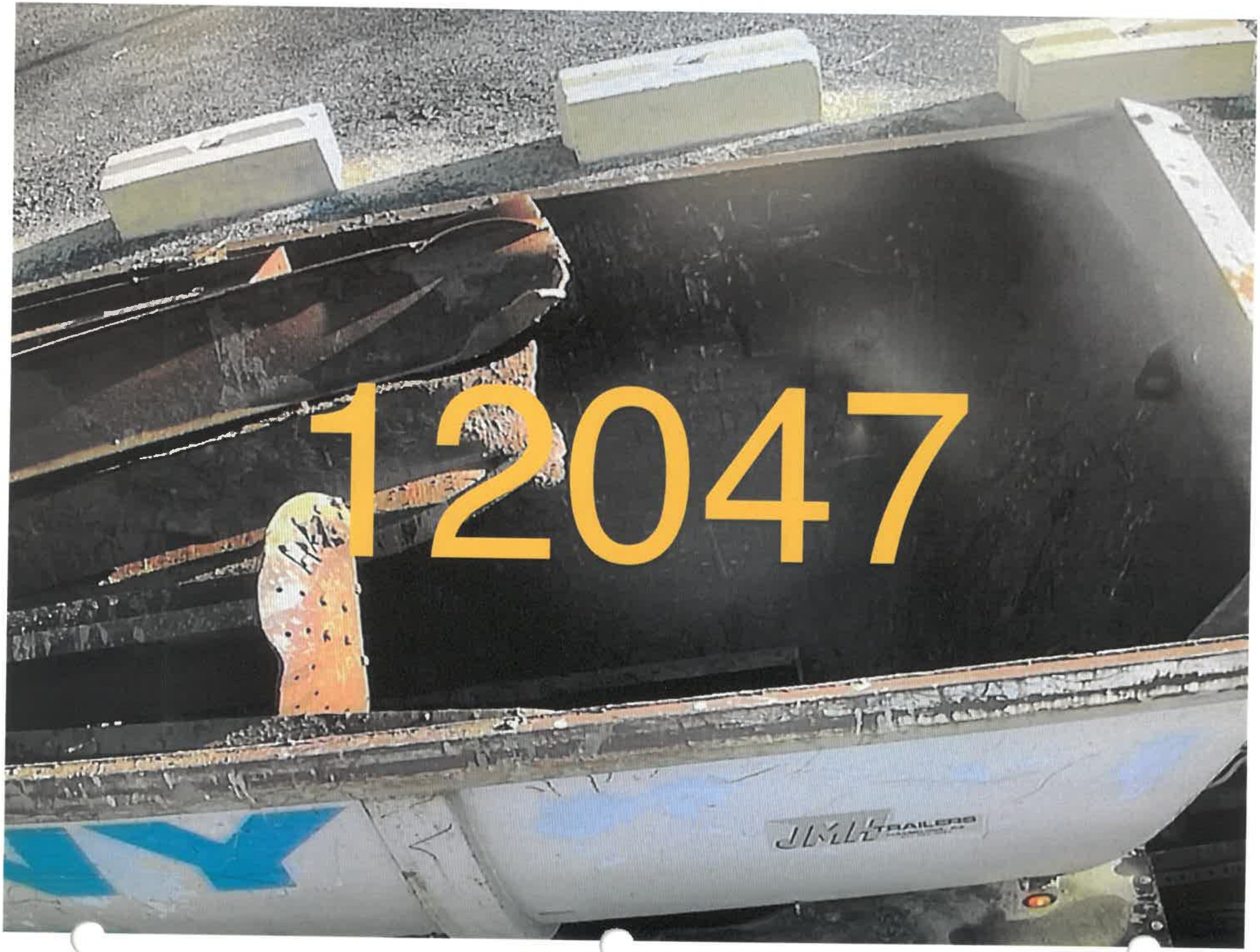
Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	14.06 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	64700.00	36580.00	28120.00


12047
JMH TRAILERS

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 030A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

____________________ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

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Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long ____________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number __51 - 33620______

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

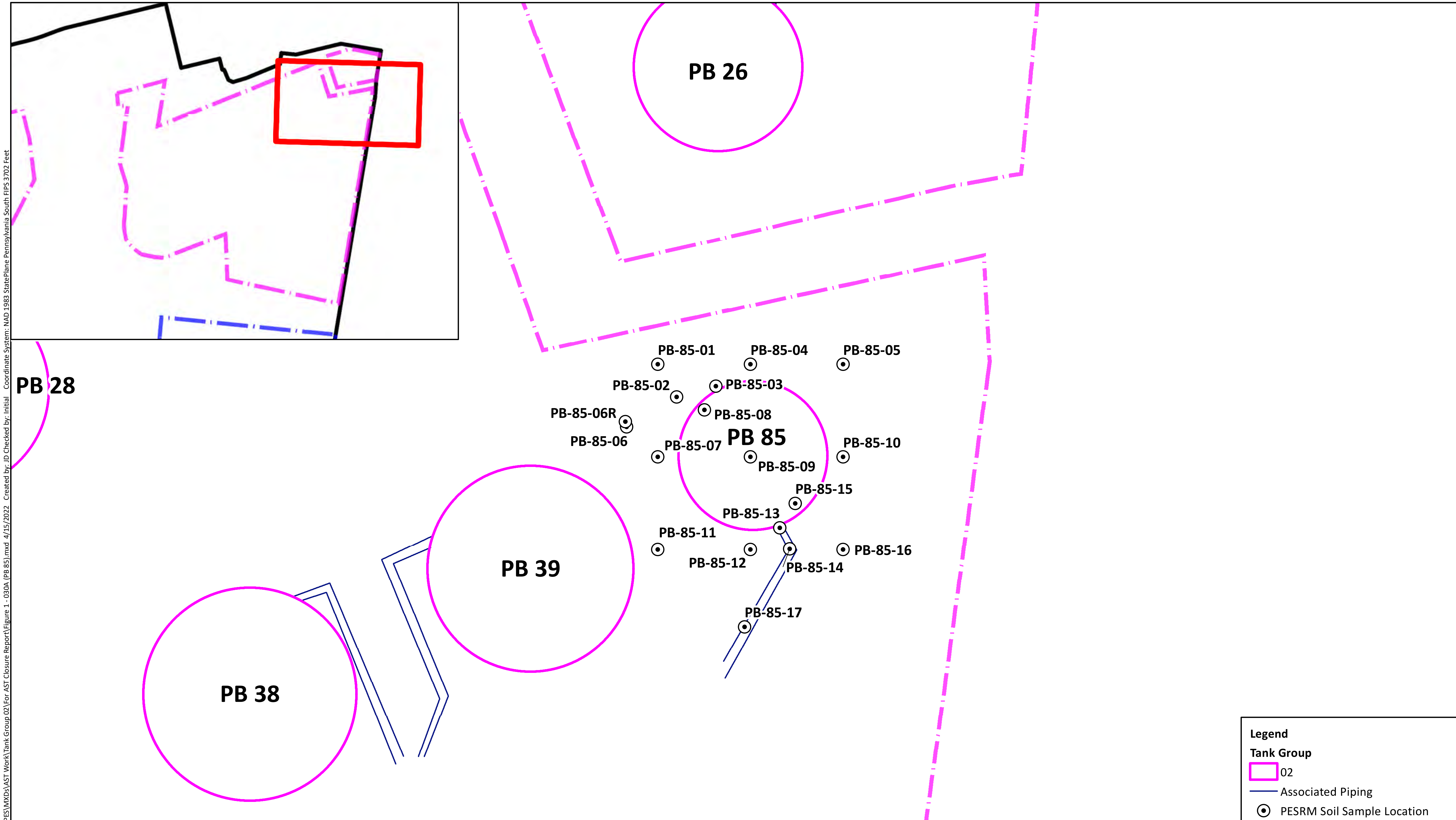
Table 1 - 030A (PB 85)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-85-01	PB-85-01-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	ND	0.0062	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0031	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00046	0.0031	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	Benzene	SW8260C	Soil	0.018	0.00077	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.0016	0.0015	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	0.00061	0.0015	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0031	7/12/2021	7/14/2021
PB-85-01	PB-85-01-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.0015	7/12/2021	7/14/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Naphthalene	SW8260C	Soil	ND	0.0033	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0016	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0016	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00041	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Cumene	SW8260C	Soil	ND	0.00082	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.00082	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0016	7/12/2021	7/13/2021
PB-85-02	PB-85-02-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.00082	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	1.6	0.25	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.031	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.59	0.063	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.063	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-03	PB-85-03-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.063	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.3	0.25	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.031	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.073	0.062	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.062	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-04	PB-85-04-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.062	7/12/2021	7/13/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0024	0.0036	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00045	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00024	0.00091	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00091	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	7/12/2021	7/14/2021
PB-85-05	PB-85-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00091	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	ND	1.2	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	1.2	0.6	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.32	0.6	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Benzene	SW8260C	Soil	3.1	0.15	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.12	0.3	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	2.6	0.3	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.6	7/12/2021	7/14/2021
PB-85-06	PB-85-06-SS01	4.5	5.0	Toluene	SW8260C	Soil	34	0.3	7/12/2021	7/14/2021
PB-85-06R	PB-85-06R-14.0-14.5	14.0	14.5	Benzene	SW8260C	Soil	0.0031	0.00047	2/10/2022	2/24/2022
PB-85-06R	PB-85-06R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	18	0.52	2/10/2022	2/15/2022
PB-85-07	PB-85-07-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.34	0.28	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.086	0.14	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.022	0.14	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.014	0.035	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	Cumene	SW8260C	Soil	2.4	0.069	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.069	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	7/12/2021	7/13/2021
PB-85-07	PB-85-07-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.08	0.069	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.6	0.25	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.031	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Cumene	SW8260C	Soil	0.028	0.062	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.062	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	7/12/2021	7/13/2021
PB-85-08	PB-85-08-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.062	7/12/2021	7/13/2021
PB-85-09	PB-85-09-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.48	0.13	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.62	0.13	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Benzene	SW8260C	Soil	1.7	0.033	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Cumene	SW8260C	Soil	2.6	0.067	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	2.8	0.067	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.7	0.067	2/14/2022	2/26/2022
PB-85-09	PB-85-09-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	0.14	0.19	2/14/2022	2/26/2022
PB-85-10	PB-85-10-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.33	0.32	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.11	0.16	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.036	0.16	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.038	0.04	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.8	0.08	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.08	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.16	7/12/2021	7/13/2021
PB-85-10	PB-85-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.059	0.08	7/12/2021	7/13/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.12	0.22	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.11	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.11	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Benzene	SW8260C	Soil	ND	0.027	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Cumene	SW8260C	Soil	8.6	0.054	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.026	0.054	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.11	7/15/2021	7/21/2021
PB-85-11	PB-85-11-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.083	0.054	7/15/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.004	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00043	0.002	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00033	0.001	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.00042	0.002	7/16/2021	7/21/2021
PB-85-12	PB-85-12-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.001	7/16/2021	7/21/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.21	0.34	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.17	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.17	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.1	0.043	7/12/2021	7/13/2021

Table 1 - 030A (PB 85)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-85-13	PB-85-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.21	0.086	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.14	0.086	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.019	0.17	7/12/2021	7/13/2021
PB-85-13	PB-85-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.086	7/12/2021	7/13/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	0.41	0.21	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.1	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.1	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.074	0.026	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.71	0.052	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.15	0.052	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	0.014	0.1	7/12/2021	7/14/2021
PB-85-14	PB-85-14-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.052	7/12/2021	7/14/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.95	1.3	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.67	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.67	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.17	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	12	0.33	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.33	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.67	7/26/2021	7/28/2021
PB-85-15	PB-85-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.33	7/26/2021	7/28/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.38	0.26	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.13	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.033	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	1.5	0.066	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.066	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	7/12/2021	7/13/2021
PB-85-16	PB-85-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.066	7/12/2021	7/13/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.28	0.31	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.036	0.16	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.16	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.039	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.28	0.078	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.078	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.16	7/26/2021	7/28/2021
PB-85-17	PB-85-17-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.078	7/26/2021	7/28/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 030A (PB 85)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 030A (PB 85).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 030A (PB 85) during the beginning stages of demolition.

Photograph 2:

View of Tank 030A (PB 85) interior during demolition process.

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of waste pile.

Photograph 5:

View of concrete pad after demolition.

Photograph 6:

View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 030A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 11369

Date: 04 13 21

Scrap

Sold to: Allegheny
Location: Tank 85
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade_____
- ☐ Other Alloy, Grade_____
- ☐ Mixed
- ☐ Other: _____

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:_____

Scale Ticket #:

Gross Weight: 74900 lbs

Tare Weight: 39920 lbs

Net Weight: 34980 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location:

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:

Carrier:

Truck #:

Container #:

Manifest #:

Profile / Approval #:

Scale Info

Scale Ticket #:

Gross Weight:

Tare weight:

Net weight:

Net Kilogram Conversion (PCB Only):

NorthStar Rep. Signature:

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20027039
Date: 04/13/2021 7:45 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 11849.326
Loads: 897

DT261-55 - TRACTOR 55 TRAILER DT261
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	17.49 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	74900.00	39920.00	34980.00


11369

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 032A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______________________________

______________________________ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______________________________

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 032A (PB 128)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-128-01	PB-128-01-SS01	3.0	3.5	Lead	SW6010D	Soil	1980	2.46	6/22/2021	7/16/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	3.1	0.34	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	42	0.43	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.043	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.085	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.1	0.17	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.15	0.043	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.6	0.085	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.24	0.085	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.17	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.27	0.085	6/22/2021	7/1/2021
PB-128-01	PB-128-01-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	17.088	0.17	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Lead	SW6010D	Soil	361	2.55	6/22/2021	7/16/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Naphthalene	SW8260C	Soil	1.2	0.36	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.32	0.18	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.044	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.089	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.069	0.18	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Benzene	SW8260C	Soil	0.38	0.044	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Cumene	SW8260C	Soil	0.47	0.089	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	0.53	0.089	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.18	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Toluene	SW8260C	Soil	0.18	0.089	6/22/2021	7/1/2021
PB-128-02	PB-128-02-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	0.63	0.18	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Lead	SW6010D	Soil	9.84	2.6	6/22/2021	7/16/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0087	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0043	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0011	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0022	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0043	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0011	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0048	0.0022	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0022	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0043	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0022	6/22/2021	7/1/2021
PB-128-03	PB-128-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0026	0.0043	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Lead	SW6010D	Soil	310	2.32	6/22/2021	7/16/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.44	0.36	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.2	0.18	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.045	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.091	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.051	0.18	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.3	0.045	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	3.5	0.091	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.16	0.091	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.18	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.32	0.091	6/22/2021	7/1/2021
PB-128-04	PB-128-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.89	0.18	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Lead	SW6010D	Soil	1470	2.55	6/22/2021	7/16/2021
PB-128-05	DUP-08	4.0	4.5	Naphthalene	SW8260C	Soil	1.6	0.39	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	8.4	0.2	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.049	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.098	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	3.6	0.2	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Benzene	SW8260C	Soil	1.2	0.049	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Cumene	SW8260C	Soil	1.9	0.098	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.52	0.098	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.2	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Toluene	SW8260C	Soil	1	0.098	6/22/2021	7/1/2021
PB-128-05	DUP-08	4.0	4.5	Xylenes (total)	SW8260C	Soil	6.74	0.2	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Lead	SW6010D	Soil	1070	2.57	6/22/2021	7/16/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	1	0.42	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.9	0.21	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.053	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.1	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.5	0.21	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Benzene	SW8260C	Soil	1.4	0.053	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.5	0.1	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.54	0.1	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.21	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Toluene	SW8260C	Soil	1.3	0.1	6/22/2021	7/1/2021
PB-128-05	PB-128-05-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	6.23	0.21	6/22/2021	7/1/2021
PB-128-05R	PB-128-05R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	6.38	2.01	2/15/2022	2/17/2022
PB-128-05R	PB-128-05R-14.0-14.5	14.0	14.5	Lead	SW6010D	Soil	38.1	3.8	2/15/2022	3/2/2022
PB-128-05R	PB-128-05R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	1780	2.6	2/15/2022	2/17/2022
PB-128-05R	PB-128-05R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.11	0.051	2/15/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Lead	SW6010D	Soil	3.93	2.09	2/16/2022	2/18/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0008	0.0024	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00059	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00067	0.0024	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00059	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00129	0.0024	2/16/2022	2/21/2022
PB-128-06	PB-128-06-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.23	0.18	2/16/2022	2/22/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Lead	SW6010D	Soil	4.59	2.01	2/16/2022	2/18/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00094	0.0019	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0031	0.0019	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-128-07	PB-128-07-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.26	0.17	2/16/2022	2/22/2022
PB-128-08	PB-128-08-SS01	4.5	5.0	Lead	SW6010D	Soil	844	2.66	6/23/2021	7/13/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	0.0019	0.0065	6/23/2021	7/1/2021

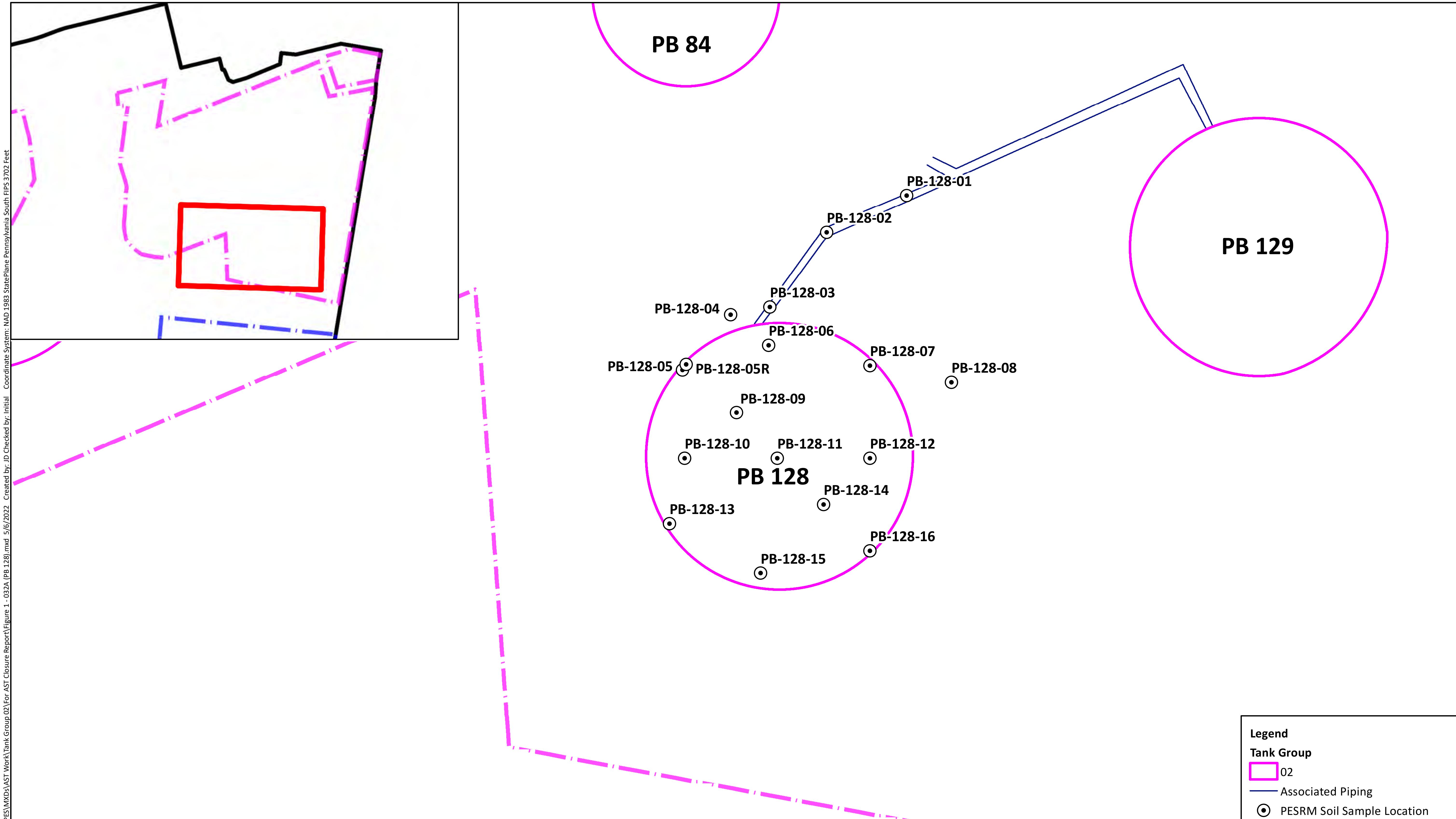
Table 1 - 032A (PB 128)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-128-08	PB-128-08-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0006	0.0032	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00081	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0016	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0032	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00081	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Cumene	SW8260C	Soil	ND	0.0016	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.0016	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0032	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.0016	6/23/2021	7/1/2021
PB-128-08	PB-128-08-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.00174	0.0032	6/23/2021	7/1/2021
PB-128-09	PB-128-09-SS01	3.5	4.0	Lead	SW6010D	Soil	3.72	2.01	2/16/2022	2/18/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.22	0.0036	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00089	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.13	0.0036	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	0.00089	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Cumene	SW8260C	Soil	0.00038	0.0018	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0036	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Toluene	SW8260C	Soil	0.0016	0.0018	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	0.29	0.0036	2/16/2022	2/21/2022
PB-128-09	PB-128-09-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	0.09	0.17	2/16/2022	2/22/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Lead	SW6010D	Soil	3.28	1.99	2/16/2022	2/18/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0008	0.0033	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00083	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0017	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00039	0.0033	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00083	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0017	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0017	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0033	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0016	0.0017	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.002	0.0033	2/16/2022	2/21/2022
PB-128-10	PB-128-10-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Lead	SW6010D	Soil	5.49	2.06	2/16/2022	2/18/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	1.4	0.18	2/16/2022	2/22/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00062	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.58	0.18	2/16/2022	2/22/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00022	0.00062	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00062	0.0012	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0025	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.013	0.0012	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.68	0.18	2/16/2022	2/21/2022
PB-128-11	PB-128-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.75	0.17	2/16/2022	2/22/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Lead	SW6010D	Soil	5.7	1.99	2/16/2022	2/18/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0036	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00091	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0036	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Benzene	SW8260C	Soil	ND	0.00091	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Cumene	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Ethyl Benzene	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0036	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Toluene	SW8260C	Soil	ND	0.0018	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Xylenes (total)	SW8260C	Soil	ND	0.0036	2/16/2022	2/21/2022
PB-128-12	PB-128-12-SS01	2.5	3.0	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-128-13	PB-128-13-SS01	3.0	3.5	Lead	SW6010D	Soil	3.88	2.08	6/23/2021	7/13/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0035	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0022	0.0017	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00087	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0025	0.0017	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00041	0.00044	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00087	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00048	0.00087	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0017	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.00049	0.00087	6/23/2021	7/1/2021
PB-128-13	PB-128-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0043	0.0017	6/23/2021	7/1/2021
PB-128-14	PB-128-14-SS01	3.0	3.5	Lead	SW6010D	Soil	5.42	2.06	2/16/2022	2/18/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00079	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00079	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-14	PB-128-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-128-15	DUP-28	3.0	3.5	Lead	SW6010D	Soil	7.64	2.05	2/16/2022	2/18/2022
PB-128-15	DUP-28	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00064	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00064	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-128-15	DUP-28	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Lead	SW6010D	Soil	13.5	2.04	2/16/2022	2/18/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00081	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0037	0.00081	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00033	0.0016	2/16/2022	2/21/2022

Table 1 - 032A (PB 128)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-128-15	PB-128-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.012	0.0016	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00493	0.0032	2/16/2022	2/21/2022
PB-128-15	PB-128-15-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-128-16	PB-128-16-SS01	3.0	3.5	Lead	SW6010D	Soil	182	2.04	6/23/2021	7/13/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.004	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00049	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00099	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.00028	0.00049	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00099	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00099	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0006	0.00099	6/23/2021	7/1/2021
PB-128-16	PB-128-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00134	0.002	6/23/2021	7/1/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-08 and DUP-28 are field duplicates associated with sample PB-128-05-SS01 and PB-128-15-SS01, respectively.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Site Location and Sampling Map 032A (PB 128)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 032A (PB 128).mxd 5/6/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 032A (PB 128) during the beginning stages of demolition.

Photograph 2:

View of Tank 032A (PB 128) interior during demolition process, and waste pile.

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of concrete pad beneath tank bottom.

	**Photograph 5:** View of concrete pad beneath tank bottom.
 	**Photograph 6:** View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 032A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 10965

Date: 07 /7 21

Scrap

Sold to: Allegheny
Location: Tank 128
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade____________
- ☐ Other Alloy, Grade____________
- ☐ Mixed
- ☐ Other: ____________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:____________

Scale Ticket #:____________

Gross Weight: 71180 lbs

Tare Weight: 41280 lbs

Net Weight: 29900 lbs

NorthStar Rep. Signature: [signature]

Received By: Dave C.

Non-Haz / ACM / Special Waste

Activity Location:____________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:____________

Carrier:____________

Truck #:____________

Container #:____________

Manifest #:____________

Profile / Approval #:____________

Scale Info

Scale Ticket #:____________

Gross Weight:____________

Tare weight:____________

Net weight:____________

Net Kilogram Conversion (PCB Only):____________

NorthStar Rep. Signature:____________


10966
THE MONSTER
by

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 033A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface   Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long, hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 /2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 033A (PB 129)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-129-01	PB-129-01-SS01	4.0	4.5	Lead	SW6010D	Soil	3920	6.81	6/23/2021	7/13/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	5.4	0.79	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.2	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.4	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.4	0.79	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.17	0.2	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.54	0.4	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	ND	0.4	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.79	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.33	0.4	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	345.7	1.6	6/23/2021	7/2/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Anthracene	SW8270D	Soil	0.42	0.84	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Benzo(a)anthracene	SW8270D	Soil	2.6	0.84	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Benzo(a)pyrene	SW8270D	Soil	4.2	1.1	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270D	Soil	4.6	0.84	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	3.5	1.1	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Chrysene	SW8270D	Soil	2.9	0.84	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Fluorene	SW8270D	Soil	0.34	1.4	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	0.5	1.4	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Phenanthrene	SW8270D	Soil	1	0.84	6/23/2021	7/7/2021
PB-129-01	PB-129-01-SS01	4.0	4.5	Pyrene	SW8270D	Soil	2.7	0.84	6/23/2021	7/7/2021
PB-129-01R	PB-129-01R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	231	2.69	2/15/2022	2/17/2022
PB-129-01R	PB-129-01R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	202	2.52	2/15/2022	2/17/2022
PB-129-02	PB-129-02-SS01	3.0	3.5	Lead	SW6010D	Soil	175	2.49	6/23/2021	7/13/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.16	0.22	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.054	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.11	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.082	0.22	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.6	0.054	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.042	0.11	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.075	0.11	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.22	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.14	0.11	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.26	0.22	6/23/2021	7/2/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	1.2	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	0.4	1.2	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	1.7	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	1.2	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	1.2	1.7	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Chrysene	SW8270D	Soil	0.48	1.2	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	2.1	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.77	2.1	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.6	1.2	6/23/2021	7/7/2021
PB-129-02	PB-129-02-SS01	3.0	3.5	Pyrene	SW8270D	Soil	0.78	1.2	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Lead	SW6010D	Soil	119	2.34	6/23/2021	7/13/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	44	0.38	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.048	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.096	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	21	0.19	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.96	0.048	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Cumene	SW8260C	Soil	7.1	0.096	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	3.6	0.096	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.019	0.19	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.45	0.096	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	6.1	0.19	6/23/2021	7/2/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Anthracene	SW8270D	Soil	2.7	3.3	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	4.7	3.3	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	2.9	4.4	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	4.4	3.3	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	1.8	4.4	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Chrysene	SW8270D	Soil	9	3.3	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Fluorene	SW8270D	Soil	2.4	5.5	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	7.2	5.5	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	12	3.3	6/23/2021	7/7/2021
PB-129-03	PB-129-03-SS01	4.5	5.0	Pyrene	SW8270D	Soil	9.8	3.3	6/23/2021	7/7/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Lead	SW6010D	Soil	2.92	2.04	6/23/2021	7/13/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.38	0.093	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00045	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0009	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.14	0.0018	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.0084	0.00045	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Cumene	SW8260C	Soil	0.0032	0.0009	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	0.00036	0.0009	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Toluene	SW8260C	Soil	ND	0.0009	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	0.00225	0.0018	6/23/2021	7/1/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Chrysene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Fluorene	SW8270D	Soil	ND	0.17	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Naphthalene	SW8270D	Soil	0.37	0.17	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Phenanthrene	SW8270D	Soil	0.022	0.1	6/23/2021	7/4/2021
PB-129-04	PB-129-04-SS01	4.0	4.5	Pyrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Lead	SW6010D	Soil	4.81	2.06	6/23/2021	7/13/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.17	0.093	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.02	0.093	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.32	0.023	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0094	0.046	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.041	0.0011	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.45	0.046	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.153	0.093	6/23/2021	7/1/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021

Table 1 - 033A (PB 129)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-129-05	PB-129-05-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-05	PB-129-05-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Lead	SW6010D	Soil	4.44	2.03	6/23/2021	7/13/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	390	9.5	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.59	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	1.2	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	170	2.4	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.59	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Cumene	SW8260C	Soil	14	1.2	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	230	1.2	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	2.4	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Toluene	SW8260C	Soil	250	4.8	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	1360	9.5	6/23/2021	7/2/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Anthracene	SW8270D	Soil	0.039	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	0.022	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Chrysene	SW8270D	Soil	0.019	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Fluorene	SW8270D	Soil	0.12	0.17	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	9.4	0.87	6/23/2021	7/7/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	0.27	0.1	6/23/2021	7/4/2021
PB-129-06	PB-129-06-SS01	4.5	5.0	Pyrene	SW8270D	Soil	0.093	0.1	6/23/2021	7/4/2021
PB-129-07	PB-129-07-SS01	3.0	3.5	Lead	SW6010D	Soil	3.99	2.04	2/16/2022	2/18/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00056	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0022	2/16/2022	2/21/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-07	PB-129-07-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Lead	SW6010D	Soil	4.34	2.04	2/16/2022	2/18/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0027	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00067	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0027	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00067	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0027	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0027	2/16/2022	2/21/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-08	PB-129-08-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Lead	SW6010D	Soil	3.6	2.03	2/16/2022	2/18/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00047	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00095	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	2/16/2022	2/21/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-09	PB-129-09-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Lead	SW6010D	Soil	3.98	2.04	2/16/2022	2/18/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	1000	15	2/16/2022	2/21/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	1.5	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	3	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	310	6	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Benzene	SW8260C	Soil	ND	1.5	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Cumene	SW8260C	Soil	26	3	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	170	3	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	ND	6	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Toluene	SW8260C	Soil	23	3	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	1640	6	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022

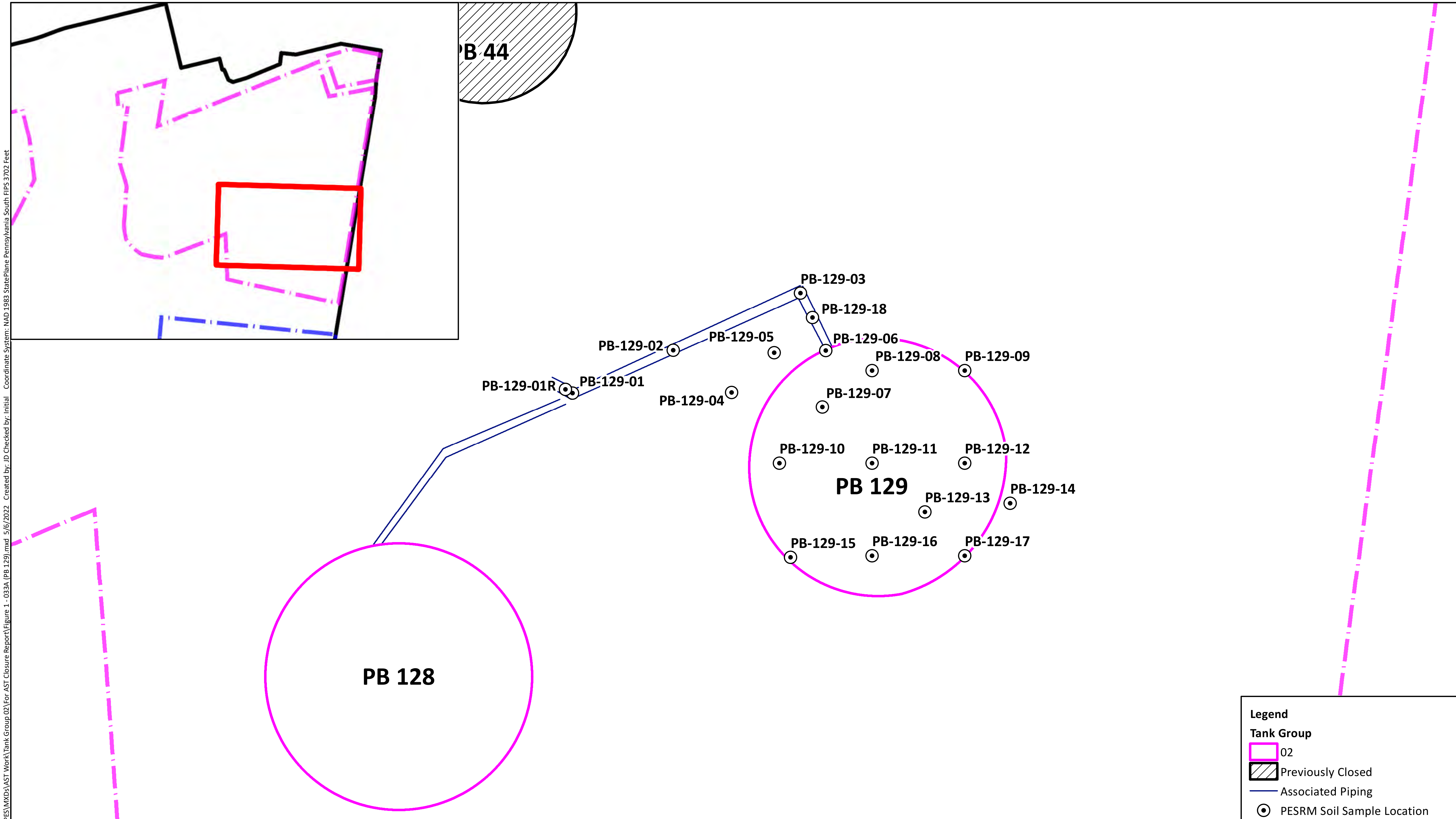
Table 1 - 033A (PB 129)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-129-10	PB-129-10-SS01	3.5	4.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Fluorene	SW8270D	Soil	0.027	0.17	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	1.4	0.17	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Phenanthrene	SW8270D	Soil	0.055	0.1	2/16/2022	2/22/2022
PB-129-10	PB-129-10-SS01	3.5	4.0	Pyrene	SW8270D	Soil	0.021	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Lead	SW6010D	Soil	4.77	2.03	2/16/2022	2/18/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.0007	0.0032	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00079	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0028	0.00079	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0016	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0032	2/16/2022	2/21/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-11	PB-129-11-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Lead	SW6010D	Soil	3.99	2.04	2/16/2022	2/18/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.00054	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Benzene	SW8260C	Soil	ND	0.00054	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Cumene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Toluene	SW8260C	Soil	ND	0.0011	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	ND	0.0021	2/16/2022	2/21/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-12	PB-129-12-SS01	4.5	5.0	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Lead	SW6010D	Soil	2.65	1.97	2/16/2022	2/18/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.0005	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00099	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.002	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.0005	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00099	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00099	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.002	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00099	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.002	2/16/2022	2/21/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-13	PB-129-13-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-14	PB-129-14-SS01	3.0	3.5	Lead	SW6010D	Soil	5.74	2.02	6/23/2021	7/13/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	12	0.093	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.023	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.047	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	3	0.093	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.023	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.36	0.047	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.042	0.047	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.093	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.047	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.166	0.093	6/23/2021	7/2/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Fluorene	SW8270D	Soil	0.019	0.18	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	1.4	0.18	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	0.025	0.1	6/23/2021	7/4/2021
PB-129-14	PB-129-14-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Lead	SW6010D	Soil	5.84	2.03	6/23/2021	7/13/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00053	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0021	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00053	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0021	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	6/23/2021	7/1/2021

Table 1 - 033A (PB 129)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-129-15	PB-129-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0021	6/23/2021	7/1/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.18	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.18	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-15	PB-129-15-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.11	6/23/2021	7/4/2021
PB-129-16	PB-129-16-SS01	3.0	3.5	Lead	SW6010D	Soil	3.41	1.99	2/16/2022	2/18/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00063	0.0026	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00064	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00064	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0013	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0026	2/16/2022	2/21/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-16	PB-129-16-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	2/16/2022	2/22/2022
PB-129-17	PB-129-17-SS01	3.0	3.5	Lead	SW6010D	Soil	36.1	2.11	6/23/2021	7/13/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0024	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00059	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0012	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00059	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0012	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0012	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0024	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0012	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0024	6/23/2021	7/1/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Benzo(a)anthracene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Benzo(a)pyrene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270D	Soil	ND	0.14	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Chrysene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Fluorene	SW8270D	Soil	ND	0.17	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	ND	0.17	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Phenanthrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-17	PB-129-17-SS01	3.0	3.5	Pyrene	SW8270D	Soil	ND	0.1	6/23/2021	7/4/2021
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.9	0.12	2/15/2022	2/21/2022
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.78	0.12	2/15/2022	2/21/2022
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.048	0.031	2/15/2022	2/21/2022
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	0.29	0.062	2/15/2022	2/21/2022
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	0.082	0.062	2/15/2022	2/21/2022
PB-129-18	PB-129-18-6.0-6.5	6.0	6.5	Xylenes (total)	SW8260C	Soil	1	0.12	2/15/2022	2/21/2022

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



0 25 50 75 100 Feet

1 inch = 50 feet

N

SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 033A (PB 129)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 033A (PB 129).mxd 5/6/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of Tank 033A (PB 129) during the beginning stages of demolition.

Photograph 2:

View of Tank 033A (PB 129) during demolition process.

	**Photograph 3:** View of waste pile.
	**Photograph 4:** View of concrete pad beneath tank bottom.

Photograph 5:

View of concrete pad beneath tank bottom.

Photograph 6:

View of concrete pad after demolition.

Product Movement and Waste Disposal Documentation (Tank 033A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

#5120103

Load Ticket: 11093

Date: 03-22-21

Scrap

Sold to: Allegheny
Location: At Tank 179
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Mixed Shearing

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade________
- ☐ Other Alloy, Grade________
- ☐ Mixed
- ☐ Other: ________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other:________

Scale Ticket #:________

Gross Weight: 79670 lbs

Tare Weight: 45490 lbs

Net Weight: 34180 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location:________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility:________

Carrier:________

Truck #:________

Container #:________

Manifest #:________

Profile / Approval #:________

Scale Info

Scale Ticket #:________

Gross Weight:________

Tare weight:________

Net weight:________

Net Kilogram Conversion (PCB Only):________

NorthStar Rep. Signature:________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20026836
Date: 03/22/2021 1:15 PM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 9590.996
Loads: 727

DT326-1108 - TRACTOR 1108 TRAILER DT326
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	19.59 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	79620.00	40440.00	39180.00


11093

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 041A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

______ ------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long ______________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM
CLOSURE REPORT FORM

Sample/Analysis Information
(Attachment for Section III.)

Facility ID Number__51 - 33620______

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 041A (PB 204)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-204-01	PB-204-01-SS01	4.5	5.0	Lead	SW6010D	Soil	540	12.2	10/4/2021	10/12/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.83	0.55	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.14	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.28	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.11	0.55	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.46	0.14	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Cumene	SW8260C	Soil	38	0.28	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.52	0.28	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.089	0.55	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.39	0.28	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	1	0.55	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.067	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.098	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.097	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.14	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.1	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.11	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.58	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.096	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.52	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.88	0.081	10/4/2021	10/9/2021
PB-204-01	PB-204-01-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.18	0.081	10/4/2021	10/9/2021
PB-204-01R	PB-204-01R-0.0-0.5	0.0	0.5	Lead	SW6010D	Soil	61.6	2.32	2/7/2022	2/10/2022
PB-204-01R	PB-204-01R-6.0-6.5	6.0	6.5	Lead	SW6010D	Soil	9.16	11.9	2/7/2022	2/10/2022
PB-204-02	PB-204-02-SS01	3.0	3.5	Lead	SW6010D	Soil	8.75	2.39	10/4/2021	10/12/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.046	0.13	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.033	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.067	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.033	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	3.1	0.067	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.067	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.067	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0051	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0068	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.004	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0056	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0025	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0053	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.018	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0027	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.024	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.021	0.0082	10/4/2021	10/7/2021
PB-204-02	PB-204-02-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.012	0.0082	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Lead	SW6010D	Soil	10.6	2.42	10/4/2021	10/12/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.12	0.5	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.12	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.25	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.13	0.5	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.12	0.12	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	7.2	0.25	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.13	0.25	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.5	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.24	0.25	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.297	0.5	10/4/2021	10/9/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.027	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.03	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.029	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.036	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.024	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.026	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.092	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.022	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.18	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.13	0.0081	10/4/2021	10/7/2021
PB-204-03	PB-204-03-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.056	0.0081	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Lead	SW6010D	Soil	7.64	2.35	10/4/2021	10/12/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.084	0.12	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	0.043	0.063	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.76	0.12	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.12	0.031	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.8	0.063	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.21	0.063	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.065	0.063	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.238	0.12	10/4/2021	10/11/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0048	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0028	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0014	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0024	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0023	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0029	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.019	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0015	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.067	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.021	0.0078	10/4/2021	10/7/2021
PB-204-04	PB-204-04-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0093	0.0078	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Lead	SW6010D	Soil	8.38	4.71	10/4/2021	10/13/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	2.4	0.14	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.069	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	7.7	0.14	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.75	0.034	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	5.6	0.069	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.75	0.069	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.59	0.069	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	4.41	0.14	10/4/2021	10/11/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0019	0.0081	10/4/2021	10/7/2021

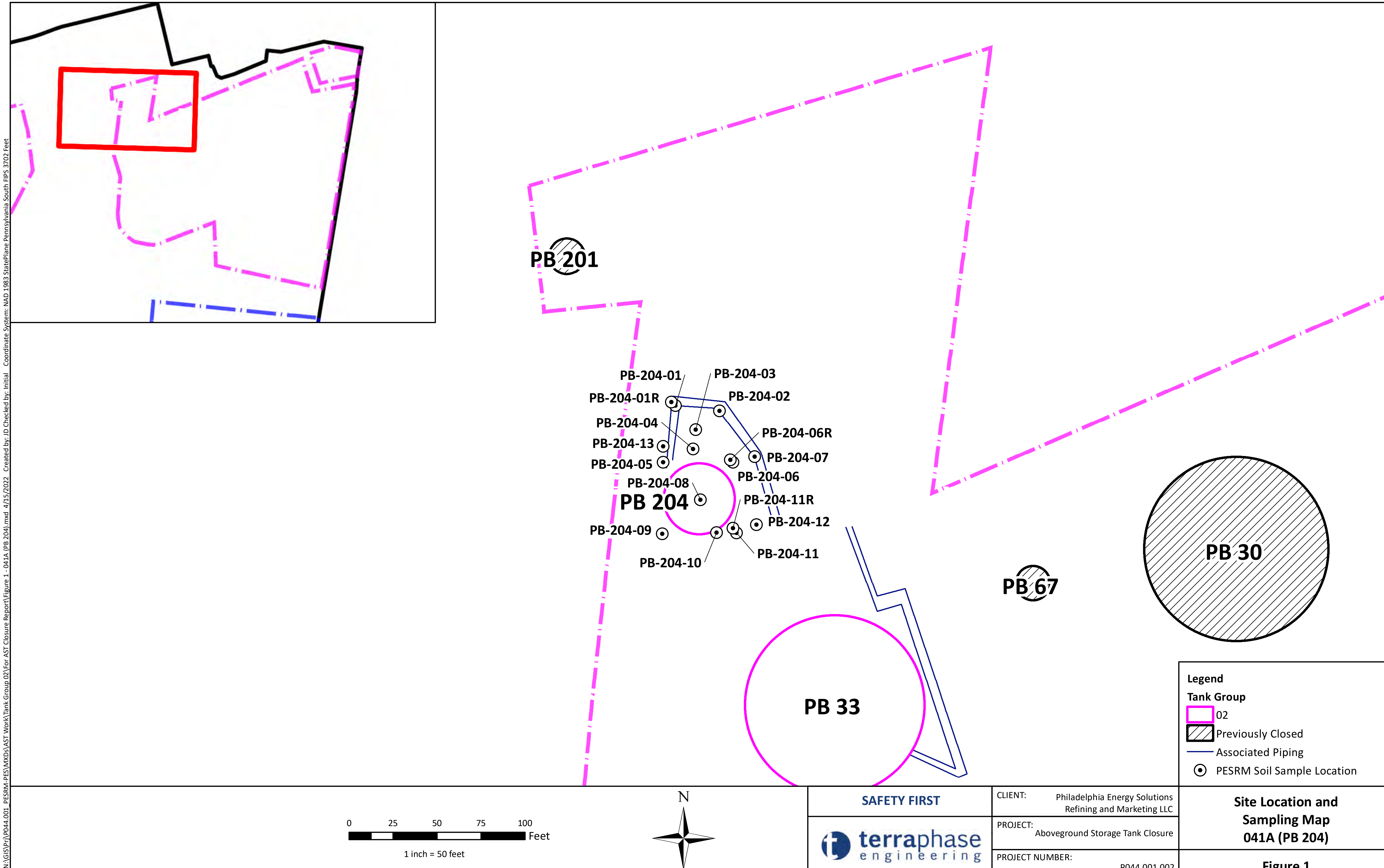
Table 1 - 041A (PB 204)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-204-05	PB-204-05-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0014	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.00098	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.00069	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.00098	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0079	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	ND	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.068	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.013	0.0081	10/4/2021	10/7/2021
PB-204-05	PB-204-05-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0031	0.0081	10/4/2021	10/7/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Lead	SW6010D	Soil	94.9	2.42	10/4/2021	10/12/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	47	0.53	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	0.043	0.066	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.67	0.26	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	2.3	0.066	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	6.7	0.13	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	9.6	0.13	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.1	0.26	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	4.18	0.26	10/4/2021	10/11/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.083	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.074	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.062	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.083	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.089	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.055	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.34	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.085	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	31	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.64	0.42	10/4/2021	10/9/2021
PB-204-06	PB-204-06-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.19	0.42	10/4/2021	10/9/2021
PB-204-06R	PB-204-06R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	ND	0.21	2/7/2022	2/13/2022
PB-204-06R	PB-204-06R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.036	0.00048	2/7/2022	2/21/2022
PB-204-06R	PB-204-06R-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	ND	0.2	2/7/2022	2/13/2022
PB-204-07	PB-204-07-SS01	3.0	3.5	Lead	SW6010D	Soil	33.4	2.36	10/4/2021	10/12/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.022	0.12	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.12	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.03	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.19	0.06	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.06	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.12	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.06	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.12	10/4/2021	10/9/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0024	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0043	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0046	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0057	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.004	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0034	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0078	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0044	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.043	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.011	0.0079	10/4/2021	10/7/2021
PB-204-07	PB-204-07-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.007	0.0079	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Lead	SW6010D	Soil	7.27	2.35	10/4/2021	10/12/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	5.3	0.11	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.028	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.057	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	7.6	0.11	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.16	0.028	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.6	0.057	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.42	0.057	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	1	0.11	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.063	0.057	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.438	0.11	10/4/2021	10/11/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0034	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0033	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0024	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.003	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0018	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0028	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.018	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0018	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.012	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.024	0.0081	10/4/2021	10/7/2021
PB-204-08	PB-204-08-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0071	0.0081	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Lead	SW6010D	Soil	7.42	4.79	10/4/2021	10/13/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.024	0.12	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.03	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.06	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.14	0.12	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.058	0.03	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.4	0.06	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.11	0.06	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.018	0.12	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.046	0.06	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.08	0.12	10/4/2021	10/11/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0047	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0046	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.0021	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0026	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0012	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0034	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.019	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0012	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.026	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.029	0.0079	10/4/2021	10/7/2021
PB-204-09	PB-204-09-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.01	0.0079	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Lead	SW6010D	Soil	6.7	2.42	10/4/2021	10/12/2021

Table 1 - 041A (PB 204)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-204-10	PB-204-10-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.061	0.0019	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00093	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.1	0.0019	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.24	0.00047	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.043	0.00093	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.085	0.00093	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.069	0.0019	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.097	0.00093	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.588	0.0019	10/4/2021	10/10/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0015	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0063	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	0.01	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.011	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.0083	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.0049	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.0022	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0099	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.0046	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.0056	0.0081	10/4/2021	10/7/2021
PB-204-10	PB-204-10-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0059	0.0081	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Lead	SW6010D	Soil	91.2	2.38	10/4/2021	10/12/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.31	0.52	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	0.08	0.13	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.26	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.065	0.52	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.23	0.13	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Cumene	SW8260C	Soil	5.1	0.26	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.16	0.26	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	1.6	0.52	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.2	0.26	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.38	0.52	10/4/2021	10/9/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.083	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.15	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.13	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.17	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.079	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.12	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.1	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.092	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.092	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.3	0.0082	10/4/2021	10/7/2021
PB-204-11	PB-204-11-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.26	0.0082	10/4/2021	10/7/2021
PB-204-11R	PB-204-11R-6.0-6.5	6.0	6.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	2/7/2022	2/14/2022
PB-204-12	PB-204-12-SS01	4.5	5.0	Lead	SW6010D	Soil	103	2.61	10/4/2021	10/12/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	2	0.95	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.24	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.47	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.76	0.95	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Benzene	SW8260C	Soil	1.8	0.24	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Cumene	SW8260C	Soil	19	0.47	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	1.7	0.47	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	0.4	0.95	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Toluene	SW8260C	Soil	4	0.47	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	5.17	0.95	10/4/2021	10/9/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Anthracene	SW8270DSIM	Soil	0.016	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Benzo(a)anthracene	SW8270DSIM	Soil	0.01	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Benzo(a)pyrene	SW8270DSIM	Soil	0.0064	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Benzo(b)fluoranthene	SW8270DSIM	Soil	0.0096	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Benzo(g,h,i)perylene	SW8270DSIM	Soil	0.012	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Chrysene	SW8270DSIM	Soil	0.013	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Fluorene	SW8270DSIM	Soil	0.093	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	0.0053	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Naphthalene	SW8270DSIM	Soil	0.62	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Phenanthrene	SW8270DSIM	Soil	0.087	0.0085	10/4/2021	10/7/2021
PB-204-12	PB-204-12-SS01	4.5	5.0	Pyrene	SW8270DSIM	Soil	0.039	0.0085	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Lead	SW6010D	Soil	5.54	2.48	10/4/2021	10/12/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.37	0.13	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.067	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.4	0.13	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.019	0.034	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.7	0.067	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.19	0.067	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.061	0.067	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.518	0.13	10/4/2021	10/11/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Anthracene	SW8270DSIM	Soil	0.0039	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Benzo(a)anthracene	SW8270DSIM	Soil	0.0012	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Benzo(a)pyrene	SW8270DSIM	Soil	ND	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Benzo(b)fluoranthene	SW8270DSIM	Soil	ND	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Benzo(g,h,i)perylene	SW8270DSIM	Soil	ND	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Chrysene	SW8270DSIM	Soil	0.00074	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Fluorene	SW8270DSIM	Soil	0.036	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Indeno(1,2,3-cd)pyrene	SW8270DSIM	Soil	ND	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Naphthalene	SW8270DSIM	Soil	0.02	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Phenanthrene	SW8270DSIM	Soil	0.057	0.0082	10/4/2021	10/7/2021
PB-204-13	PB-204-13-SS01	3.0	3.5	Pyrene	SW8270DSIM	Soil	0.0043	0.0082	10/4/2021	10/7/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.



SAFETY FIRST

terraphase engineering

CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Location and Sampling Map 041A (PB 204)

Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 041A (PB 204).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

	**Photograph 1:** View of former Tank 041A (PB 204) location following demolition.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 061A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

______________________________ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____________________

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09/ 26 /2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Photograph 1:

View of Tank 061A (PB 14V 403) following closure.

Photograph 2:

View of Tank 061A (PB 14V 403) interior following closure.

	**Photograph 3:** View of Tank 061A (PB 14V 403) interior following closure.
	**Photograph 4:** View of tank opening and containment beneath tank.

	**Photograph 5:** View of former tank location.

ABOVEGROUND STORAGE TANK SYSTEM
CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 071A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills):

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Photograph 1:

View of Tank 071A (PB 7316) following closure.

Photograph 2:

View of Tank 071A (PB 7316) interior following closure.

	**Photograph 3:** View of Tank 071A (PB 7316) following closure.
	**Photograph 4:** View of secondary containment beneath tank.

Photograph 5:

View of full tank and containment.

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 087A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A feet below land surface Water 15 feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

------► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ______

______

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long _______________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

Sample/Analysis Information (Attachment for Section III.)

Facility ID Number 51 - 33620

Sample I.D. (See diagram)	Parameter	Analytical Method[1]		Media	Result (units)	Detection Limit (units)	Date Sample Taken	Date Sample Analyzed
See attached Summary Table							/ /	/ /
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[1] Where EPA Method 5035 is used, indicate sample collection option in the right-hand box of this column using the following codes:

P - Samples placed in a soil sample vial with a preservative present.
E - Samples collected and stored in a soil collection device which is airtight and affords little to no headspace.

N - Samples placed in soil sample vial without a preservative present.

Site Location and Sampling Map - Use this page or suitable facsimile to provide a large-scale map of the site where storage tank systems were closed. Scales between 1" = 10 and 1" = 100 feet frequently work well. Include the following information as each applies to the site: facility name and I.D., county, township or borough, property boundaries or area of interest, buildings, roads and streets with names or route numbers, utilities, location and ID number of storage tank systems removed including piping and dispensers, soil stockpile locations, excavations or other locations of product recovery, north arrow, approximate map scale and legend. Also, show depth and location of samples with sample ID numbers cross-referenced to the same ID numbers shown on Page 10 of 11.

Facility Name and ID: -

County:

Township/Borough: See Attached Figure.

Table 1 - 087A (PB 36)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-36-01	PB-36-01-SS01	4.5	5.0	Lead	SW6010D	Soil	60.4	2.36	10/5/2021	10/8/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Naphthalene	SW8260C	Soil	1.4	0.32	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	1,2,4-Trimethylbenzene	SW8260C	Soil	0.38	0.16	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.04	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.081	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	1,3,5-Trimethylbenzene	SW8260C	Soil	0.42	0.16	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Benzene	SW8260C	Soil	0.77	0.04	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Cumene	SW8260C	Soil	13	0.081	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Ethyl Benzene	SW8260C	Soil	0.89	0.081	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Methyl tert-butyl ether	SW8260C	Soil	ND	0.16	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Toluene	SW8260C	Soil	0.2	0.081	10/5/2021	10/10/2021
PB-36-01	PB-36-01-SS01	4.5	5.0	Xylenes (total)	SW8260C	Soil	0.76	0.16	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Lead	SW6010D	Soil	7.86	2.36	10/5/2021	10/7/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.28	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	3.7	0.14	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.034	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.069	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.27	0.14	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.066	0.034	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Cumene	SW8260C	Soil	2.4	0.069	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	4.4	0.069	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.052	0.069	10/5/2021	10/10/2021
PB-36-02	PB-36-02-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.26	0.14	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Lead	SW6010D	Soil	8.5	2.44	10/5/2021	10/7/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	66	5	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	670	13	10/5/2021	10/11/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.63	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.3	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	180	2.5	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Benzene	SW8260C	Soil	35	0.63	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Cumene	SW8260C	Soil	21	1.3	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	160	1.3	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	2.5	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Toluene	SW8260C	Soil	180	1.3	10/5/2021	10/10/2021
PB-36-03	PB-36-03-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1000	2.5	10/5/2021	10/10/2021
PB-36-03R	PB-36-03R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.00041	0.0024	2/10/2022	2/15/2022
PB-36-03R	PB-36-03R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0024	2/10/2022	2/15/2022
PB-36-03R	PB-36-03R-6.0-6.5	6.0	6.5	Benzene	SW8260C	Soil	0.00074	0.00061	2/10/2022	2/15/2022
PB-36-03R	PB-36-03R-6.0-6.5	6.0	6.5	Toluene	SW8260C	Soil	ND	0.0012	2/10/2022	2/15/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Lead	SW6010D	Soil	13.3	4.9	2/10/2022	2/16/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	6.1	0.13	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.065	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2.1	0.13	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Benzene	SW8260C	Soil	1.2	0.032	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.58	0.065	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	1.4	0.065	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.59	0.13	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.065	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.52	0.13	2/10/2022	2/14/2022
PB-36-04	PB-36-04-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	4.9	0.2	2/10/2022	2/15/2022
PB-36-05	PB-36-05-SS01	3.0	3.5	Lead	SW6010D	Soil	8.8	2.38	10/5/2021	10/7/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0033	0.0039	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00097	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00071	0.00097	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00097	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00097	10/5/2021	10/10/2021
PB-36-05	PB-36-05-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Lead	SW6010D	Soil	10.8	2.41	10/5/2021	10/7/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.62	0.29	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	1.2	0.14	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.036	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.072	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.27	0.14	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.1	0.036	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Cumene	SW8260C	Soil	11	0.072	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.6	0.072	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.14	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.19	0.072	10/5/2021	10/11/2021
PB-36-06	PB-36-06-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.18	0.14	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Lead	SW6010D	Soil	10	2.48	10/5/2021	10/7/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	87	6.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	640	6.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.84	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	1.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	260	3.4	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Benzene	SW8260C	Soil	2.7	0.84	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Cumene	SW8260C	Soil	16	1.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	260	1.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	3.4	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Toluene	SW8260C	Soil	2.1	1.7	10/5/2021	10/11/2021
PB-36-07	PB-36-07-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	1080	6.7	10/5/2021	10/11/2021
PB-36-07R	PB-36-07R-6.0-6.5	6.0	6.5	1,2,4-Trimethylbenzene	SW8260C	Soil	17	0.28	2/10/2022	2/15/2022
PB-36-07R	PB-36-07R-6.0-6.5	6.0	6.5	1,3,5-Trimethylbenzene	SW8260C	Soil	2	0.28	2/10/2022	2/15/2022
PB-36-07R	PB-36-07R-6.0-6.5	6.0	6.5	Ethyl Benzene	SW8260C	Soil	2.9	0.14	2/10/2022	2/15/2022
PB-36-07R	PB-36-07R-6.0-6.5	6.0	6.5	Xylenes (total)	SW8260C	Soil	4.71	0.28	2/10/2022	2/15/2022
PB-36-07R	PB-36-07R-6.0-6.5	6.0	6.5	Naphthalene	SW8270D	Soil	2.2	0.17	2/10/2022	2/18/2022
PB-36-07R	PB-36-07R-0.0-0.5	0.0	0.5	Naphthalene	SW8270D	Soil	ND	0.2	2/10/2022	2/18/2022
PB-36-08	DUP-19	3.0	3.5	Lead	SW6010D	Soil	26.8	2.35	10/5/2021	10/8/2021
PB-36-08	DUP-19	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0037	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0018	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00092	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0018	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00046	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00092	10/5/2021	10/10/2021

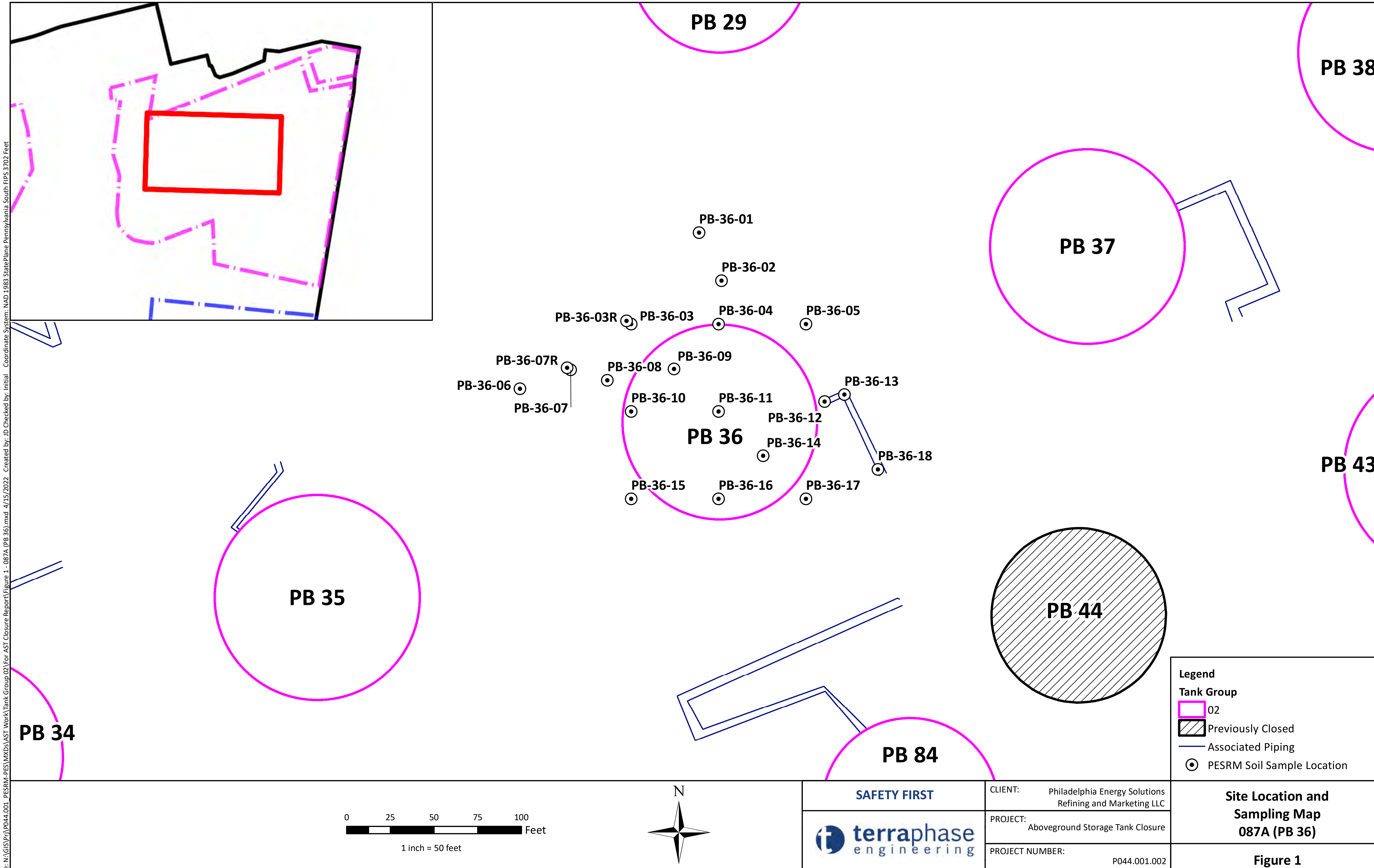
Table 1 - 087A (PB 36)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-36-08	DUP-19	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00092	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0018	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00092	10/5/2021	10/10/2021
PB-36-08	DUP-19	3.0	3.5	Xylenes (total)	SW8260C	Soil	ND	0.0018	10/5/2021	10/10/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Lead	SW6010D	Soil	8.03	2.47	10/5/2021	10/8/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.0027	0.0041	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.002	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00051	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.001	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.00044	0.002	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.0014	0.00051	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.19	0.001	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.00057	0.001	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0004	0.002	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.0027	0.001	10/5/2021	10/11/2021
PB-36-08	PB-36-08-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0058	0.002	10/5/2021	10/11/2021
PB-36-09	PB-36-09-SS01	3.5	4.0	Lead	SW6010D	Soil	9.84	2.32	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	1,2,4-Trimethylbenzene	SW8260C	Soil	100	13	2/10/2022	2/14/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	1,2-Dibromoethane	SW8260C	Soil	ND	0.08	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	1,2-Dichloroethane	SW8260C	Soil	ND	0.16	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	1,3,5-Trimethylbenzene	SW8260C	Soil	29	0.32	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Benzene	SW8260C	Soil	35	0.08	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Cumene	SW8260C	Soil	5.7	0.16	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Ethyl Benzene	SW8260C	Soil	12	0.16	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Methyl tert-butyl ether	SW8260C	Soil	0.4	0.32	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Toluene	SW8260C	Soil	ND	0.16	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Xylenes (total)	SW8260C	Soil	14.87	0.32	2/10/2022	2/16/2022
PB-36-09	PB-36-09-SS01	3.5	4.0	Naphthalene	SW8270D	Soil	4.7	0.2	2/10/2022	2/15/2022
PB-36-10	PB-36-10-SS01	4.0	4.5	Lead	SW6010D	Soil	8.22	2.42	10/5/2021	10/8/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Naphthalene	SW8260C	Soil	1.1	1.2	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.14	0.61	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.15	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.3	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.091	0.61	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Benzene	SW8260C	Soil	0.52	0.15	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Cumene	SW8260C	Soil	1.1	0.3	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Ethyl Benzene	SW8260C	Soil	2.9	0.3	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.61	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Toluene	SW8260C	Soil	0.22	0.3	10/5/2021	10/10/2021
PB-36-10	PB-36-10-SS01	4.0	4.5	Xylenes (total)	SW8260C	Soil	1.25	0.61	10/5/2021	10/10/2021
PB-36-11	PB-36-11-SS01	3.0	3.5	Lead	SW6010D	Soil	8.57	2.36	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	19	1.2	2/10/2022	2/14/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.031	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.061	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	8.8	0.12	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.019	0.031	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.95	0.061	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.67	0.061	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.03	0.12	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.061	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.331	0.12	2/10/2022	2/16/2022
PB-36-11	PB-36-11-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	1.4	0.2	2/10/2022	2/15/2022
PB-36-12	PB-36-12-SS01	2.0	2.5	Lead	SW6010D	Soil	45.4	11.6	10/5/2021	10/11/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Naphthalene	SW8260C	Soil	0.0039	0.0036	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.019	0.0018	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00044	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00089	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.0047	0.0018	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Benzene	SW8260C	Soil	0.015	0.00044	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Cumene	SW8260C	Soil	0.0036	0.00089	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Ethyl Benzene	SW8260C	Soil	0.0016	0.00089	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Methyl tert-butyl ether	SW8260C	Soil	0.0025	0.0018	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Toluene	SW8260C	Soil	0.0013	0.00089	10/5/2021	10/10/2021
PB-36-12	PB-36-12-SS01	2.0	2.5	Xylenes (total)	SW8260C	Soil	0.0072	0.0018	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Lead	SW6010D	Soil	15.8	2.29	10/5/2021	10/8/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0038	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00047	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00094	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00047	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.00094	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00094	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00094	10/5/2021	10/10/2021
PB-36-13	PB-36-13-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.0016	0.0019	10/5/2021	10/10/2021
PB-36-14	PB-36-14-SS01	3.0	3.5	Lead	SW6010D	Soil	218	2.22	2/10/2022	2/16/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.83	0.14	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00046	2/10/2022	2/16/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00091	2/10/2022	2/16/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	1.7	0.14	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.14	0.036	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.16	0.072	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	2	0.072	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	0.0088	0.0018	2/10/2022	2/16/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Toluene	SW8260C	Soil	0.072	0.072	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	1.576	0.14	2/10/2022	2/14/2022
PB-36-14	PB-36-14-SS01	3.0	3.5	Naphthalene	SW8270D	Soil	0.073	0.19	2/10/2022	2/15/2022
PB-36-15	PB-36-15-SS01	3.0	3.5	Lead	SW6010D	Soil	7.32	2.3	10/5/2021	10/8/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.00085	0.0038	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00048	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.00096	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0019	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00048	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.00036	0.00096	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.00096	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0019	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.00096	10/5/2021	10/11/2021
PB-36-15	PB-36-15-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00169	0.0019	10/5/2021	10/11/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Lead	SW6010D	Soil	87.5	2.29	10/5/2021	10/8/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.12	0.26	10/5/2021	10/10/2021

Table 1 - 087A (PB 36)
Sample/Analysis Information (Attachment for Section III.)

Location	Sample ID	Start Depth (ft)	End Depth (ft)	Parameter	Analytical Method	Media	Results (mg/kg)	Detection Limit (mg/kg)	Date Sample Taken	Date Sample Analyzed
PB-36-16	PB-36-16-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.051	0.13	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.065	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.13	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Benzene	SW8260C	Soil	0.03	0.032	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.044	0.065	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.022	0.065	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.065	10/5/2021	10/10/2021
PB-36-16	PB-36-16-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.118	0.13	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Lead	SW6010D	Soil	10.7	2.4	10/5/2021	10/8/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	ND	0.0045	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	ND	0.0022	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.00056	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.0011	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	ND	0.0022	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.00056	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Cumene	SW8260C	Soil	ND	0.0011	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	ND	0.0011	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.0022	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.0011	10/5/2021	10/10/2021
PB-36-17	PB-36-17-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.00192	0.0022	10/5/2021	10/10/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Lead	SW6010D	Soil	112	2.36	10/5/2021	10/8/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Naphthalene	SW8260C	Soil	0.081	0.26	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	1,2,4-Trimethylbenzene	SW8260C	Soil	0.061	0.13	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	1,2-Dibromoethane	SW8260C	Soil	ND	0.032	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	1,2-Dichloroethane	SW8260C	Soil	ND	0.064	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	1,3,5-Trimethylbenzene	SW8260C	Soil	0.021	0.13	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Benzene	SW8260C	Soil	ND	0.032	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Cumene	SW8260C	Soil	0.0071	0.064	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Ethyl Benzene	SW8260C	Soil	0.017	0.064	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Methyl tert-butyl ether	SW8260C	Soil	ND	0.13	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Toluene	SW8260C	Soil	ND	0.064	10/5/2021	10/11/2021
PB-36-18	PB-36-18-SS01	3.0	3.5	Xylenes (total)	SW8260C	Soil	0.104	0.13	10/5/2021	10/11/2021

Notes:
SS -- Soil Sample.
-- R indicates that the sample location was returned to for further delineation.
-- DUP-19 is a field duplicate associated with sample PB-36-08-SS01.



SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	Site Location and Sampling Map 087A (PB 36)
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	Figure 1

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For AST Closure Report\Figure 1 - 087A (PB 36).mxd 4/15/2022 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

Photograph 1:

View of former Tank 087A (PB 36) location following demolition.

Product Movement and Waste Disposal Documentation (Tank 087A)

NorthStar Contracting Group, Inc.

PES Project Load Ticket

Load Ticket: 14633

#S120103

Date: 06-26-21

Scrap

Sold to: Allegheny
Location: Tank 36
Carrier: Allegheny

Steel / Ferrous

- ☐ No. 1 P+S
- ☐ No. 2 Heavy Melt
- ☐ Cast Iron
- ☐ Mixed
- ☐ Pipe
- ☐ Light Iron
- ☐ Re-Bar
- ☐ Other Tank Plate

Non-Ferrous

- ☐ Insulated Copper Wire
- ☐ No. 1 Copper Wire
- ☐ Brass
- ☐ Aluminum
- ☐ Stainless, Grade ________
- ☐ Other Alloy, Grade ________
- ☐ Mixed
- ☐ Other: ________

Condition

- ☐ Prepared
- ☐ Unprepared
- ☐ Green Waste
- ☐ Concrete
- ☐ Masonry
- ☐ Mixed Masonry
- ☐ Wood Only
- ☐ Demo Debris (C&D)
- ☐ Dirt / Fill
- ☐ Sand Fill
- ☐ Crushed Stone
- ☐ Other: ________

Scale Ticket #: ________

Gross Weight: 69920 lbs

Tare Weight: 41600 lbs

Net Weight: 28220 lbs

NorthStar Rep. Signature: [signature]

Received By: [signature]

Non-Haz / ACM / Special Waste

Activity Location: ________

Waste Stream

- ☐ C&D Demolition Debris
- ☐ Non-Friable ACM
- ☐ Friable ACM
- ☐ PB WWTP Sludge
- ☐ GP WWTP Sludge
- ☐ Characteristic Haz Waste (flammable D001, corrosive D002, reactive D003, toxicity D004 –D043)
- ☐ Process Haz Waste
- ☐ Demo Debris (C&D)
- ☐ Non-Haz Waste (Solid)
- ☐ Non-Haz Waste (Liquid)
- ☐ PCB (Non-TSCA)
- ☐ PCB (TSCA)

Disposal Facility: ________

Carrier: ________

Truck #: ________

Container #: ________

Manifest #: ________

Profile / Approval #: ________

Scale Info

Scale Ticket #: ________

Gross Weight: ________

Tare weight: ________

Net weight: ________

Net Kilogram Conversion (PCB Only): ________

NorthStar Rep. Signature: ________

HILCO REDEVELOPEMENT PARTNERS
3144 W. PASSYUNK AVE

PHILADELPHIA PA, 19145

Ticket #: 20029642
Date: 08/26/2021 7:11 AM
Phone: ( ) -
Fax: ( ) -

Customer: HILCO
HILCO

,

Order Number: 001
SCRAP REMOVAL
Tons: 51473.036
Loads: 3489

DT260-50 - TRUCK 260 W/ TRAILER 50
CARLAD - CARLA DAVILA

Remarks: SCRAP REMOVAL

Signature: ______________________

Material	Quantity	Price	Material $	Delivery $	Misc $	Tax $	Line Total $
SCRAP	14.11 tn						

Weight Information

Material	Gross	Tare	Net
SCRAP	69820.00	41600.00	28220.00


14633
NY

ABOVEGROUND STORAGE TANK SYSTEM CLOSURE REPORT FORM

SECTION III. Site Assessment Information

Tank Registration # 089A (complete one sheet for EACH tank system and attach ALL laboratory sheets pertaining to that system)

Facility ID Number 51 - 33620

A. Provide depth of *BEDROCK* and *WATER* IF encountered during excavation or soil boring (write "N/A": if NOT encountered).

Bedrock N/A ___________ feet below land surface Water 15 ____________ feet below land surface

B. Provide Length of *PIPING* IF piping was closed-in-place (write "N/A" if NOT closed-in-place).

Length of piping N/A ___________ feet

C. TANK SYSTEM REMOVED FROM THE GROUND/SITE

1). Was obvious contamination observed while excavating, sampling or removing the tank system?

☒ NO -------► Conduct confirmatory sampling -------► See end of this section for options on submission and maintenance of closure records -------► Do not complete item C.2. below.

☐ YES -------► Report release to DEP within 24 hours ------► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____

____

____

____

____ -----► Complete item C.2. below.

2). Was contamination localized (within three feet of the tank system in every direction with no obvious water contamination)?

☐ YES -----► Remove or remediate contaminated soil -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ NO -----► Continue Interim Remedial Actions -----► See end of this section for options on submission and maintenance of closure records.

D. TANK SYSTEM CLOSED-IN-PLACE OR CHANGED-IN-SERVICE

Was obvious contamination observed during sampling, boring or assessing water depths?

☐ NO -----► Conduct confirmatory sampling -----► See end of this section for options on submission and maintenance of closure records.

☐ YES -----► Report release to DEP within 24 hours -----► Describe contamination observed and likely source(s) (tank, piping, dispenser, spills, overfills): ____

____

____

____

Continue with corrective action -----► See end of this section for options on submission and maintenance of closure records.

E. If the answer to C.1. is "no", the answer to C.2. is "yes" or the answer to D. is "no", confirmatory samples are required. Use the sample/analysis information sheet on page 10 of 11 to provide the information on confirmatory sampling and complete the diagram on Page 11 of 11.

Options for Submission and Maintenance of Closure Site Assessment Records

Records of the site assessment must be maintained for at least three years after completion of permanent closure or change-in-service in one of the following ways:

(a) By the owners and operators who took the tank system out of service;
(b) By the current owners and operators of the tank system site; or
(c) By mailing these records to the DEP regional office responsible for the county in which the tank is located if they cannot be maintained at the closed facility.

Where the results of the site assessment indicate that obvious, localized soil contamination was encountered and the analytical results of the confirmatory sampling show levels below the statewide standard/action levels, this closure report form (Sections I, II, and III) or some other acceptable site characterization report must be received by the Department within 180 days of verbally reporting the release.

Where the results of the site assessment indicate that no obvious contamination or obvious, localized contamination was encountered, but the analytical results of the confirmatory sampling show levels above the statewide standard/action levels, or where there is obvious, extensive contamination, Section 245.310(a)(8) of the Corrective Action Process (CAP) regulations requires that details of removal from service be included in the site characterization report. A copy of the completed closure report form should be submitted as part of the site characterization report to satisfy the requirements of Section 245.310(a)(8) of the CAP regulations.

I, Kevin Long ______________ , hereby certify, under penalty of law as provided in 18 Pa. C.S. §4904 (relating to unsworn
(Print Name)
falsification to authorities) that I am the person who performed the site assessment activities associated with the closure of the above referenced storage tank system(s) and that the information provided by me in this closure report (Section III) is true, accurate and complete to the best of my knowledge and belief.

Kevin L. Long
Signature of Person Performing Site Assessment

09 / 26 / 2022
Date

Principal Consultant
Title of Person Performing Site Assessment

Terraphase Engineering Inc.
Name of Company Performing Site Assessment

609-236-8171 x93
Telephone Number of Person Performing Site Assessment

Photograph 1:

View of Tank 089A (PB 89A) following closure.

Photograph 2:

View of Tank 089A (PB 89A) interior following closure.

	**Photograph 3:** View of Tank 089A (PB 89A) interior following closure.
	**Photograph 4:** View inside secondary containment beneath tank.

	**Photograph 5:** View of former tank location.

Product Movement and Waste Disposal Documentation (Tank Group 02)

Load Ticket	Start Date	End Date	From Tank #	Product Qty. (gal)	Transferred To Tank #	Product	Method of Movement
1282321	2/3/2021	2/3/2021	128	17000.00	843	WATER AND GAS	Vacuum Truck
140	2/5/2021	2/5/2021	128	1500.00	843 frac	Naphtha	Vacuum Truck
141 143 144 145 273903 273403	2/8/2021	2/11/2021	128	6200.00	843 frac	Naphtha	Vacuum Truck
173951 273901 273402	2/9/2021	2/10/2021	129	11200.00	843	water	Vacuum Truck
273902	2/10/2021	2/10/2021	129	2600.00	843 frac	Gasoline	Vacuum Truck
52 273405 273458 273406 273454 (~20,0(	2/15/2021	2/17/2021	128	16300.00	843	flush water	Vacuum Truck
273955	2/15/2021	2/15/2021	129	750.00	843 frac	Gasoline	Vacuum Truck
273958 273957	2/17/2021	2/19/2021	35	6000.00	843 Blender	WATER AND GAS	Vacuum Truck
273410 273407	2/17/2021	2/19/2021	34	6200.00	843 frac	Gasoline	Vacuum Truck
273960 273963 273964	2/22/2021	2/26/2021	35	11200.00	frac	Gasoline	Vacuum Truck
273411 -273415	2/22/2021	2/26/2021	34	18000.00	Frac	Gasoline	Vacuum Truck
	2/22/2021	2/22/2021	128	700.00	843	flush water	Vacuum Truck
	2/24/2021	2/25/2021	29	300.00	843	flush water	Vacuum Truck
T8522521	2/25/2021	2/25/2021	85	1200.00	PH15	DIESEL	Vacuum Truck
853120	3/1/2021	3/1/2021	85	1500.00	PH15	DIESEL	Vacuum Truck
273416 273417 273418	3/1/2021	3/3/2021	34	10550.00	blender	WATER AND GAS	Vacuum Truck
273965 273966	3/1/2021	3/2/2021	35	15000.00	blender	WATER AND GAS	Vacuum Truck
	3/2/2021	3/2/2021	38	1500.00	843	flush water	Vacuum Truck
73419-273420 273422 273464 (~18,000ga	3/3/2021	3/4/2021	36	5900.00	blender	flush water	Vacuum Truck
40TK3421	3/4/2021	3/4/2021	40	3000.00	843	WATER AND GAS	Vacuum Truck
T853421	3/4/2021	3/4/2021	85	1700.00	15PH	Diesel/water	Vacuum Truck
40-3521	3/5/2021	3/5/2021	40	1000.00	843	WATER AND GAS	Vacuum Truck
85-3521	3/5/2021	3/5/221	85	1000.00	15ph	DIESEL	Vacuum Truck
85-3821	3/8/2021	3/8/2021	85	4200.00	15ph	Diesel/water	Vacuum Truck
273970-273972 (18000GAL)	3/8/2021	3/10/2021	40	6000.00	blender	WATER AND GAS	Vacuum Truck
70U31221 (20,000gal)	3/9/2021	3/12/2021	70	24000.00	11ST	OIL/WATER	Vacuum Truck
273971 (9000GAL)	3/9/2021	3/9/2021	37	1500.00	blender	flush water	Vacuum Truck
T8531221	3/10/2021	3/12/2021	85	5400.00	PH15	Diesel/water	Vacuum Truck
273423	3/10/2021	3/10/2021	36	1500.00	843	flush water	Vacuum Truck
273424-273425	3/11/2021	3/12/2021	26	2550.00	26	-	
128843 500GAL	3/12/2021	3/12/2021	128	1800.00	843	OIL/WATER	Vacuum Truck
273975	3/15/2021	3/15/21	35	2000.00	-	gas/water flush	Vacuum Truck
273436-273438	3/30/2021	4/1/2021	37	5500.00	843	flush water	Vacuum Truck
273986-273989	3/30/2021	4/2/2021	39	4500.00	843	WATER AND GAS	Vacuum Truck
MPW4821WG	4/8/2021	4/8/2021	39	3000.00	843	WATER AND GAS	Vacuum Truck
MPW4921WG	4/9/2021	4/9/2021	39	1000.00	843	WATER AND GAS	Vacuum Truck
MPW4921WG	4/9/2021	4/9/2021	38	300.00	843	WATER AND GAS	Vacuum Truck
MPWD350	4/12/2021	4/12/2021	44	200.00	843	WATER AND GAS	Vacuum Truck
MPW41221G	4/12/2021	4/12/2021	38	3800.00	FRAC	Gasoline	Vacuum Truck
ACV41321	4/13/2021	4/13/2021	43	900.00	15PH	LIQUID GAS MIX WATER	Vacuum Truck
41321	4/13/2021	4/13/2021	43	1000.00	15PH	WATER AND GAS	Vacuum Truck
MPW41321	4/13/2021	4/13/2021	38	5300.00	FRAC	Gasoline	Vacuum Truck
ACV41421	4/14/2021	4/15/2021	43	4000.00	843	OIL/FUEL	Vacuum Truck
ACV41421	4/14/2021	4/14/2021	43	1600.00	TF-15/191	RINSE WATER	PRODUCTLINE
ACV41421	4/14/2021	4/14/2021	43	3200.00	15PH	WASTE WATER	PRODUCTLINE
MPW41421GW	4/14/2021	4/14/2021	83	3500.00	843	WATER AND GAS	Vacuum Truck
MPW41421	4/14/2021	4/14/2021	38	4500.00	843	WATER AND GAS	Vacuum Truck
MPW41521GW	4/15/2021	4/15/2021	38	1800.00	843	WATER AND GAS	Vacuum Truck
MPW41521	4/15/2021	4/15/2021	83	1000.00	843	WATER AND GAS	Vacuum Truck
MPW41621LB	4/16/2021	4/16/2021	39	2700.00	843	LINE BREAK	Vacuum Truck
MPW41621WG	4/16/2021	4/16/2021	84	3000.00	843	WATER GAS JET FUEL	Vacuum Truck
MPW41621WG	4/16/2021	4/16/2021	39	1500.00	843	WATER AND GAS	Vacuum Truck
MPW41621WG	4/16/2021	4/16/2021	83	6500.00	843	WATER AND GAS	Vacuum Truck
ACV41921	4/19/2021	4/19/2021	43	2000.00	843	Water/jet fuel	Vacuum Truck
MPW41921WG	4/19/2021	4/19/2021	83	4100.00	843	WATER AND GAS	Vacuum Truck
MPW41921	4/19/2021	4/19/2021	36	3000.00	843	WATER AND GAS	Vacuum Truck
MPW41921	4/19/2021	4/19/2021	84	1500.00	843	WATER AND JET FUEL	Vacuum Truck
MPW41921	4/19/2021	4/19/2021	39	5400.00	843	LINE BREAK	Vacuum Truck
MPW42021	4/20/2021	4/20/2021	38	6000.00	843	Gasoline	Vacuum Truck
MPW42021	4/20/2021	4/20/2021	83	3000.00	843	WATER AND GAS	Vacuum Truck
MPW42021	4/20/2021	4/20/2021	84	1500.00	843	WATER AND JET FUEL	Vacuum Truck
MPW42121	4/21/2021	4/21/2021	38	3000.00	843	FUEL AND WATER	Vacuum Truck
MPW42121	4/21/2021	4/21/2021	83	6000.00	843	Gasoline	Vacuum Truck
MPW42221	4/22/2021	4/22/2021	38	3500.00	843	Gasoline	Vacuum Truck
MPW42221	4/22/2021	4/22/2021	83	600.00	843	WATER AND GAS	Vacuum Truck
MPW42321	4/23/2021	4/23/2021	83	800.00	843	WATER AND GAS	Vacuum Truck
ACV42621	4/26/2021	4/26/2021	33	3000.00	843	WATER/GASOLINE	Vacuum Truck
MPW42621	4/26/2021	4/26/2021	84	2600.00	843	FLUSH AND JET FUEL	Vacuum Truck
MPW42621	4/26/2021	4/26/2021	36	9000.00	843	WATER AND GAS	Vacuum Truck
MPW42821GW	4/27/2021	4/28/2021	36	9000.00	843	WATER AND GAS	Vacuum Truck
MPW42921GW	4/28/2021	4/29/2021	37	9000.00	843	WATER AND GAS	Vacuum Truck
ACV42821	4/28/2021	4/28/2021	33	100.00	843	Gasoline	Vacuum Truck
HVWR617	4/28/2021	4/28/2021	42	2600.00	843	WATER AND HEATING OIL	Vacuum Truck
NS42821-FLUSH39	4/28/2021	4/29/2021	39	7000.00	843	flush water	Vacuum Truck
TV00463	4/29/2021	4/29/2021	42	3000.00	843	Flush water/diesel/HHD	Vacuum Truck
MPW42921HO	4/29/2021	4/29/2021	83	800.00	843	HEATING OIL	Vacuum Truck
ACV5321	5/3/2021	5/3/2021	33	3500.00	843	GASOLINE	Vacuum Truck
NS5321-FGTF1	5/3/2021	5/3/2021	36	1750.00	843	FUEL AND GAS	Vacuum Truck
mpw5421w	5/4/2021	5/4/2021	42	500.00	843	water	Vacuum Truck
NS5421FF	5/4/2021	5/4/2021	36	2250.00	843	FUEL AND FLUSH	Vacuum Truck
ACV5521	5/5/2021	5/5/2021	33	100.00	843	WATER AND GAS	Vacuum Truck
MPW5521KEROSENE	5/5/2021	5/5/2021	83	3000.00	843	Kerosene	Vacuum Truck
NS5521-FLUSH	5/5/2021	5/5/2021	36	5250.00	843	flush water	Vacuum Truck

5621PP	5/6/2021	5/6/2021	36	4750.00	843	flush water	Vacuum Truck
ACV5721	5/7/2021	5/7/2021	38	2600.00	843	WASTE WATER OIL GAS	Vacuum Truck
ACV51021	5/10/2021	5/10/2021	38	200.00	843	OIL/GAS/WATER	Vacuum Truck
MPW51721	5/17/2021	5/17/2021	38	500.00	843	GAS WATER	Vacuum Truck
MPW51821	5/18/2021	5/18/2021	37	100.00	843	GAS	Vacuum Truck
MPW52021	5/20/2021	5/20/2021	28	1500.00	843	LINE BREAK	Vacuum Truck
MPW52021	5/20/2021	5/20/2021	36	2600.00	843	FLUSH WATER	Vacuum Truck
MPW52521	5/25/2021	5/25/2021	84	7000.00	843	LINE FLUSH	Vacuum Truck
ACV52521	5/25/2021	5/25/2021	204	1600.00	843	PEROLUM PRODUCT/WATER	Vacuum Truck
ACV52721	5/27/2021	5/27/2021	204	375.00	843	oil	VACUUM TRUCK
MPW6221	6/2/2021	6/2/2021	42	1500.00	843	DIESEL	VACUUM TRUCK
MPW6321	6/3/2021	6/3/2021	42	800.00	843	DIESEL/ HHO	VACUUM TRUCK
MPW6421	6/4/2021	6/4/2021	39	2800.00	843	GAS	VACUUM TRUCK
MPW6721	6/7/2021	6/7/2021	39	1800.00	843	DIESEL	VACUUM TRUCK
ACV6921	6/9/2021	6/9/2021	204	3560.00	843	RESIDUAL MATERIAL	VACUUM TRUCK
ACV61121	6/11/2021	6/11/2021	204	1200.00	843	RESIDUAL MATERIAL	VACUUM TRUCK
MPW61821	6/18/2021	6/18/2021	39	3000.00	843	MIXED HHO & WATER	VACUUM TRUCK
ACV62221	6/22/2021	6/22/2021	128	150.00	843	OIL/WATER/GAS	VACUUM TRUCK

Laboratory Reports

ANALYTICAL REPORT

Lab Number:	L2130480
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/01/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130480-01	PB26-01-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:35	06/07/21
L2130480-02	PB26-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:45	06/07/21
L2130480-03	PB26-03-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:55	06/07/21
L2130480-04	PB26-04-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:10	06/07/21
L2130480-05	PB26-05-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:20	06/07/21
L2130480-06	PB26-06-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:35	06/07/21
L2130480-07	PB26-07-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:45	06/07/21
L2130480-08	PB26-08-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:00	06/07/21
L2130480-09	PB26-09-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:15	06/07/21
L2130480-10	PB26-10-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:30	06/07/21
L2130480-11	PB26-11-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:50	06/07/21
L2130480-12	PB26-12-SS01	SOIL	PHILADELPHIA, PA	06/07/21 12:00	06/07/21
L2130480-13	PB26-13-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:10	06/07/21
L2130480-14	PB26-14-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:20	06/07/21
L2130480-15	PB26-15-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:30	06/07/21
L2130480-16	PB26-16-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:40	06/07/21
L2130480-17	PB27-01-SS01	SOIL	PHILADELPHIA, PA	06/07/21 14:40	06/07/21
L2130480-18	PB27-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 14:45	06/07/21
L2130480-19	FB-210607-1	WATER	PHILADELPHIA, PA	06/07/21 14:20	06/07/21
L2130480-20	FB-210607-2	WATER	PHILADELPHIA, PA	06/07/21 14:50	06/07/21
L2130480-21	TB	WATER	PHILADELPHIA, PA	06/07/21 00:00	06/07/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

July 01, 2021: The Volatile Organics analyte list has been amended on L2130480-17, -18, -19, -20 and -21.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2130480-17D: The internal standard (IS) response(s) for fluorobenzene (232%) and the surrogate recovery for dibromofluoromethane (54%) and 4-bromofluorobenzene (279%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias.

L2130480-17D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130480-18D: The internal standard (IS) response(s) for fluorobenzene (204%) and the surrogate recovery for dibromofluoromethane (64%) and 4-bromofluorobenzene (165%)were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, since the IS response was above

Case Narrative (continued)

method criteria, all associated compounds are considered to have a potentially low bias.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/01/21

ORGANICS

VOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-01	Date Collected:	06/07/21 09:35
Client ID:	PB26-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 17:47
Analyst: SMB
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.55	1.27	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-02	Date Collected:	06/07/21 09:45
Client ID:	PB26-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8015D

Analytical Date: 06/14/21 19:07

Analyst: SMB

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-03	Date Collected:	06/07/21 09:55
Client ID:	PB26-03-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 19:47
Analyst: SMB
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.38	1.19	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-04
Client ID: PB26-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:10
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 20:27
Analyst: SMB
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.49	1.24	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-05	Date Collected:	06/07/21 10:20
Client ID:	PB26-05-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 21:07
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.31	1.15	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-06	Date Collected:	06/07/21 10:35
Client ID:	PB26-06-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 21:47
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-07	Date Collected:	06/07/21 10:45
Client ID:	PB26-07-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 22:27
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-08
Client ID: PB26-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:00
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 01:07
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.29	1.15	1

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-09
Client ID: PB26-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 11:15
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 01:46
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.42	1.21	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-10	Date Collected:	06/07/21 11:30
Client ID:	PB26-10-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 02:26
Analyst: SMB
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-11	Date Collected:	06/07/21 11:50
Client ID:	PB26-11-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 03:06
Analyst: SMB
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-12	Date Collected:	06/07/21 12:00
Client ID:	PB26-12-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 17:13
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.43	1.22	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-13 Date Collected: 06/07/21 13:10
Client ID: PB26-13-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 17:53
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-14
Client ID: PB26-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 13:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 18:32
Analyst: SMB
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.48	1.24	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-15 Date Collected: 06/07/21 13:30
Client ID: PB26-15-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 19:12
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-16	Date Collected:	06/07/21 13:40
Client ID:	PB26-16-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 19:51
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17 D2	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/14/21 08:59
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	49.		mg/kg	3.8	0.38	25
Benzene	16.		mg/kg	0.94	0.31	25
1,2-Dichloroethane	ND		mg/kg	1.9	0.48	25
Toluene	89.		mg/kg	1.9	1.0	25
1,2-Dibromoethane	ND		mg/kg	0.94	0.55	25
Ethylbenzene	130		mg/kg	1.9	0.26	25
p/m-Xylene	550		mg/kg	3.8	1.0	25
o-Xylene	220		mg/kg	1.9	0.55	25
Xylenes, Total	770		mg/kg	1.9	0.55	25
Isopropylbenzene	33.		mg/kg	1.9	0.20	25
1,3,5-Trimethylbenzene	150		mg/kg	3.8	0.36	25
1,2,4-Trimethylbenzene	400		mg/kg	3.8	0.63	25
Naphthalene	98.		mg/kg	7.5	1.2	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**141**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17 D	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/12/21 14:25
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	31.		mg/kg	0.60	0.061	4
Benzene	9.0		mg/kg	0.15	0.050	4
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	4
Toluene	80.		mg/kg	0.30	0.16	4
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	4
Ethylbenzene	120	E	mg/kg	0.30	0.042	4
p/m-Xylene	460	E	mg/kg	0.60	0.17	4
o-Xylene	200	E	mg/kg	0.30	0.088	4
Isopropylbenzene	30.		mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	140	E	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	320	E	mg/kg	0.60	0.10	4
Naphthalene	91.	E	mg/kg	1.2	0.20	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**279**	Q	70-130
Dibromofluoromethane	**54**	Q	70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-18 D2	Date Collected:	06/07/21 14:45
Client ID:	PB27-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/14/21 08:33
Analyst: MV
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	120		mg/kg	15	1.5	100
Benzene	69.		mg/kg	3.8	1.3	100
1,2-Dichloroethane	ND		mg/kg	7.6	2.0	100
Toluene	160		mg/kg	7.6	4.2	100
1,2-Dibromoethane	ND		mg/kg	3.8	2.2	100
Ethylbenzene	250		mg/kg	7.6	1.1	100
p/m-Xylene	1000		mg/kg	15	4.3	100
o-Xylene	400		mg/kg	7.6	2.2	100
Xylenes, Total	1400		mg/kg	0.76	0.22	100
Isopropylbenzene	61.		mg/kg	7.6	0.83	100
1,3,5-Trimethylbenzene	200		mg/kg	15	1.5	100
1,2,4-Trimethylbenzene	530		mg/kg	15	2.6	100
Naphthalene	170		mg/kg	31	5.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-18 D	Date Collected:	06/07/21 14:45
Client ID:	PB27-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/12/21 14:51
Analyst: NLK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	94.		mg/kg	1.5	0.15	10
Benzene	49.		mg/kg	0.38	0.13	10
1,2-Dichloroethane	ND		mg/kg	0.76	0.20	10
Toluene	160		mg/kg	0.76	0.42	10
1,2-Dibromoethane	ND		mg/kg	0.38	0.22	10
Ethylbenzene	260	E	mg/kg	0.76	0.11	10
p/m-Xylene	970	E	mg/kg	1.5	0.43	10
o-Xylene	400		mg/kg	0.76	0.22	10
Isopropylbenzene	61.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	190		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	490	E	mg/kg	1.5	0.26	10
Naphthalene	140		mg/kg	3.1	0.50	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	**165**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/10/21 13:00
Analytical Date:	06/10/21 15:25		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8015D
Analytical Date: 06/15/21 22:43
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 03:26
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-20	Date Collected:	06/07/21 14:50
Client ID:	FB-210607-2	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/10/21 13:00
Analytical Date:	06/10/21 15:32		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-20	Date Collected:	06/07/21 14:50
Client ID:	FB-210607-2	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8015D
Analytical Date: 06/15/21 23:23
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-20	Date Collected:	06/07/21 14:50
Client ID:	FB-210607-2	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 03:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-21	Date Collected:	06/07/21 00:00
Client ID:	TB	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 04:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/10/21 14:23
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/10/21 13:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 19-20 Batch: WG1510242-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/14/21 14:29
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 01-11 Batch: WG1510337-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/14/21 07:41
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/12/21 10:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	103		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/15/21 19:22
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 19-20 Batch: WG1512410-1					
Ethyl Alcohol	ND		mg/l	2.00	1.88

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/15/21 22:01
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 19-21 Batch: WG1512883-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.27	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/16/21 13:55
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 12-16 Batch: WG1512927-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 19-20 Batch: WG1510242-2									
1,2-Dibromoethane	103		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 Batch: WG1510337-2 WG1510337-3								
Ethyl Alcohol	102		100		70-130	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-3 WG1511682-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	79		79		70-130	0		30
1,2-Dichloroethane	80		81		70-130	1		30
Toluene	80		80		70-130	0		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	86		84		70-130	2		30
o-Xylene	86		85		70-130	1		30
Isopropylbenzene	91		90		70-130	1		30
1,3,5-Trimethylbenzene	94		94		70-130	0		30
1,2,4-Trimethylbenzene	93		94		70-130	1		30
Naphthalene	91		100		70-130	9		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	104		102		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-8 WG1511682-9								
Methyl tert butyl ether	88		87		66-130	1		30
Benzene	82		82		70-130	0		30
1,2-Dichloroethane	71		71		70-130	0		30
Toluene	84		82		70-130	2		30
1,2-Dibromoethane	86		85		70-130	1		30
Ethylbenzene	88		87		70-130	1		30
p/m-Xylene	85		84		70-130	1		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	95		93		70-130	2		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30
Naphthalene	103		102		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		78		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 19-20 Batch: WG1512410-2 WG1512410-3								
Ethyl Alcohol	106		101		70-130	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 19-21 Batch: WG1512883-3 WG1512883-4								
Methyl tert butyl ether	82		82		63-130	0		20
Benzene	86		87		70-130	1		20
1,2-Dichloroethane	94		93		70-130	1		20
Toluene	95		96		70-130	1		20
Ethylbenzene	92		93		70-130	1		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	96		84		70-130	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		108		70-130
Toluene-d8	111		111		70-130
4-Bromofluorobenzene	121		120		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 Batch: WG1512927-2 WG1512927-3								
Ethyl Alcohol	99		102		70-130	3		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1510337-4 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 QC Batch ID: WG1512927-4 QC Sample: L2130480-16 Client ID: PB26-16-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	182		mg/kg	2.39	0.128	1	06/15/21 06:30	06/23/21 20:55	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-18	Date Collected:	06/07/21 14:45
Client ID:	PB27-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1580		mg/kg	2.49	0.133	1	06/15/21 06:30	06/23/21 21:00	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-19
Date Collected: 06/07/21 14:20
Client ID: FB-210607-1
Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:26	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20
Date Collected: 06/07/21 14:50
Client ID: FB-210607-2
Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:31	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 19-20 Batch: WG1510812-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17-18 Batch: WG1511040-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/15/21 06:30	06/21/21 18:04	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 19-20 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1511040-2 SRM Lot Number: D109-540								
Lead, Total	100		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 19-20 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-3 QC Sample: L2128477-41 Client ID: MS Sample												
Lead, Total	9.80	49.2	61.4	105		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-4 QC Sample: L2128477-41 Client ID: DUP Sample						
Lead, Total	9.80	13.4	mg/kg	**31**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-01
Client ID: PB26-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 09:35
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	76.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-02
Client ID: PB26-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:45
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	84.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-03
Client ID: PB26-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 09:55
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	80.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-04
Client ID: PB26-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 10:10
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	78.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-05
Client ID: PB26-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	82.9		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-06 Date Collected: 06/07/21 10:35
Client ID: PB26-06-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	82.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-07	Date Collected:	06/07/21 10:45
Client ID:	PB26-07-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.0		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-08 Date Collected: 06/07/21 11:00
Client ID: PB26-08-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-09	Date Collected:	06/07/21 11:15
Client ID:	PB26-09-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.5		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-10	Date Collected:	06/07/21 11:30
Client ID:	PB26-10-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	79.7		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-11
Client ID: PB26-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:50
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-12
Client ID: PB26-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 12:00
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.8		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-13	Date Collected:	06/07/21 13:10
Client ID:	PB26-13-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-14
Client ID: PB26-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	79.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130480
Project Number: 200.00135.005 | **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-15	Date Collected:	06/07/21 13:30
Client ID:	PB26-15-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.6		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-16 Date Collected: 06/07/21 13:40
Client ID: PB26-16-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-18
Date Collected: 06/07/21 14:45
Client ID: PB27-02-SS01
Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.6		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 17-18 QC Batch ID: WG1509027-1 QC Sample: L2129449-33 Client ID: DUP Sample						
Solids, Total	89.4	89.6	%	0		20
General Chemistry - Mansfield Lab Associated sample(s): 01-16 QC Batch ID: WG1509755-1 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Solids, Total	76.2	76.0	%	0		10

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2130480-01A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-02A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-03A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-04A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-05A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-06A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-07A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-08A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-09A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-10A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-11A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-12A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-13A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-14A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-15A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-16A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-17A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-17B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-18A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-18B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130480-18C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-18D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-18E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-19A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-19J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-19K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-20J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-21A	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)
L2130480-21B	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/4/21

ALPHA Job #: L2130440

Project Information

Project Name: PES Refinery - AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of ETHANOL

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A2-Alcohol (8015)	Sample Specific Comments	TOTAL # BOTTLES
30440-01	PB26-01-SS01	6/7	0935	S	TS	☑	Ethanol only	1
-02	PB26-02-SS01	↓	0945	↓	TS	☑	Ethanol only	1
-03	PB26-03-SS01	↓	0955	↓	TS	☑	Ethanol only	1
-04	PB26-04-SS01	↓	1010	↓	TS	☑	Ethanol only	1
-05	PB26-05-SS01	↓	1020	↓	TS	☑	Ethanol only	1
-06	PB26-06-SS01	↓	1035	↓	TS	☑	Ethanol only	1
-07	PB26-07-SS01	↓	1045	↓	TS	☑	Ethanol only	1
-08	PB26-08-SS01	↓	1100	↓	TS	☑	Ethanol only	1
-09	PB26-09-SS01	↓	1115	↓	TS	☑	Ethanol only	1
-10	PB26-10-SS01	↓	1130	↓	TS	☑	Ethanol only	1

Container Type: G
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 1614	[signature]	6/7/21 1614
[signature]	6/7/21 1712	[signature] AAL	6/7/21 1712
[signature] AAL	6/7/21	[signature] AAL	6/8/21 22:00
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/8/21

ALPHA Job #: L2130460

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of ETHANOL

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A2-Alcohol (8015)	Sample Specific Comments	TOTAL # BOTTLES
30460.11	PB26-11-5501	6/7	1150	S	TS	☑	Ethanol only	1
.12	PB26-12-5501	↓	1200	↓	TS	☑	Ethanol only	1
.13	PB26-13-5501	↓	1310	↓	TS	☑	Ethanol only	1
.14	PB26-14-5501	↓	1320	↓	TS	☑	Ethanol only	1
.15	PB26-15-5501	↓	1330	↓	TS	☑	Ethanol only	1
.16	PB26-16-5501	↓	1340	↓	TS	☑	Ethanol only	1
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	

	A2-Alcohol (8015)
Container Type	G
Preservative	A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 16:10	[signature]	6/7/21 16:10
[signature] AAL	6/7/21 1730	[signature] AAL	6/7/21 1730
[signature] AAL	6/7/21	[signature] AAL	6/7/21 2200
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF COUSTODY

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ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/8/21

ALPHA Job #: L2130458

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

* HCL RINSED FROM VIALS

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	PA-8260	~~PA-8270 SIM LL~~ TS	DISSOLVED METALS (LEAD)	8011	ETHANOL *						Sample Specific Comments	TOTAL # BOTTLES
30458-17	PB27-01-5501	6/7	1440	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-18	PB27-02-5501		1445	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	FB-210607-1		1420	W	TS	☐	☐	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐		89
-20	FB-210607-2		1450	W	TS	☐	☐	☑	☑	☑	☑	☑	☐	☐	☐	☐	☐		89
-21	TB			W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
				Container Type		G	G	-	-	-	-	-	-	-	-	-	-		
				Preservative		F	A	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 16:40	[signature]	6/7/21 16:40
[signature] AAL	6/7/21 17:30	[signature] AAL	6/7/21 17:30
[signature] AAL	6/7/21	[signature] AAL	6/7/21 22:00
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

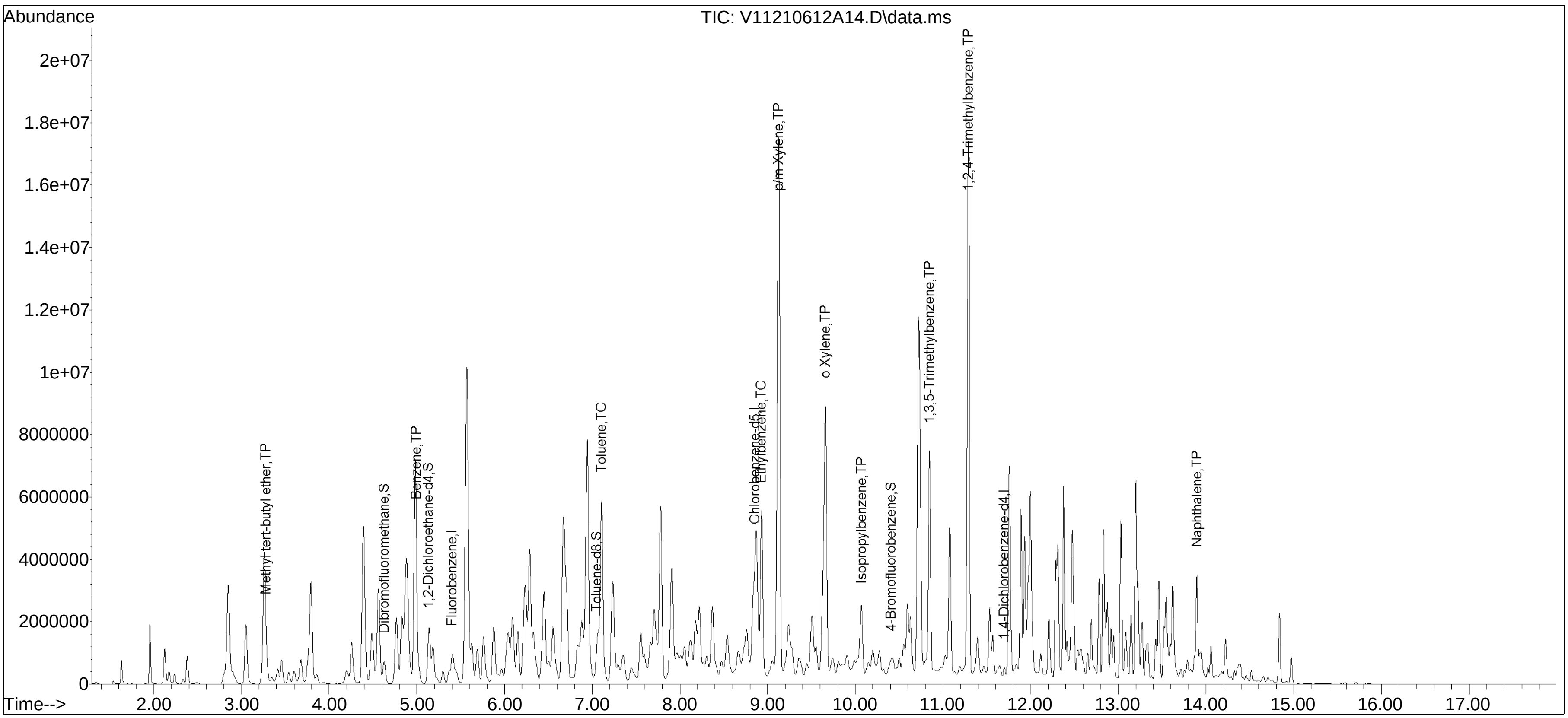
FORM NO: 01-01(I-NJ) (rev. 5-JAN-18)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A14.D
Acq On : 12 Jun 2021 02:25 pm
Operator : VOA111:NLK
Sample : L2130480-17D,31H,4.99,5,0.025,,A
Misc : WG1511682,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 13 14:32:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•

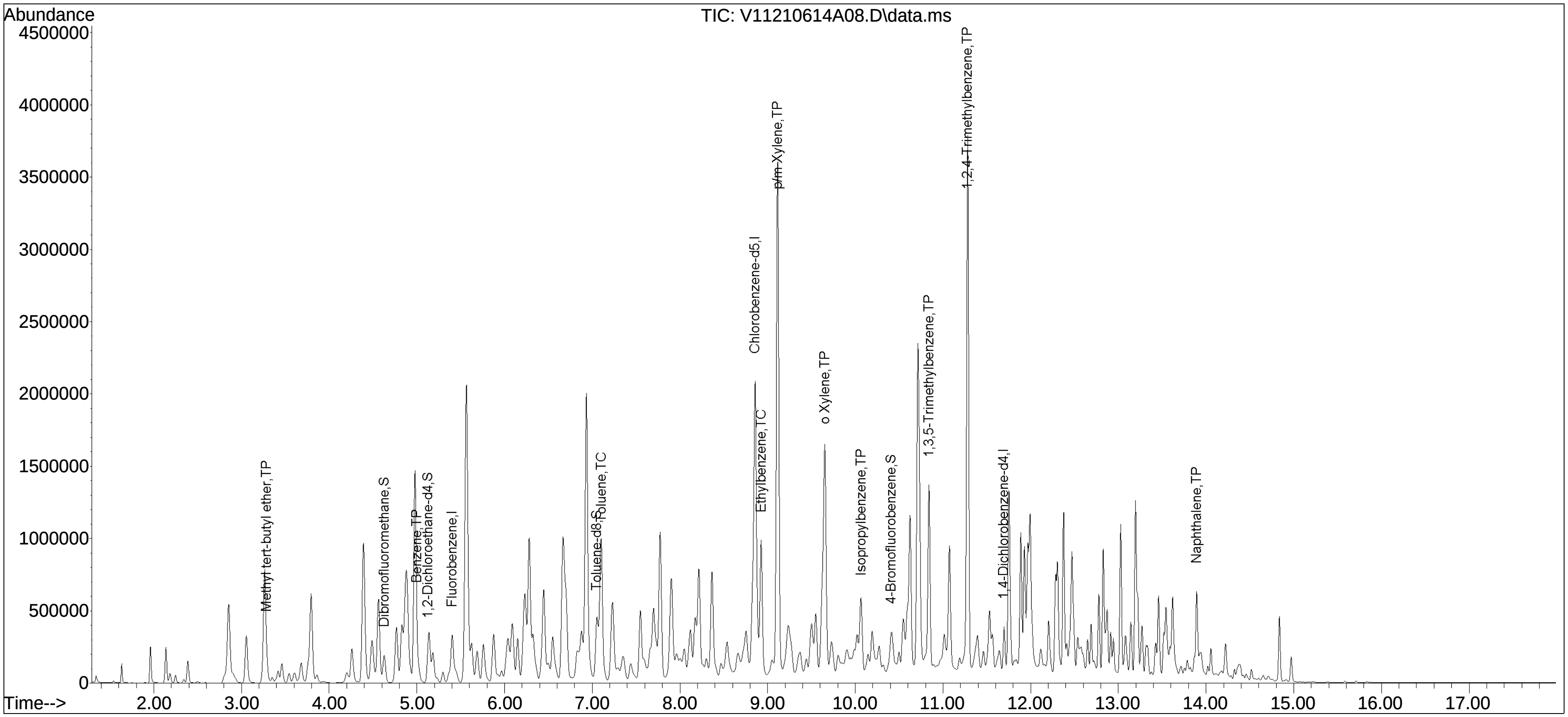


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210614A\
Data File : V11210614A08.D
Acq On    : 14 Jun 2021  08:59 am
Operator  : VOA111:MV
Sample    : L2130480-17D2,31H,4.99,5,0.004,,A
Misc      : WG1511682,ICAL18049
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Jun 14 12:39:53 2021
Quant Method : I:\VOLATILES\VOA111\2021\210614A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V11210614A01.D•
```

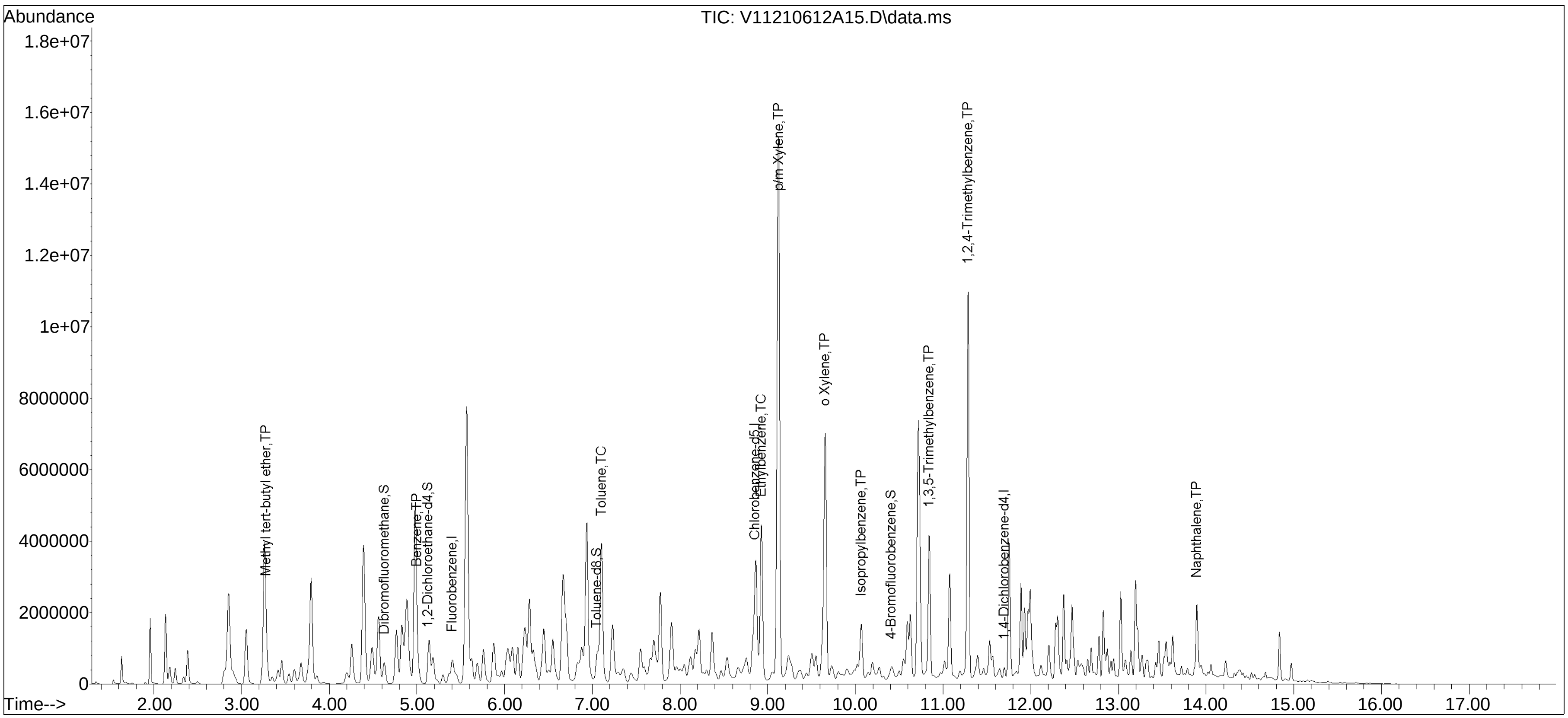


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A15.D
Acq On : 12 Jun 2021 02:51 pm
Operator : VOA111:NLK
Sample : L2130480-18D,31H,5.47,5,0.010,,A
Misc : WG1511682,ICAL18049
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 14:32:57 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•



ANALYTICAL REPORT

Lab Number:	L2130781
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-01	PB27-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:30	06/08/21
L2130781-02	PB27-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:45	06/08/21
L2130781-03	PB27-05-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:55	06/08/21
L2130781-04	PB27-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:10	06/08/21
L2130781-05	PB27-07-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:15	06/08/21
L2130781-06	PB27-08-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:40	06/08/21
L2130781-07	PB27-09-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:55	06/08/21
L2130781-08	PB27-10-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:05	06/08/21
L2130781-09	PB27-12-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:35	06/08/21
L2130781-10	PB27-13-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:50	06/08/21
L2130781-11	PB27-11-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:55	06/08/21
L2130781-12	PB27-14-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:25	06/08/21
L2130781-13	PB27-15-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:40	06/08/21
L2130781-14	PB27-16-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:50	06/08/21
L2130781-15	PB27-17-SS01	SOIL	PHILADELPHIA, PA	06/08/21 11:50	06/08/21
L2130781-16	DUP-3	SOIL	PHILADELPHIA, PA	06/08/21 07:50	06/08/21
L2130781-17	FB-210608-1	WATER	PHILADELPHIA, PA	06/08/21 12:00	06/08/21
L2130781-18	TB	WATER	PHILADELPHIA, PA	06/08/21 00:00	06/08/21
L2130781-19	PB28-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:20	06/08/21
L2130781-20	PB28-19-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:30	06/08/21
L2130781-21	PB28-02-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:55	06/08/21
L2130781-22	PB28-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:10	06/08/21
L2130781-23	PB28-01-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:35	06/08/21
L2130781-24	PB28-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:50	06/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-25	FB-210608-2	WATER	PHILADELPHIA, PA	06/08/21 14:00	06/08/21

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

July 06, 2021: This final report includes the results of all requested analyses.

July 01, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2130781-03D2: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (132%), toluene-d8 (145%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-05D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2130781-05D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (56%) due to interference with the Internal Standard.

L2130781-05D: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (145%), toluene-d8 (188%) and 4-bromofluorobenzene (172%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-06D: The surrogate recoveries were outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Case Narrative (continued)

L2130781-07D: The surrogate recovery was outside the acceptance criteria for 1,2-dichloroethane-d4 (134%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-08D: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (148%), toluene-d8 (156%) and 4-bromofluorobenzene (150%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-08D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (131%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-09: The surrogate recovery is outside the method acceptance criteria for ibromofluoromethane (51%) due to interference with the Internal Standard.
L2130781-09: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (145%) and 4-bromofluorobenzene (675%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-11D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (137%), toluene-d8 (159%) and 4-bromofluorobenzene (192%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2130781-13D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (139%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-13D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (67%), 1,2-dichloroethane-d4 (136%), toluene-d8 (175%) and 4-bromofluorobenzene (196%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-14: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (401%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-15: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (160%) and 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-19: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (62%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-23: The surrogate recovery was outside the acceptance criteria for 4-bromofluorobenzene (138%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Semivolatile Organics by SIM
L2130781-23D and -24D: The sample has elevated detection limits due to the dilution required by the sample

Case Narrative (continued)

matrix.

The WG1514497-1 Method Blank, associated with L2130781-19, -20D, -21D, -22, -23D, and -24D, has a concentration above the reporting limit for Naphthalene, Phenanthrene, Fluoranthene and Pyrene. The results of the original analysis are reported and are qualified with a "B" for any associated sample concentrations that are less than 10x the blank concentration for this analyte.

Total Metals

L2130781-09, -11 and -13: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-01 D2	Date Collected:	06/08/21 07:30
Client ID:	PB27-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 06/16/21 20:49

Analyst: JC

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	34.		mg/kg	5.5	0.55	40
Toluene	370		mg/kg	2.7	1.5	40
Ethylbenzene	200		mg/kg	2.7	0.38	40
p/m-Xylene	840		mg/kg	5.5	1.5	40
Xylenes, Total	1200		mg/kg	0.68	0.20	40
1,2,4-Trimethylbenzene	470		mg/kg	5.5	0.91	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01 D
Client ID: PB27-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:00
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	36.		mg/kg	1.4	0.14	10
Benzene	39.		mg/kg	0.34	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.68	0.18	10
Toluene	390	E	mg/kg	0.68	0.37	10
1,2-Dibromoethane	ND		mg/kg	0.34	0.20	10
Ethylbenzene	230	E	mg/kg	0.68	0.096	10
p/m-Xylene	820	E	mg/kg	1.4	0.38	10
o-Xylene	320		mg/kg	0.68	0.20	10
Isopropylbenzene	32.		mg/kg	0.68	0.074	10
1,3,5-Trimethylbenzene	180		mg/kg	1.4	0.13	10
1,2,4-Trimethylbenzene	450	E	mg/kg	1.4	0.23	10
Naphthalene	59.		mg/kg	2.7	0.44	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02
Client ID: PB27-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:45
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 07:48
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.012	1
Benzene	1.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.36		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.56		mg/kg	0.061	0.0086	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.13		mg/kg	0.061	0.018	1
Xylenes, Total	1.3		mg/kg	0.061	0.018	1
Isopropylbenzene	3.2		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	7.2		mg/kg	0.12	0.020	1
Naphthalene	3.3		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	87		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-03 D2	Date Collected:	06/08/21 07:55
Client ID:	PB27-05-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 01:27
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.9		mg/kg	1.8	0.18	5
Benzene	48.		mg/kg	0.46	0.15	5
1,2-Dichloroethane	ND		mg/kg	0.92	0.24	5
Toluene	25.		mg/kg	0.92	0.50	5
1,2-Dibromoethane	ND		mg/kg	0.46	0.27	5
Ethylbenzene	230		mg/kg	0.92	0.13	5
p/m-Xylene	850	E	mg/kg	1.8	0.52	5
o-Xylene	240		mg/kg	0.92	0.27	5
Isopropylbenzene	50.		mg/kg	0.92	0.10	5
1,3,5-Trimethylbenzene	150		mg/kg	1.8	0.18	5
1,2,4-Trimethylbenzene	400	E	mg/kg	1.8	0.31	5
Naphthalene	79.		mg/kg	3.7	0.60	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**132**	Q	70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03 D
Client ID: PB27-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:25
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	9.5		mg/kg	3.7	0.37	10
Benzene	60.		mg/kg	0.92	0.31	10
1,2-Dichloroethane	ND		mg/kg	1.8	0.48	10
Toluene	31.		mg/kg	1.8	1.0	10
1,2-Dibromoethane	ND		mg/kg	0.92	0.54	10
Ethylbenzene	250		mg/kg	1.8	0.26	10
p/m-Xylene	950		mg/kg	3.7	1.0	10
o-Xylene	260		mg/kg	1.8	0.54	10
Xylenes, Total	1200		mg/kg	0.92	0.27	10
Isopropylbenzene	56.		mg/kg	1.8	0.20	10
1,3,5-Trimethylbenzene	180		mg/kg	3.7	0.36	10
1,2,4-Trimethylbenzene	480		mg/kg	3.7	0.62	10
Naphthalene	93.		mg/kg	7.4	1.2	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	79		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-04 D2	Date Collected:	06/08/21 08:10
Client ID:	PB27-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 01:52
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	9.1		mg/kg	1.2	0.12	10
Benzene	39.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.16	10
Toluene	100		mg/kg	0.60	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	110		mg/kg	0.60	0.085	10
p/m-Xylene	420	E	mg/kg	1.2	0.34	10
o-Xylene	150		mg/kg	0.60	0.18	10
Isopropylbenzene	17.		mg/kg	0.60	0.066	10
1,3,5-Trimethylbenzene	98.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	250	E	mg/kg	1.2	0.20	10
Naphthalene	27.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	77		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-04 D	Date Collected:	06/08/21 08:10
Client ID:	PB27-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 11:35
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	11.		mg/kg	2.4	0.24	20
p/m-Xylene	500		mg/kg	2.4	0.68	20
Xylenes, Total	650		mg/kg	0.60	0.18	20
1,2,4-Trimethylbenzene	300		mg/kg	2.4	0.40	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-05	D	Date Collected:	06/08/21 08:15
Client ID:	PB27-07-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:32
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2.5
Benzene	3.0		mg/kg	0.066	0.022	2.5
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2.5
Toluene	1.0		mg/kg	0.13	0.071	2.5
1,2-Dibromoethane	ND		mg/kg	0.066	0.038	2.5
Ethylbenzene	1.5		mg/kg	0.13	0.018	2.5
p/m-Xylene	2.3		mg/kg	0.26	0.074	2.5
o-Xylene	0.36		mg/kg	0.13	0.038	2.5
Xylenes, Total	2.7		mg/kg	0.13	0.038	2.5
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2.5
1,3,5-Trimethylbenzene	1.2		mg/kg	0.26	0.025	2.5
1,2,4-Trimethylbenzene	0.59		mg/kg	0.26	0.044	2.5
Naphthalene	1.3		mg/kg	0.52	0.085	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**145**	Q	70-130
Toluene-d8	**188**	Q	70-130
4-Bromofluorobenzene	**172**	Q	70-130
Dibromofluoromethane	**56**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06 D2
Client ID: PB27-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:34
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.3	0.23	20
Benzene	30.		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	240		mg/kg	1.2	0.63	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	97.		mg/kg	1.2	0.16	20
p/m-Xylene	370		mg/kg	2.3	0.65	20
o-Xylene	130		mg/kg	1.2	0.34	20
Xylenes, Total	500		mg/kg	0.58	0.17	20
Isopropylbenzene	11.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	75.		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	200		mg/kg	2.3	0.39	20
Naphthalene	20.		mg/kg	4.7	0.76	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	85		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-06 D	Date Collected:	06/08/21 08:40
Client ID:	PB27-08-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:50
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.24	J	mg/kg	1.2	0.12	10
Benzene	26.		mg/kg	0.29	0.097	10
1,2-Dichloroethane	ND		mg/kg	0.58	0.15	10
Toluene	220	E	mg/kg	0.58	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.29	0.17	10
Ethylbenzene	92.		mg/kg	0.58	0.082	10
p/m-Xylene	340		mg/kg	1.2	0.33	10
o-Xylene	120		mg/kg	0.58	0.17	10
Xylenes, Total	460		mg/kg	0.58	0.17	10
Isopropylbenzene	10.		mg/kg	0.58	0.064	10
1,3,5-Trimethylbenzene	69.		mg/kg	1.2	0.11	10
1,2,4-Trimethylbenzene	170		mg/kg	1.2	0.19	10
Naphthalene	19.		mg/kg	2.3	0.38	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	**134**	Q	70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-07 D2	Date Collected:	06/08/21 08:55
Client ID:	PB27-09-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:09
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0	J	mg/kg	2.4	0.25	20
Benzene	32.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.32	20
Toluene	110		mg/kg	1.2	0.67	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	140		mg/kg	1.2	0.17	20
p/m-Xylene	440		mg/kg	2.4	0.69	20
o-Xylene	180		mg/kg	1.2	0.36	20
Xylenes, Total	620		mg/kg	0.61	0.18	20
Isopropylbenzene	30.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	91.		mg/kg	2.4	0.24	20
1,2,4-Trimethylbenzene	250		mg/kg	2.4	0.41	20
Naphthalene	53.		mg/kg	4.9	0.80	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-07 D	Date Collected:	06/08/21 08:55
Client ID:	PB27-09-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 13:16
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.91	J	mg/kg	1.2	0.12	10
Benzene	27.		mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	100		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	140		mg/kg	0.61	0.087	10
p/m-Xylene	410	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.61	0.18	10
Isopropylbenzene	28.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	85.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	230	E	mg/kg	1.2	0.20	10
Naphthalene	55.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**134**	Q	70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	73		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08 D2
Client ID: PB27-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 09:05
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 18:43
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.2		mg/kg	0.59	0.060	5
Benzene	17.		mg/kg	0.15	0.049	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.076	5
Toluene	67.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	38.		mg/kg	0.30	0.042	5
p/m-Xylene	120		mg/kg	0.59	0.17	5
o-Xylene	43.		mg/kg	0.30	0.086	5
Xylenes, Total	160		mg/kg	0.15	0.043	5
Isopropylbenzene	8.6		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	25.		mg/kg	0.59	0.057	5
1,2,4-Trimethylbenzene	64.		mg/kg	0.59	0.099	5
Naphthalene	13.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	**131**	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-08 D	Date Collected:	06/08/21 09:05
Client ID:	PB27-10-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:57
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	6.2		mg/kg	0.30	0.030	2.5
Benzene	13.		mg/kg	0.074	0.025	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	63.	E	mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	36.		mg/kg	0.15	0.021	2.5
p/m-Xylene	110	E	mg/kg	0.30	0.083	2.5
o-Xylene	41.		mg/kg	0.15	0.043	2.5
Isopropylbenzene	7.9		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	22.		mg/kg	0.30	0.029	2.5
1,2,4-Trimethylbenzene	57.	E	mg/kg	0.30	0.050	2.5
Naphthalene	13.		mg/kg	0.59	0.096	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**148**	Q	70-130
Toluene-d8	**156**	Q	70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-09	Date Collected:	06/08/21 09:35
Client ID:	PB27-12-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 03:33
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0015		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0054		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0011		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0050		mg/kg	0.0020	0.00056	1
o-Xylene	0.0062		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.011		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.25		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00036	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	0.00080	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**675**	Q	70-130
Dibromofluoromethane	**51**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10
Client ID: PB27-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 09:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:32
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0030		mg/kg	0.0020	0.00020	1
Benzene	0.043		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0024		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0014		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.016		mg/kg	0.0020	0.00056	1
o-Xylene	0.0020		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.018		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.036		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0023		mg/kg	0.0020	0.00033	1
Naphthalene	0.00079	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	74		70-130

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-11	D2	Date Collected:	06/08/21 09:55
Client ID:	PB27-11-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 02:17
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.1		mg/kg	0.61	0.061	5
Benzene	19.		mg/kg	0.15	0.051	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	37.		mg/kg	0.30	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.090	5
Ethylbenzene	54.		mg/kg	0.30	0.043	5
p/m-Xylene	190	E	mg/kg	0.61	0.17	5
o-Xylene	61.		mg/kg	0.30	0.089	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	51.		mg/kg	0.61	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.61	0.10	5
Naphthalene	43.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**137**	Q	70-130
Toluene-d8	**159**	Q	70-130
4-Bromofluorobenzene	**192**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11 D
Client ID: PB27-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 13:41
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.3		mg/kg	1.2	0.12	10
Benzene	23.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	38.		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	54.		mg/kg	0.61	0.086	10
p/m-Xylene	200		mg/kg	1.2	0.34	10
o-Xylene	63.		mg/kg	0.61	0.18	10
Xylenes, Total	260		mg/kg	0.30	0.089	10
Isopropylbenzene	17.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	56.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10
Naphthalene	49.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-12	Date Collected:	06/08/21 10:25
Client ID:	PB27-14-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:58
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0058		mg/kg	0.0019	0.00019	1
Benzene	0.052		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	0.0035		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.0037		mg/kg	0.00096	0.00014	1
p/m-Xylene	0.0065		mg/kg	0.0019	0.00054	1
o-Xylene	0.0030		mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0095		mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.016		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.0038		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.0083		mg/kg	0.0019	0.00032	1
Naphthalene	0.023		mg/kg	0.0038	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-13	D2	Date Collected:	06/08/21 10:40
Client ID:	PB27-15-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 02:43
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.56	J	mg/kg	0.60	0.060	5
Benzene	8.0		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	16.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	59.		mg/kg	0.30	0.042	5
p/m-Xylene	220	E	mg/kg	0.60	0.17	5
o-Xylene	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.60	0.10	5
Naphthalene	40.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**136**	Q	70-130
Toluene-d8	**175**	Q	70-130
4-Bromofluorobenzene	**196**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13 D
Client ID: PB27-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:06
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.66	J	mg/kg	1.2	0.12	10
Benzene	9.8		mg/kg	0.30	0.099	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.15	10
Toluene	16.		mg/kg	0.60	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	60.		mg/kg	0.60	0.084	10
p/m-Xylene	230		mg/kg	1.2	0.34	10
o-Xylene	78.		mg/kg	0.60	0.17	10
Xylenes, Total	310		mg/kg	0.30	0.087	10
Isopropylbenzene	18.		mg/kg	0.60	0.065	10
1,3,5-Trimethylbenzene	59.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	160		mg/kg	1.2	0.20	10
Naphthalene	45.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	78		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-14	Date Collected:	06/08/21 10:50
Client ID:	PB27-16-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 02:43
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.0017		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0021		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00030	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	0.0067		mg/kg	0.0023	0.00065	1
o-Xylene	0.0049		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.012		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.17		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0023	0.00039	1
Naphthalene	0.0062		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	**401**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-15	Date Collected:	06/08/21 11:50
Client ID:	PB27-17-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:04
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.024	J	mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.091		mg/kg	0.054	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.93		mg/kg	0.054	0.0076	1
p/m-Xylene	0.62		mg/kg	0.11	0.030	1
o-Xylene	0.13		mg/kg	0.054	0.016	1
Xylenes, Total	0.75		mg/kg	0.054	0.016	1
Isopropylbenzene	4.3		mg/kg	0.054	0.0058	1
1,3,5-Trimethylbenzene	6.8		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	2.5		mg/kg	0.11	0.018	1
Naphthalene	0.56		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	**160**	Q	70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	70		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16
Client ID: DUP-3
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 07:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:29
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.14	0.014	1
Benzene	0.64		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	0.27		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.021	1
Ethylbenzene	0.45		mg/kg	0.070	0.0099	1
p/m-Xylene	1.1		mg/kg	0.14	0.039	1
o-Xylene	0.11		mg/kg	0.070	0.020	1
Xylenes, Total	1.2		mg/kg	0.070	0.020	1
Isopropylbenzene	1.9		mg/kg	0.070	0.0077	1
1,3,5-Trimethylbenzene	0.30		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	6.4		mg/kg	0.14	0.024	1
Naphthalene	2.4		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
Client ID: FB-210608-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/15/21 13:38
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
Client ID: FB-210608-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 12:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:09
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	0.24	J	ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	111		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-18	Date Collected:	06/08/21 00:00
Client ID:	TB	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:33
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:54
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	0.30		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.18		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.44		mg/kg	0.063	0.0089	1
p/m-Xylene	6.4		mg/kg	0.12	0.035	1
o-Xylene	0.22		mg/kg	0.063	0.018	1
Xylenes, Total	6.6		mg/kg	0.063	0.018	1
Isopropylbenzene	2.3		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	19.	E	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	**62**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19 D
Client ID: PB28-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:14
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.063	5
Benzene	0.34		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.081	5
Toluene	0.18	J	mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.092	5
Ethylbenzene	0.41		mg/kg	0.31	0.044	5
p/m-Xylene	5.5		mg/kg	0.63	0.18	5
o-Xylene	0.23	J	mg/kg	0.31	0.092	5
Xylenes, Total	5.7	J	mg/kg	0.063	0.018	5
Isopropylbenzene	2.1		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	18.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	55.		mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	89		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-20 D2	Date Collected:	06/08/21 12:30
Client ID:	PB28-19-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 20:24
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	2000		mg/kg	14	7.5	200
p/m-Xylene	2300		mg/kg	27	7.7	200
Xylenes, Total	3300		mg/kg	3.4	1.0	200
1,2,4-Trimethylbenzene	870		mg/kg	27	4.6	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-20 D	Date Collected:	06/08/21 12:30
Client ID:	PB28-19-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/16/21 11:09
Analyst:	AJK
Percent Solids:	81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.9	0.69	50
Benzene	74.		mg/kg	1.7	0.57	50
1,2-Dichloroethane	ND		mg/kg	3.4	0.88	50
Toluene	2300	E	mg/kg	3.4	1.9	50
1,2-Dibromoethane	ND		mg/kg	1.7	1.0	50
Ethylbenzene	700		mg/kg	3.4	0.48	50
p/m-Xylene	2700	E	mg/kg	6.9	1.9	50
o-Xylene	990		mg/kg	3.4	1.0	50
Isopropylbenzene	41.		mg/kg	3.4	0.37	50
1,3,5-Trimethylbenzene	400		mg/kg	6.9	0.66	50
1,2,4-Trimethylbenzene	1200	E	mg/kg	6.9	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 10:44
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.13		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	ND		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	4.3		mg/kg	0.062	0.0087	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.062	0.018	1
Xylenes, Total	ND		mg/kg	0.062	0.018	1
Isopropylbenzene	1.7		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.061	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21 D
Client ID: PB28-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:59
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	48.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22 D2
Client ID: PB28-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 18:18
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	56.		mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-22 D	Date Collected:	06/08/21 13:10
Client ID:	PB28-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:22
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	2.5
Benzene	0.049	J	mg/kg	0.074	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	0.15		mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	2.3		mg/kg	0.15	0.021	2.5
p/m-Xylene	1.8		mg/kg	0.29	0.082	2.5
o-Xylene	0.15		mg/kg	0.15	0.043	2.5
Xylenes, Total	2.0		mg/kg	0.15	0.043	2.5
Isopropylbenzene	3.2		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.29	0.028	2.5
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.29	0.049	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 00:17
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.22		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.56		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	9.4		mg/kg	0.064	0.0091	1
p/m-Xylene	21.		mg/kg	0.13	0.036	1
o-Xylene	2.0		mg/kg	0.064	0.019	1
Xylenes, Total	23.		mg/kg	0.064	0.019	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	9.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23 D2	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 10:30
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.32	0.032	2.5
Benzene	0.20		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	0.50		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	8.2		mg/kg	0.16	0.023	2.5
p/m-Xylene	19.		mg/kg	0.32	0.090	2.5
o-Xylene	1.7		mg/kg	0.16	0.047	2.5
Xylenes, Total	21.		mg/kg	0.064	0.019	2.5
Isopropylbenzene	1.4		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	8.1		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	25.		mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-24	Date Collected:	06/08/21 13:50
Client ID:	PB28-04-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 00:42
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.18		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.83		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.9		mg/kg	0.058	0.0082	1
p/m-Xylene	14.		mg/kg	0.12	0.032	1
o-Xylene	4.9		mg/kg	0.058	0.017	1
Xylenes, Total	19.		mg/kg	0.058	0.017	1
Isopropylbenzene	0.71		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-25	Date Collected:	06/08/21 14:00
Client ID:	FB-210608-2	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 13:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
Client ID: FB-210608-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 14:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:56
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	115		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/15/21 12:36
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17,25 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/15/21 08:29
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-18,25 Batch: WG1512537-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10,12 Batch: WG1513067-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 17:53
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781

Project Number: 200.00135.005 | **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,14 Batch: WG1513390-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1513397-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23-24 Batch: WG1513397-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17,25 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-18,25 Batch: WG1512537-3 WG1512537-4								
Methyl tert butyl ether	72		73		63-130	1		20
Benzene	92		91		70-130	1		20
1,2-Dichloroethane	78		81		70-130	4		20
Toluene	92		91		70-130	1		20
Ethylbenzene	92		92		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		95		70-130	0		20
1,3,5-Trimethylbenzene	92		91		64-130	1		20
1,2,4-Trimethylbenzene	92		91		70-130	1		20
Naphthalene	82		88		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		92		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10,12 Batch: WG1513067-3 WG1513067-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-3 WG1513068-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-8 WG1513068-9								
Methyl tert butyl ether	103		107		66-130	4		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	101		106		70-130	5		30
Toluene	113		112		70-130	1		30
1,2-Dibromoethane	109		113		70-130	4		30
Ethylbenzene	114		114		70-130	0		30
p/m-Xylene	113		112		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	118		118		70-130	0		30
1,3,5-Trimethylbenzene	114		116		70-130	2		30
1,2,4-Trimethylbenzene	113		115		70-130	2		30
Naphthalene	97		102		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	95		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,14 Batch: WG1513390-3 WG1513390-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	84		84		70-130	0		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	84		85		70-130	1		30
Ethylbenzene	91		91		70-130	0		30
p/m-Xylene	84		84		70-130	0		30
o-Xylene	83		84		70-130	1		30
Isopropylbenzene	94		93		70-130	1		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	92		93		70-130	1		30
Naphthalene	89		93		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23-24 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1513397-8 WG1513397-9								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130

SEMIVOLATILES

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19
Client ID: PB28-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/21/21 13:18
Analyst: DV
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.14		mg/kg	0.0082	0.0015	1
Fluorene	0.24		mg/kg	0.0082	0.00098	1
Phenanthrene	0.31		mg/kg	0.0082	0.00070	1
Anthracene	0.034		mg/kg	0.0082	0.00066	1
Pyrene	0.030	B	mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0084		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0028	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0019	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0013	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20 D
Client ID: PB28-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 16:51
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.9		mg/kg	0.080	0.014	10
Fluorene	0.054	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	JB	mg/kg	0.080	0.0068	10
Anthracene	0.0076	J	mg/kg	0.080	0.0064	10
Pyrene	0.015	JB	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	ND		mg/kg	0.080	0.0076	10
Chrysene	ND		mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	ND		mg/kg	0.080	0.0076	10
Benzo(a)pyrene	ND		mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	96		30-120
4-Terphenyl-d14	93		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21 D	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/22/21 17:07		
Analyst:	DV		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.4		mg/kg	0.083	0.015	10
Fluorene	0.10		mg/kg	0.083	0.010	10
Phenanthrene	0.14		mg/kg	0.083	0.0070	10
Anthracene	0.030	J	mg/kg	0.083	0.0066	10
Pyrene	0.027	JB	mg/kg	0.083	0.0058	10
Benzo(a)anthracene	0.010	J	mg/kg	0.083	0.0079	10
Chrysene	0.0070	J	mg/kg	0.083	0.0062	10
Benzo(b)fluoranthene	ND		mg/kg	0.083	0.0079	10
Benzo(a)pyrene	ND		mg/kg	0.083	0.010	10
Benzo(ghi)perylene	ND		mg/kg	0.083	0.0070	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	90		18-120

Project Name: PES REFINERY - AST CLOSURE　　**Lab Number:** L2130781

Project Number: 200.00135.005　　**Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-22	Date Collected:	06/08/21 13:10
Client ID:	PB28-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/21/21 14:08		
Analyst:	DV		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.42		mg/kg	0.0081	0.0015	1
Fluorene	0.056		mg/kg	0.0081	0.00098	1
Phenanthrene	0.11	B	mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.014	B	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0023	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0015	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0014	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23 D	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/22/21 17:23		
Analyst:	DV		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.040	0.0072	5
Fluorene	0.13		mg/kg	0.040	0.0048	5
Phenanthrene	0.20		mg/kg	0.040	0.0034	5
Anthracene	0.029	J	mg/kg	0.040	0.0032	5
Pyrene	0.0086	JB	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.040	0.0038	5
Chrysene	ND		mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	93		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24 D
Client ID: PB28-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 17:40
Analyst: DV
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.041	0.0073	5
Fluorene	0.024	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.033	JB	mg/kg	0.041	0.0035	5
Anthracene	0.0051	J	mg/kg	0.041	0.0033	5
Pyrene	ND		mg/kg	0.041	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	76		18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-25	Date Collected:	06/08/21 14:00
Client ID:	FB-210608-2	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/13/21 12:41
Analytical Date:	06/14/21 16:53		
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.04	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	81		41-149

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	06/14/21 16:33	Extraction Date:	06/13/21 08:08
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25 Batch: WG1511442-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	75		15-120
2,4,6-Tribromophenol	68		10-120
4-Terphenyl-d14	87		41-149

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 15:29
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 19-24 Batch: WG1514497-1					
Naphthalene	0.0075		mg/kg	0.0066	0.0012
Fluorene	0.0019	J	mg/kg	0.0066	0.00079
Phenanthrene	0.013		mg/kg	0.0066	0.00056
Anthracene	0.0038	J	mg/kg	0.0066	0.00053
Pyrene	0.014		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.0046	J	mg/kg	0.0066	0.00063
Chrysene	0.0034	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0021	J	mg/kg	0.0066	0.00063
Benzo(a)pyrene	0.0015	J	mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.00066	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	93		25-120
Phenol-d6	94		10-120
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	82		30-120
2,4,6-Tribromophenol	108		10-136
4-Terphenyl-d14	84		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25 Batch: WG1511442-2 WG1511442-3								
Naphthalene	92		80		40-140	14		40
Fluorene	100		94		40-140	6		40
Phenanthrene	96		92		40-140	4		40
Anthracene	102		98		40-140	4		40
Pyrene	101		100		26-127	1		40
Benzo(a)anthracene	99		100		40-140	1		40
Chrysene	101		100		40-140	1		40
Benzo(b)fluoranthene	106		100		40-140	6		40
Benzo(a)pyrene	105		103		40-140	2		40
Benzo(ghi)perylene	114		111		40-140	3		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	85		72		21-120
Phenol-d6	70		59		10-120
Nitrobenzene-d5	97		82		23-120
2-Fluorobiphenyl	87		80		15-120
2,4,6-Tribromophenol	**137**	Q	**147**	Q	10-120
4-Terphenyl-d14	102		102		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 19-24 Batch: WG1514497-2 WG1514497-3								
Naphthalene	80		76		40-140	5		50
Fluorene	85		83		40-140	2		50
Phenanthrene	84		82		40-140	2		50
Anthracene	91		89		40-140	2		50
Pyrene	93		90		35-142	3		50
Benzo(a)anthracene	96		93		40-140	3		50
Chrysene	84		84		40-140	0		50
Benzo(b)fluoranthene	93		95		40-140	2		50
Benzo(a)pyrene	98		96		40-140	2		50
Benzo(ghi)perylene	90		87		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	91		87		23-120
2-Fluorobiphenyl	73		71		30-120
4-Terphenyl-d14	74		72		18-120

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-01	Date Collected:	06/08/21 07:30
Client ID:	PB27-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	38.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 18:49	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02

Client ID: PB27-04-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:45

Date Received: 06/08/21

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	392		mg/kg	2.32	0.124	1	06/25/21 09:34	07/02/21 18:37	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03
Client ID: PB27-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 07:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.0		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 18:41	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781

Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04 | Date Collected: 06/08/21 08:10

Client ID: PB27-06-SS01 | Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	22.8		mg/kg	2.40	0.129	1	06/25/21 09:34	07/02/21 18:45	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-05	Date Collected:	06/08/21 08:15
Client ID:	PB27-07-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	224		mg/kg	2.41	0.129	1	06/25/21 09:34	07/02/21 19:19	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-06	Date Collected:	06/08/21 08:40
Client ID:	PB27-08-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	32.9		mg/kg	2.25	0.120	1	06/25/21 09:34	07/02/21 19:23	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-07	Date Collected:	06/08/21 08:55
Client ID:	PB27-09-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.3		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 19:28	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08 Date Collected: 06/08/21 09:05
Client ID: PB27-10-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 19:32	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE   **Lab Number:** L2130781
Project Number: 200.00135.005   **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09   Date Collected: 06/08/21 09:35
Client ID: PB27-12-SS01   Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA   Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	112		mg/kg	11.9	0.636	5	06/25/21 09:34	07/03/21 13:12	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-10	Date Collected:	06/08/21 09:50
Client ID:	PB27-13-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	215		mg/kg	2.27	0.122	1	06/25/21 09:34	07/02/21 19:40	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11
Client ID: PB27-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 09:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.7		mg/kg	11.7	0.630	5	06/25/21 09:34	07/03/21 13:17	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-12	Date Collected:	06/08/21 10:25
Client ID:	PB27-14-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.0		mg/kg	2.36	0.126	1	06/25/21 09:34	07/02/21 19:49	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-13	Date Collected:	06/08/21 10:40
Client ID:	PB27-15-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	55.8		mg/kg	12.1	0.651	5	06/25/21 09:34	07/03/21 13:21	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14 Date Collected: 06/08/21 10:50

Client ID: PB27-16-SS01 Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	120		mg/kg	2.47	0.133	1	06/25/21 09:34	07/02/21 19:57	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15 Date Collected: 06/08/21 11:50

Client ID: PB27-17-SS01 Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	20.7		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 20:10	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16
Date Collected: 06/08/21 07:50
Client ID: DUP-3
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	101		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 20:14	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-17	Date Collected:	06/08/21 12:00
Client ID:	FB-210608-1	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:36	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.45		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:19	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20
Date Collected: 06/08/21 12:30
Client ID: PB28-19-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.29		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:23	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.6		mg/kg	2.43	0.130	1	06/25/21 09:34	07/02/21 20:27	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-22	Date Collected:	06/08/21 13:10
Client ID:	PB28-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.65		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:32	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.54		mg/kg	2.41	0.129	1	06/16/21 11:00	06/22/21 14:58	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24
Date Collected: 06/08/21 13:50
Client ID: PB28-04-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.66		mg/kg	2.42	0.130	1	06/16/21 11:00	06/22/21 23:08	EPA 3050B	1,6010D	BV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
Client ID: FB-210608-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 14:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:41	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17,25 Batch: WG1510812-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,19-22 Batch: WG1512398-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/16/21 20:57	06/23/21 22:59	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1512399-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/16/21 11:00	06/22/21 14:33	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,19-22 Batch: WG1516839-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/25/21 09:34	07/02/21 18:28	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17,25 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512399-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 Batch: WG1516839-2 SRM Lot Number: D109-540								
Lead, Total	96		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17,25 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1512398-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	ND	51	83.4	80		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-3 QC Sample: L2130781-23 Client ID: PB28-01-SS01												
Lead, Total	6.54	48.2	44.8	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	38.8	50.9	83.1	87		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-4 QC Sample: L2130781-23 Client ID: PB28-01-SS01						
Lead, Total	6.54	6.59	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-4 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Lead, Total	38.8	39.9	mg/kg	3		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01
Client ID: PB27-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02
Date Collected: 06/08/21 07:45
Client ID: PB27-04-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03

Date Collected: 06/08/21 07:55

Client ID: PB27-05-SS01

Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04
Client ID: PB27-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 08:10
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-05	Date Collected:	06/08/21 08:15
Client ID:	PB27-07-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06
Client ID: PB27-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07 Date Collected: 06/08/21 08:55
Client ID: PB27-09-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-08	Date Collected:	06/08/21 09:05
Client ID:	PB27-10-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09
Client ID: PB27-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 09:35
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10 Date Collected: 06/08/21 09:50
Client ID: PB27-13-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11
Client ID: PB27-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-12	Date Collected:	06/08/21 10:25
Client ID:	PB27-14-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13
Client ID: PB27-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14
Client ID: PB27-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 10:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15
Date Collected: 06/08/21 11:50
Client ID: PB27-17-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-16	Date Collected:	06/08/21 07:50
Client ID:	DUP-3	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19
Date Collected: 06/08/21 12:20
Client ID: PB28-06-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20
Client ID: PB28-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21
Date Collected: 06/08/21 12:55
Client ID: PB28-02-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22

Client ID: PB28-03-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10

Date Received: 06/08/21

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24
Date Collected: 06/08/21 13:50
Client ID: PB28-04-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16,19-20 QC Batch ID: WG1509649-1 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Solids, Total	79.9	80.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24 QC Batch ID: WG1509653-1 QC Sample: L2129334-01 Client ID: DUP Sample						
Solids, Total	90.8	91.5	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-01A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-01B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-02A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-02B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-03A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-03B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-03E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-04A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-04B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-05A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-05B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-06A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-06B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-07A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-07B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-08A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-08B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-09A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-09B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-10A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-10B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-11A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-11B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-12A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-12B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-13A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-13B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-14A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-14B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-15A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-15B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-16A	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16B	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-16C	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-16E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-17A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17F	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)
L2130781-18A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-18B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-19A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-19B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-19E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-19F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-20A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-20B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-20E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-20F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-21A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-21B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-21E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-21F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-22A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-22B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-22E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-22F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-23A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-23B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-23E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-23F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-24A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-24B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-24E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-24F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-25A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25F	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25G	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25H	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:07062109:36

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
30781-01	PB27-03-SS01	6/9	0730	S	TS	☑	☑		5
-02	PB27-04-SS01		0745		TS	☑	☑		
-03	PB27-05-SS01		0755		TS	☑	☑		
-04	PB27-06-SS01		0810		TS	☑	☑		
-05	PB27-07-SS01		0815		TS	☑	☑		
-06	PB27-08-SS01		0840		TS	☑	☑		
-07	PB27-09-SS01		0855		TS	☑	☑		
-08	PB27-10-SS01		0905		TS	☑	☑		
-09	PB27-12-SS01		0935		TS	☑	☑		
-10	PB27-13-SS01		0950		TS	☑	☑		
	Container Type					G	G		
	Preservative					F	A		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/8	[signature]	6/8/21 1534
[signature] /AAL	6/8/21 1704	[signature] AAL	6/8/21 1800
[signature] AAL	6-8-21 2030	[signature] AAL	6/8/21 21:30
[signature] AAL	6/9/21 01:00	[signature]	6/9/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HC) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	PA-8260 (SHORTLIST 1-2)	DISSOLVED METALS (LEAD)	8011								Sample Specific Comments	TOTAL # BOTTLES
30781 -11	PB27-11 -5501	6/8	0955	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB27-14 -5501		1025		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB27-15 -5501		1040		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB27-16 -5501		1050		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB27-17 -5501		1150		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	DUP-3		7:50		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	FB-210608-1		12:00		TS	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐		8
-18	TB				TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	-	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] / Rec	6/8	[signature]	6/8/21 1534
[signature]	6/8/21 1739	[signature]	6/8 /Rec
[signature] AAL	6/8/21 2030	[signature] AAL	6/8/21 21:30
[signature] AAL	6/9/21 01:00	[signature]	6/9/21 01:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF COUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	PA-8260 (5 Analyst 1-5)	Dissolved Metals (Lead)	8011	PA-8270						Sample Specific Comments	TOTAL # BOTTLES
30781 -19	PB28-06-SS01	6/8	1220	S	TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-20	PB28-05-SS01		1230		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-21	PB28-02-SS01		1255		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-22	PB28-03-SS01		1310		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	PB28-01-SS01		1335		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-24	PB28-04-SS01		1350		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-25	FB-210608-2		1400		TS	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐		8
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/8	[signature]	6/8/21 1534
[signature] 180	6/8/21 1734	[signature]	6-8 1800
[signature]	6-8-21 23:?	[signature] AAL	6/8/21 2130
[signature] AAC	6/9/21 01:00	[signature]	6/9/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

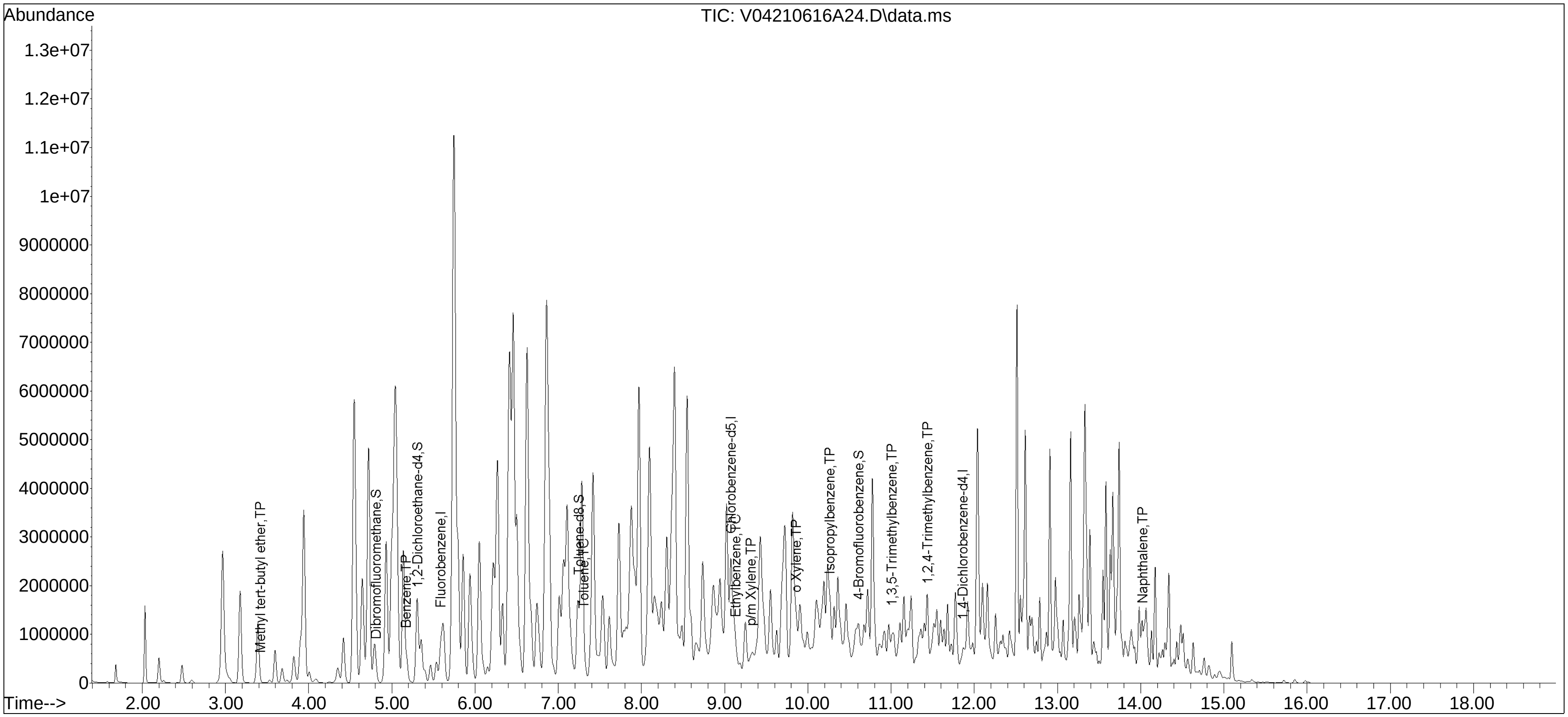
FORM NO: 01-01(I)(AU) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A24.D
Acq On : 16 Jun 2021 2:32 pm
Operator : VOA104:AJK
Sample : L2130781-05D,31H,7.35,5,0.040,,A
Misc : WG1513068,ICAL18000
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 16 16:34:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

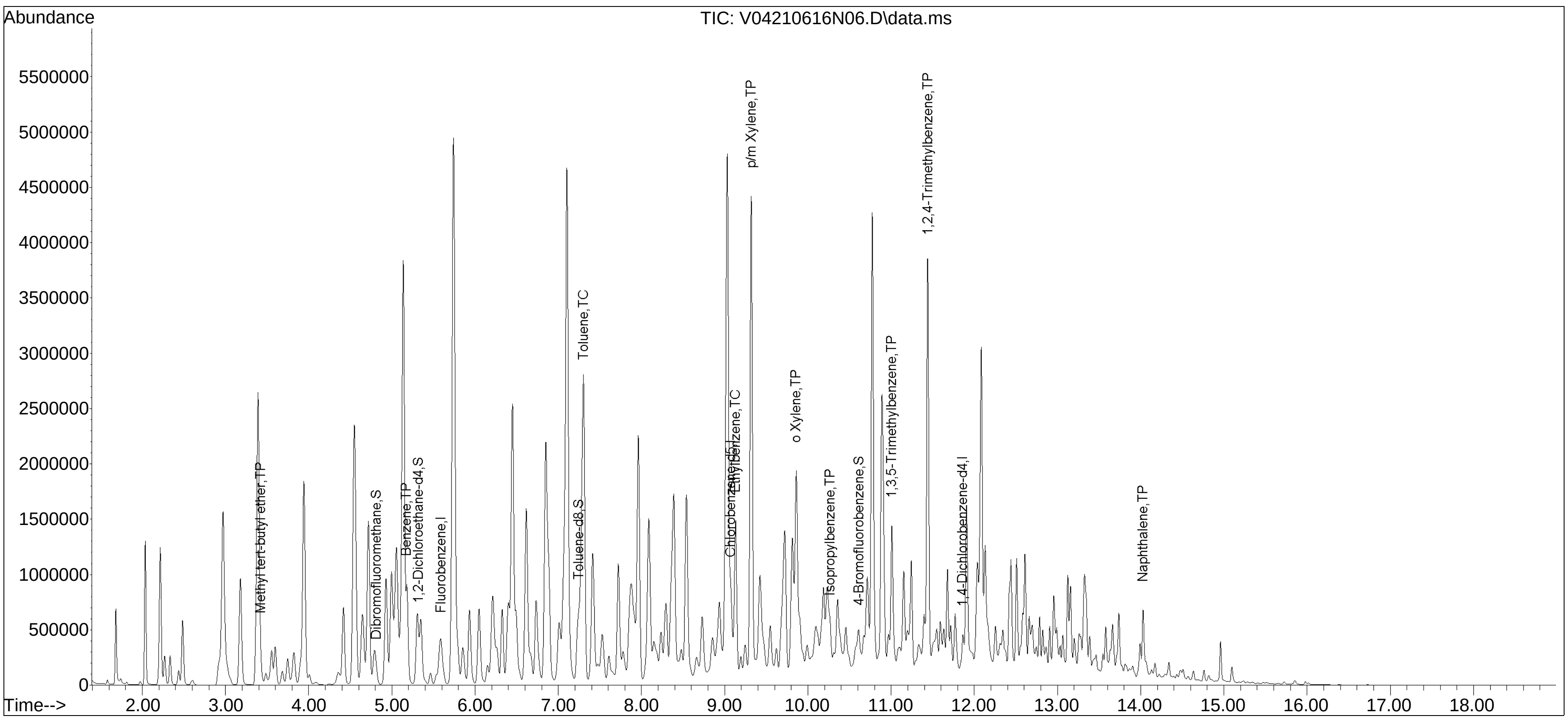


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616N\
Data File : V04210616N06.D
Acq On : 16 Jun 2021 6:43 pm
Operator : VOA104:JC
Sample : L2130781-08D2,31H,6.41,5,0.020,,A
Misc : WG1513068,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 17 09:41:59 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616N\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V04210616N01.D•

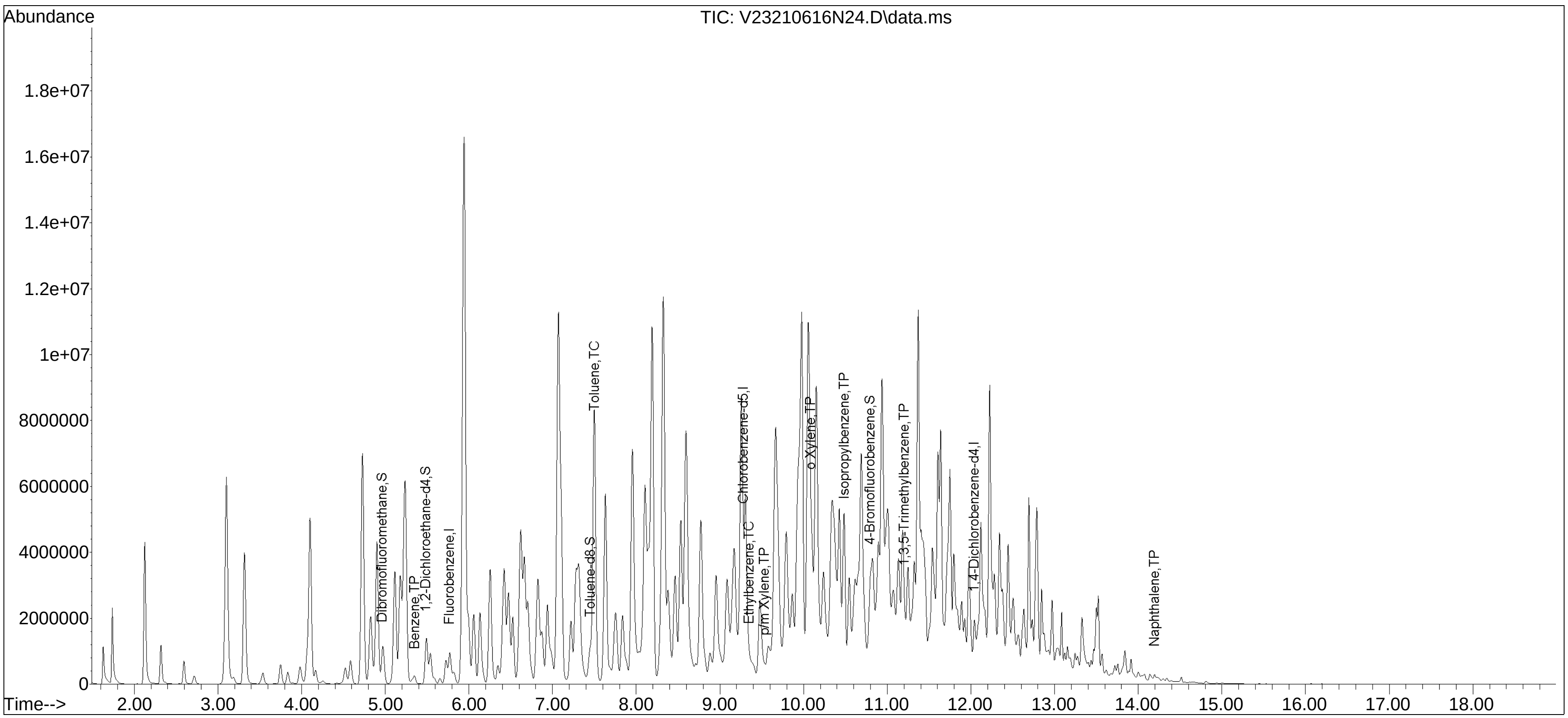


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N24.D
Acq On   : 17 Jun 2021 03:33 am
Operator : VOA123:JC
Sample   : L2130781-09,31,6.14,5,,B
Misc   : WG1513390,ICAL18048
ALS Vial : 24   Sample Multiplier: 1

Quant Time: Jun 17 07:35:06 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•

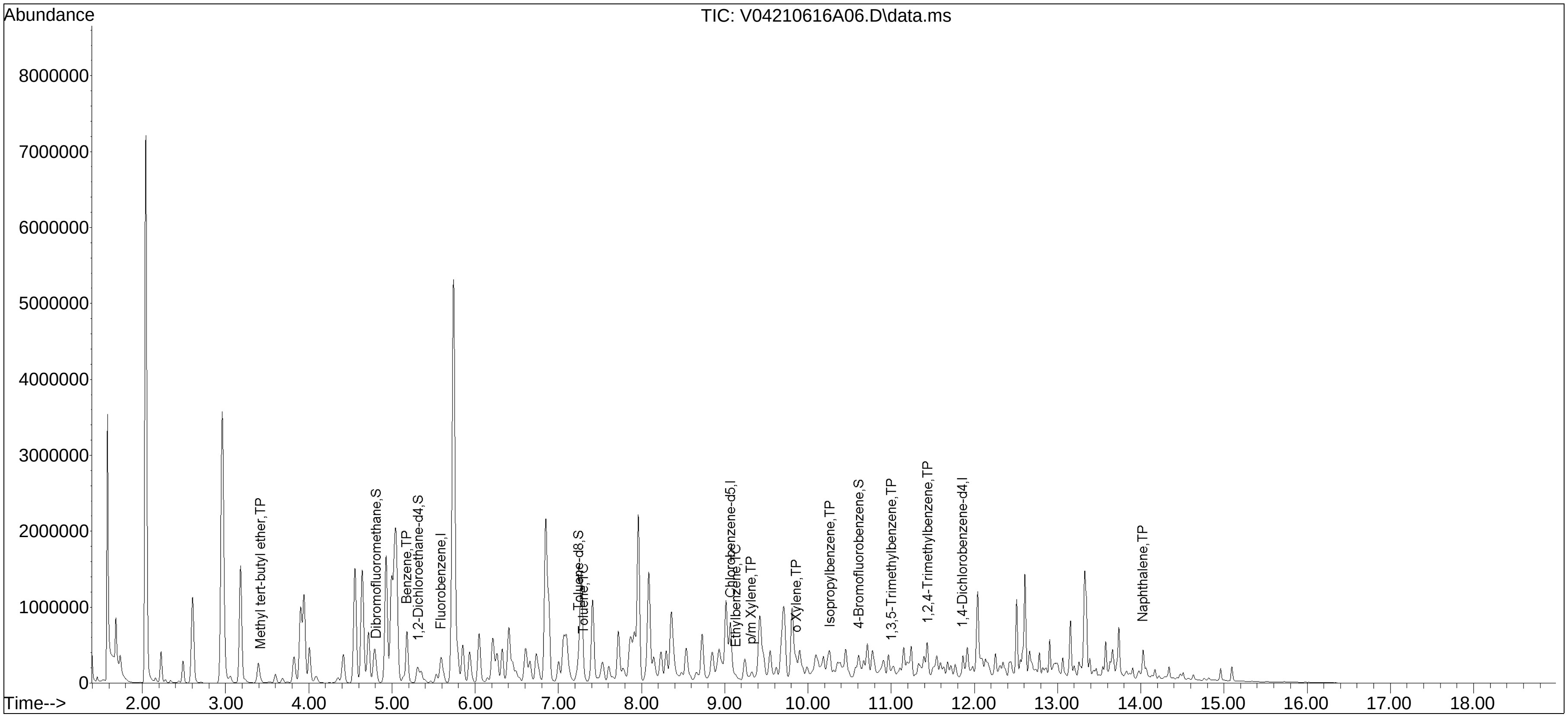


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A06.D
Acq On : 16 Jun 2021 6:58 am
Operator : VOA104:MV
Sample : L2130781-12,31,6.35,5,,B
Misc : WG1513067,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 16 07:52:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A23.D
Acq On    : 16 Jun 2021   2:06 pm
Operator  : VOA104:AJK
Sample    : L2130781-13D,31H,6.21,5,0.010,,A
Misc      : WG1513068,ICAL18000
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jun 16 16:32:40 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•
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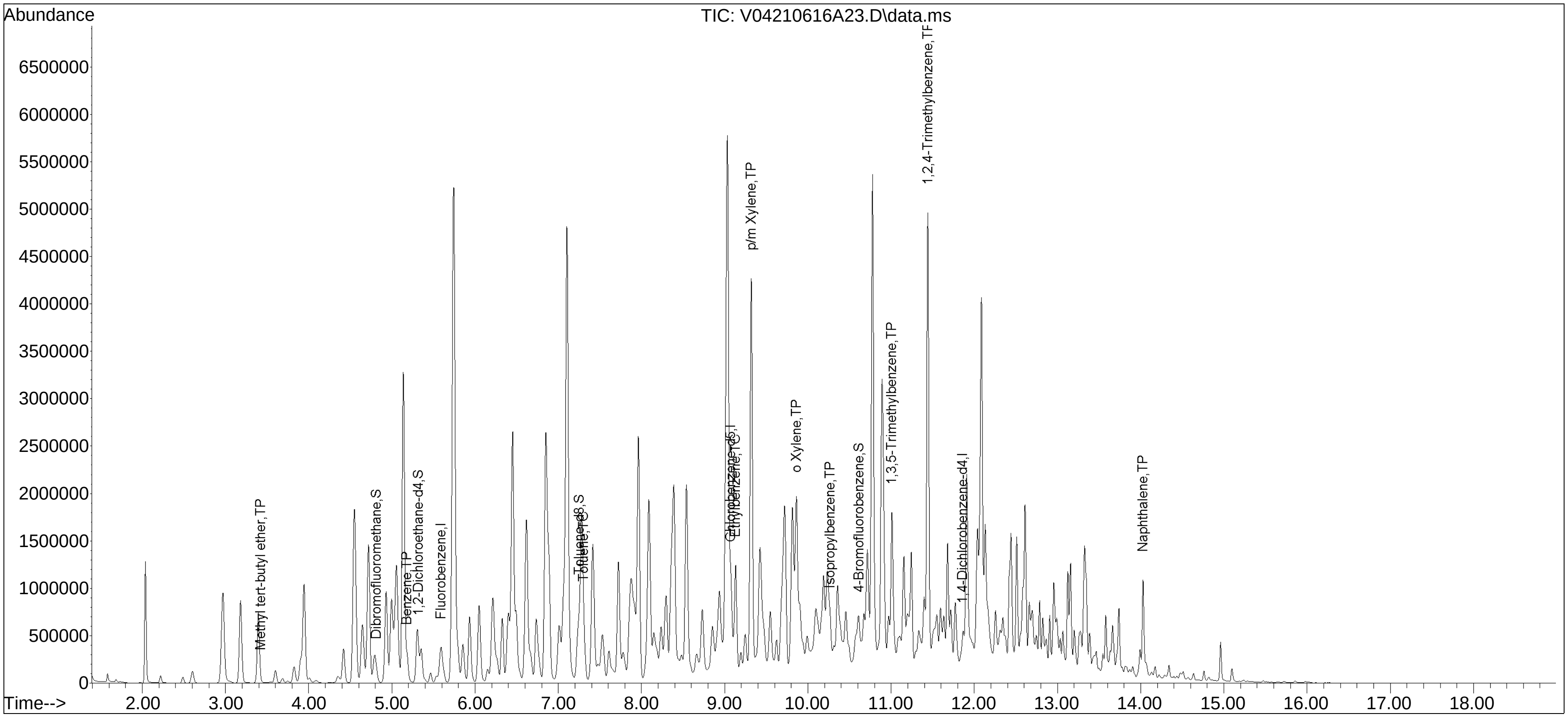
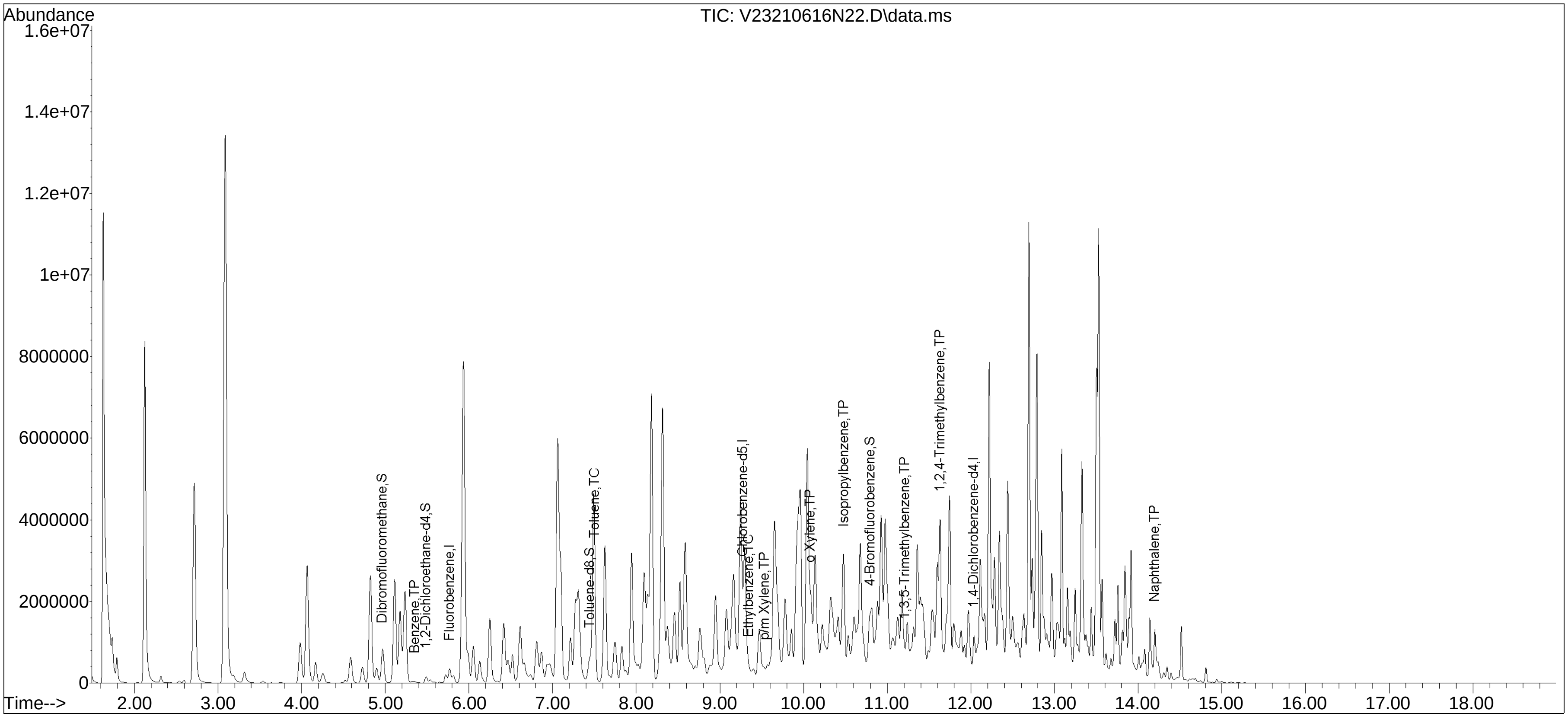


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N22.D
Acq On : 17 Jun 2021 02:43 am
Operator : VOA123:JC
Sample : L2130781-14,31,5.46,5,,B
Misc : WG1513390,ICAL18048
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 17 07:34:35 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A11.D
Acq On    : 16 Jun 2021   9:04 am
Operator  : VOA104:AJK
Sample    : L2130781-15,31H,7.35,5,0.100,,A
Misc      : WG1513068,ICAL18000
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Jun 16 16:10:28 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•
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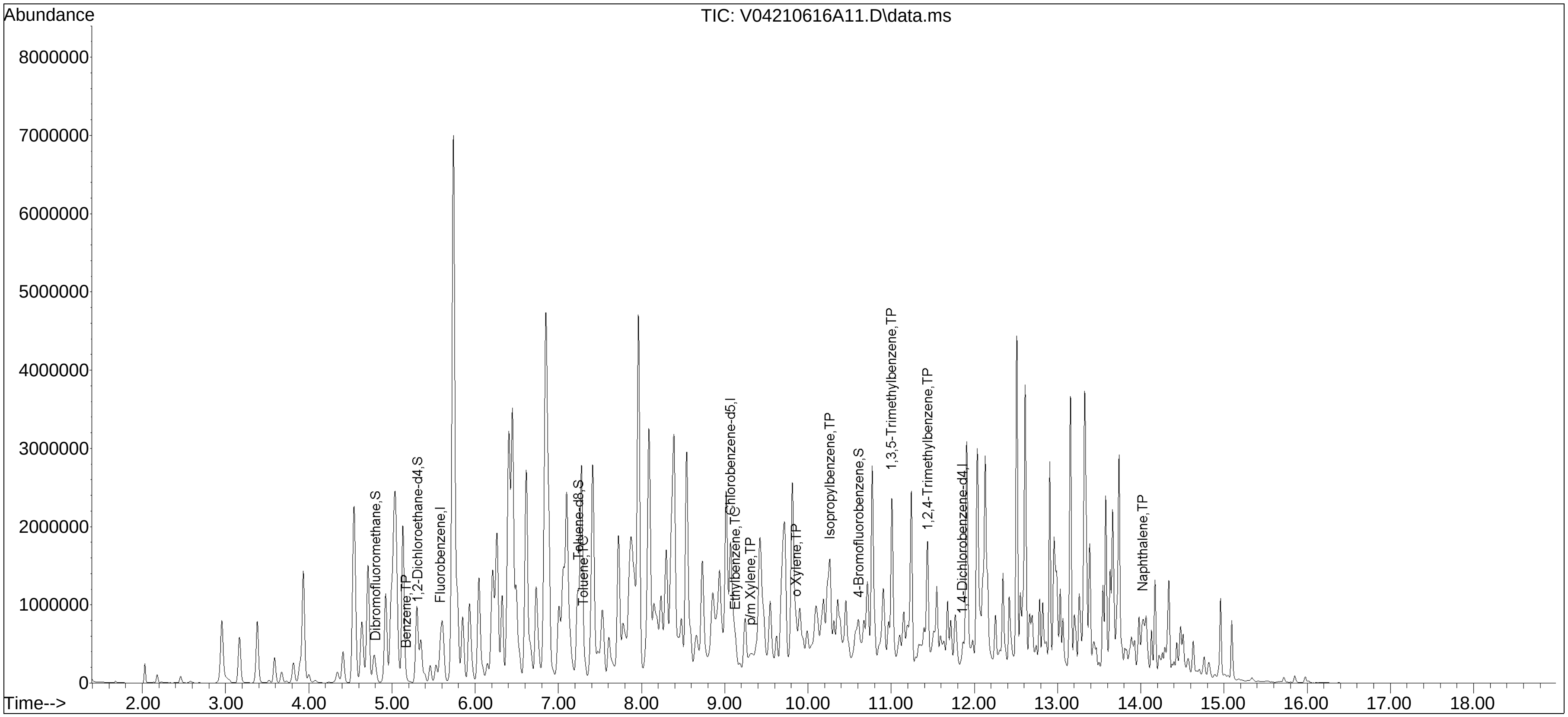

ANALYTICAL REPORT

Lab Number:	L2131108
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/08/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131108-01	PB28-16-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:00	06/09/21
L2131108-02	PB28-15-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:15	06/09/21
L2131108-03	PB28-12-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:30	06/09/21
L2131108-04	PB28-11-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:55	06/09/21
L2131108-05	PB28-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:05	06/09/21
L2131108-06	PB28-20-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:25	06/09/21
L2131108-07	PB28-21-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:40	06/09/21
L2131108-08	PB28-17-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:20	06/09/21
L2131108-09	PB28-18-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:40	06/09/21
L2131108-10	PB28-22-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:55	06/09/21
L2131108-11	PB29-01-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:10	06/09/21
L2131108-12	PB29-02-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:25	06/09/21
L2131108-13	PB29-03-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:45	06/09/21
L2131108-14	PB29-04-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:50	06/09/21
L2131108-15	PB29-05-SS01	SOIL	PHILADELPHIA, PA	06/09/21 12:50	06/09/21
L2131108-16	PB29-06-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:00	06/09/21
L2131108-17	PB29-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:15	06/09/21
L2131108-18	PB29-08-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:20	06/09/21
L2131108-19	PB29-09-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:35	06/09/21
L2131108-20	PB29-10-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:55	06/09/21
L2131108-21	FB-210609-1	WATER	PHILADELPHIA, PA	06/09/21 12:00	06/09/21
L2131108-22	FB-210609-2	WATER	PHILADELPHIA, PA	06/09/21 14:00	06/09/21
L2131108-23	DUP-4	SOIL	PHILADELPHIA, PA	06/09/21 08:10	06/09/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2131108-05D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (147%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-07: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2131108-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (152%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2131108-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (158%) and 4-bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-17: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (161%) and 4-

Case Narrative (continued)

bromofluorobenzene (154%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-17: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (61%) due to interference with the Internal Standard.
L2131108-20D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (137%) and 4-bromofluorobenzene (137%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics by SIM
L2131108-05D, -12D, -13D, -15D, -18D, -19D, and -20D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.
L2131108-08D, -11D and -18D: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/08/21

ORGANICS

VOLATILES

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 09:38
Analyst: MKS
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	0.00064	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00064	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.014		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-02	Date Collected:	06/09/21 08:15
Client ID:	PB28-15-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 20:48
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0018	J	mg/kg	0.0019	0.00019	1
Benzene	0.0027		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	0.0041		mg/kg	0.00097	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.00052	J	mg/kg	0.00097	0.00014	1
p/m-Xylene	0.00070	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00028	J	mg/kg	0.00097	0.00028	1
Xylenes, Total	0.00098	J	mg/kg	0.00097	0.00028	1
Isopropylbenzene	0.0060		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:30
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 22:32
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00018	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-04	Date Collected:	06/09/21 08:55
Client ID:	PB28-11-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:14
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.0017		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.049		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0052		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.019		mg/kg	0.0018	0.00050	1
o-Xylene	0.0079		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.027		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.00037	J	mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.00093	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0028		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	96		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-05 D	Date Collected:	06/09/21 09:05
Client ID:	PB28-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 23:25
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.47	0.048	4
Benzene	ND		mg/kg	0.12	0.039	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	ND		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.069	4
Ethylbenzene	6.9		mg/kg	0.24	0.033	4
p/m-Xylene	1.9		mg/kg	0.47	0.13	4
o-Xylene	0.092	J	mg/kg	0.24	0.069	4
Xylenes, Total	2.0	J	mg/kg	0.24	0.069	4
Isopropylbenzene	7.6		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	7.7		mg/kg	0.47	0.046	4
1,2,4-Trimethylbenzene	70.		mg/kg	0.47	0.079	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	**147**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-06	Date Collected:	06/09/21 09:25
Client ID:	PB28-20-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:40
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.36		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.040	J	mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.7		mg/kg	0.064	0.0090	1
p/m-Xylene	0.32		mg/kg	0.13	0.036	1
o-Xylene	0.14		mg/kg	0.064	0.018	1
Xylenes, Total	0.46		mg/kg	0.064	0.018	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-07	Date Collected:	06/09/21 09:40
Client ID:	PB28-21-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 23:51
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.017	J	mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	1.3		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Client ID: PB28-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 10:04
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	0.00044	J	mg/kg	0.0011	0.00031	1
Xylenes, Total	0.00044	J	mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.027		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108
Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-08	Date Collected:	06/09/21 10:20
Client ID:	PB28-17-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 09:12
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00024	1
Benzene	0.0041		mg/kg	0.00059	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00034	1
Ethylbenzene	0.00052	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.0012		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0018	J	mg/kg	0.0023	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
Client ID: PB28-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:31
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00044	J	mg/kg	0.0035	0.00035	1
Benzene	0.0030		mg/kg	0.00088	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00045	1
Toluene	0.0017	J	mg/kg	0.0018	0.00096	1
1,2-Dibromoethane	ND		mg/kg	0.00088	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.0038		mg/kg	0.0035	0.00099	1
o-Xylene	0.0016	J	mg/kg	0.0018	0.00051	1
Xylenes, Total	0.0054	J	mg/kg	0.0018	0.00051	1
Isopropylbenzene	0.00023	J	mg/kg	0.0018	0.00019	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.0012	J	mg/kg	0.0035	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**152**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-10	Date Collected:	06/09/21 10:55
Client ID:	PB28-22-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 20:26
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	ND		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.015	J	mg/kg	0.063	0.0088	1
p/m-Xylene	0.086	J	mg/kg	0.12	0.035	1
o-Xylene	ND		mg/kg	0.063	0.018	1
Xylenes, Total	0.086	J	mg/kg	0.063	0.018	1
Isopropylbenzene	1.8		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:30
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.056	J	mg/kg	0.12	0.012	1
Benzene	3.5		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.28		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	14.		mg/kg	0.059	0.0083	1
p/m-Xylene	32.		mg/kg	0.12	0.033	1
o-Xylene	0.97		mg/kg	0.059	0.017	1
Xylenes, Total	33.		mg/kg	0.059	0.017	1
Isopropylbenzene	1.1		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	9.6		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	75		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11 D	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 20:51
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	32.		mg/kg	0.24	0.039	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-12 D2	Date Collected:	06/09/21 11:25
Client ID:	PB29-02-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 17:01
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	1.1	0.11	10
Benzene	8.6		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	110		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	62.		mg/kg	0.56	0.079	10
p/m-Xylene	280		mg/kg	1.1	0.32	10
o-Xylene	100		mg/kg	0.56	0.16	10
Xylenes, Total	380		mg/kg	0.56	0.16	10
Isopropylbenzene	4.5		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	60.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	180	E	mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D
Client ID: PB29-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 21:17
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	190		mg/kg	2.2	0.38	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13	D2	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01		Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 16:11
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	22.		mg/kg	2.4	0.24	20
Benzene	93.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.31	20
Toluene	580	E	mg/kg	1.2	0.66	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	220		mg/kg	1.2	0.17	20
p/m-Xylene	850	E	mg/kg	2.4	0.68	20
o-Xylene	320		mg/kg	1.2	0.35	20
Isopropylbenzene	19.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	20
1,2,4-Trimethylbenzene	530	E	mg/kg	2.4	0.41	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13 D	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/17/21 21:42
Analyst:	JC
Percent Solids:	82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	540		mg/kg	3.0	1.6	50
p/m-Xylene	830		mg/kg	6.1	1.7	50
Xylenes, Total	1200		mg/kg	1.2	0.35	50
1,2,4-Trimethylbenzene	500		mg/kg	6.1	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:55
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.11	0.011	1
Benzene	1.1		mg/kg	0.028	0.0094	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.39		mg/kg	0.056	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	14.		mg/kg	0.056	0.0080	1
p/m-Xylene	57.	E	mg/kg	0.11	0.032	1
o-Xylene	23.		mg/kg	0.056	0.016	1
Isopropylbenzene	1.8		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	6.4		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-14 D	Date Collected:	06/09/21 11:50
Client ID:	PB29-04-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:07
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	60.		mg/kg	0.45	0.13	4
Xylenes, Total	83.		mg/kg	0.056	0.016	4
1,2,4-Trimethylbenzene	19.		mg/kg	0.45	0.075	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15 D2	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 16:36
Analyst: NLK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.3	0.24	20
Benzene	8.9		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	0.67	J	mg/kg	1.2	0.64	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	190		mg/kg	1.2	0.16	20
p/m-Xylene	400		mg/kg	2.3	0.66	20
o-Xylene	5.1		mg/kg	1.2	0.34	20
Xylenes, Total	400		mg/kg	1.2	0.34	20
Isopropylbenzene	17.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	110		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	570	E	mg/kg	2.3	0.39	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15 D	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:32
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	540		mg/kg	5.8	0.98	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-16 D2	Date Collected:	06/09/21 13:00
Client ID:	PB29-06-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:05
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.042	J	mg/kg	0.24	0.024	2
Benzene	5.5		mg/kg	0.060	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	40.	E	mg/kg	0.12	0.065	2
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	2
Ethylbenzene	19.		mg/kg	0.12	0.017	2
p/m-Xylene	78.	E	mg/kg	0.24	0.067	2
o-Xylene	25.		mg/kg	0.12	0.035	2
Isopropylbenzene	1.3		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	13.		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	39.	E	mg/kg	0.24	0.040	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 D
Client ID: PB29-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	37.		mg/kg	0.24	0.13	4
p/m-Xylene	75.		mg/kg	0.48	0.13	4
Xylenes, Total	100		mg/kg	0.12	0.035	4
1,2,4-Trimethylbenzene	37.		mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17 Date Collected: 06/09/21 13:15
Client ID: PB29-07-SS01 Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 15:20
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.2		mg/kg	0.12	0.012	1
Benzene	12.		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.016	1
Toluene	7.7		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	10.		mg/kg	0.060	0.0085	1
p/m-Xylene	34.		mg/kg	0.12	0.034	1
o-Xylene	12.		mg/kg	0.060	0.018	1
Xylenes, Total	46.		mg/kg	0.060	0.018	1
Isopropylbenzene	3.0		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	7.9		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	**161**	Q	70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	**61**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17 D
Client ID: PB29-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 23:23
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	24.		mg/kg	0.48	0.081	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-18	D2	Date Collected:	06/09/21 13:20
Client ID:	PB29-08-SS01		Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/18/21 15:46
Analyst:	NLK
Percent Solids:	77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.6	0.36	25
Benzene	22.		mg/kg	0.91	0.30	25
1,2-Dichloroethane	ND		mg/kg	1.8	0.47	25
Toluene	5.0		mg/kg	1.8	0.99	25
1,2-Dibromoethane	ND		mg/kg	0.91	0.53	25
Ethylbenzene	290		mg/kg	1.8	0.26	25
p/m-Xylene	1300	E	mg/kg	3.6	1.0	25
o-Xylene	250		mg/kg	1.8	0.53	25
Isopropylbenzene	30.		mg/kg	1.8	0.20	25
1,3,5-Trimethylbenzene	260		mg/kg	3.6	0.35	25
1,2,4-Trimethylbenzene	720	E	mg/kg	3.6	0.61	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D
Client ID: PB29-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 23:48
Analyst: JC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	1300		mg/kg	7.3	2.0	50
Xylenes, Total	1600		mg/kg	1.8	0.53	50
1,2,4-Trimethylbenzene	680		mg/kg	7.3	1.2	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19 D2	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 17:26
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.2	0.12	10
Benzene	0.10	J	mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.62	0.16	10
Toluene	0.78		mg/kg	0.62	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	150		mg/kg	0.62	0.087	10
p/m-Xylene	660	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.62	0.18	10
Isopropylbenzene	18.		mg/kg	0.62	0.067	10
1,3,5-Trimethylbenzene	110		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	340	E	mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19 D	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/18/21 00:14
Analyst:	JC
Percent Solids:	84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	630		mg/kg	4.9	1.4	40
Xylenes, Total	800		mg/kg	0.62	0.18	40
1,2,4-Trimethylbenzene	320		mg/kg	4.9	0.82	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20 D2	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 13:40
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.48	0.048	4
Benzene	24.		mg/kg	0.12	0.040	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	1.5		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.070	4
Ethylbenzene	74.	E	mg/kg	0.24	0.034	4
p/m-Xylene	170	E	mg/kg	0.48	0.13	4
o-Xylene	2.8		mg/kg	0.24	0.069	4
Isopropylbenzene	8.5		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	26.		mg/kg	0.48	0.046	4
1,2,4-Trimethylbenzene	72.	E	mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	**137**	Q	70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D
Client ID: PB29-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 00:39
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	77.		mg/kg	0.60	0.084	10
p/m-Xylene	180		mg/kg	1.2	0.33	10
Xylenes, Total	180		mg/kg	0.24	0.069	10
1,2,4-Trimethylbenzene	82.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108

Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-21	Date Collected:	06/09/21 12:00
Client ID:	FB-210609-1	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 13:57		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
Client ID: FB-210609-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	109		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
Client ID: FB-210609-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/15/21 14:03
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-22	Date Collected:	06/09/21 14:00
Client ID:	FB-210609-2	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:54
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	114		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-23	Date Collected:	06/09/21 08:10
Client ID:	DUP-4	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:57
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00067	J	mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	0.00074	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00074	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.016		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/15/21 12:36
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-22 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-04 Batch: WG1513396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-07 Batch: WG1513397-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,07-08 Batch: WG1513560-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,23 Batch: WG1513938-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	107		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-22 Batch: WG1513956-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 13:15
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11-20 Batch: WG1513964-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	109		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 19:36
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10-20 Batch: WG1513964-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 21-22 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-04 Batch: WG1513396-3 WG1513396-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-07 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,07-08 Batch: WG1513560-3 WG1513560-4								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,23 Batch: WG1513938-3 WG1513938-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	92		90		70-130	2		30
1,2-Dichloroethane	91		89		70-130	2		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	102		100		70-130	2		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	102		101		70-130	1		30
o-Xylene	102		100		70-130	2		30
Isopropylbenzene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	99		98		70-130	1		30
1,2,4-Trimethylbenzene	99		98		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	102		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-22 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10-20 Batch: WG1513964-3 WG1513964-4								
Methyl tert butyl ether	95		96		66-130	1		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	95		96		70-130	1		30
Toluene	104		101		70-130	3		30
1,2-Dibromoethane	100		102		70-130	2		30
Ethylbenzene	106		103		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	99		97		70-130	2		30
Isopropylbenzene	111		107		70-130	4		30
1,3,5-Trimethylbenzene	106		105		70-130	1		30
1,2,4-Trimethylbenzene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	95		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11-20 Batch: WG1513964-8 WG1513964-9								
Methyl tert butyl ether	103		106		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	102		104		70-130	2		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	107		110		70-130	3		30
Ethylbenzene	111		110		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	115		113		70-130	2		30
1,3,5-Trimethylbenzene	112		109		70-130	3		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	96		97		70-130

SEMIVOLATILES

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-01
Client ID: PB28-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 12:27
Analyst: JJW
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.042		mg/kg	0.0083	0.0015	1
Fluorene	0.28		mg/kg	0.0083	0.00099	1
Phenanthrene	0.32		mg/kg	0.0083	0.00070	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	0.0087		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.00099	J	mg/kg	0.0083	0.00078	1
Chrysene	0.0011	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
Client ID: PB28-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 12:44
Analyst: JJW
Percent Solids: 78%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0018	J	mg/kg	0.0083	0.0015	1
Fluorene	0.0011	J	mg/kg	0.0083	0.0010	1
Phenanthrene	0.0024	J	mg/kg	0.0083	0.00071	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	ND		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	ND		mg/kg	0.0083	0.00079	1
Chrysene	ND		mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	69		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:30
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 13:01
Analyst: JJW
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		mg/kg	0.0082	0.0015	1
Fluorene	ND		mg/kg	0.0082	0.00098	1
Phenanthrene	ND		mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	ND		mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	77		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04
Client ID: PB28-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 13:17
Analyst: JJW
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0015	J	mg/kg	0.0078	0.0014	1
Fluorene	0.0013	J	mg/kg	0.0078	0.00094	1
Phenanthrene	ND		mg/kg	0.0078	0.00066	1
Anthracene	ND		mg/kg	0.0078	0.00062	1
Pyrene	ND		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	ND		mg/kg	0.0078	0.00074	1
Chrysene	ND		mg/kg	0.0078	0.00058	1
Benzo(b)fluoranthene	ND		mg/kg	0.0078	0.00074	1
Benzo(a)pyrene	ND		mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	ND		mg/kg	0.0078	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-05 D	Date Collected:	06/09/21 09:05
Client ID:	PB28-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/23/21 16:47		
Analyst:	JJW		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	21.		mg/kg	0.32	0.058	40
Fluorene	0.64		mg/kg	0.32	0.038	40
Phenanthrene	0.92		mg/kg	0.32	0.027	40
Anthracene	ND		mg/kg	0.32	0.026	40
Pyrene	0.12	J	mg/kg	0.32	0.022	40
Benzo(a)anthracene	0.030	J	mg/kg	0.32	0.030	40
Chrysene	0.045	J	mg/kg	0.32	0.024	40
Benzo(b)fluoranthene	ND		mg/kg	0.32	0.030	40
Benzo(a)pyrene	ND		mg/kg	0.32	0.038	40
Benzo(ghi)perylene	ND		mg/kg	0.32	0.027	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-06 D	Date Collected:	06/09/21 09:25
Client ID:	PB28-20-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/23/21 17:04		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.34		mg/kg	0.040	0.0072	5
Fluorene	2.0		mg/kg	0.040	0.0048	5
Phenanthrene	3.0		mg/kg	0.040	0.0034	5
Anthracene	ND		mg/kg	0.040	0.0032	5
Pyrene	0.098		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.0064	J	mg/kg	0.040	0.0038	5
Chrysene	0.0042	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**235**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	91		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Client ID: PB28-21-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 09:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 14:56
Analyst: JJW
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0081	0.0014	1
Fluorene	0.47		mg/kg	0.0081	0.00097	1
Phenanthrene	0.36		mg/kg	0.0081	0.00069	1
Anthracene	ND		mg/kg	0.0081	0.00065	1
Pyrene	0.018		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0023	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0033	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0014	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0011	J	mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	46		30-120
4-Terphenyl-d14	49		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08 D
Client ID: PB28-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 19:18
Analyst: JJW
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.078		mg/kg	0.039	0.0071	5
Fluorene	0.040		mg/kg	0.039	0.0047	5
Phenanthrene	0.36		mg/kg	0.039	0.0033	5
Anthracene	0.11		mg/kg	0.039	0.0031	5
Pyrene	0.62		mg/kg	0.039	0.0028	5
Benzo(a)anthracene	0.61		mg/kg	0.039	0.0037	5
Chrysene	0.53		mg/kg	0.039	0.0030	5
Benzo(b)fluoranthene	0.95		mg/kg	0.039	0.0037	5
Benzo(a)pyrene	0.82		mg/kg	0.039	0.0047	5
Benzo(ghi)perylene	0.46		mg/kg	0.039	0.0033	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	74		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
Client ID: PB28-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 10:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 16:34
Analyst: JJW
Percent Solids: 78%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.016		mg/kg	0.0084	0.00071	1
Anthracene	0.0036	J	mg/kg	0.0084	0.00067	1
Pyrene	0.019		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.021		mg/kg	0.0084	0.00080	1
Chrysene	0.017		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.031		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.029		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.027		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	60		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-10	Date Collected:	06/09/21 10:55
Client ID:	PB28-22-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 13:34		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.13		mg/kg	0.0081	0.0014	1
Fluorene	0.0038	J	mg/kg	0.0081	0.00097	1
Phenanthrene	0.0051	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0012	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0032	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0019	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0015	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0011	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11 D	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/23/21 17:20		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	3.6		mg/kg	0.080	0.014	10
Fluorene	0.022	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	J	mg/kg	0.080	0.0068	10
Anthracene	0.015	J	mg/kg	0.080	0.0064	10
Pyrene	0.038	J	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	0.024	J	mg/kg	0.080	0.0076	10
Chrysene	0.013	J	mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	0.017	J	mg/kg	0.080	0.0076	10
Benzo(a)pyrene	0.013	J	mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**185**	Q	23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	97		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D
Client ID: PB29-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 11:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 17:36
Analyst: JJW
Percent Solids: 80%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	41.		mg/kg	0.41	0.074	50
Fluorene	0.36	J	mg/kg	0.41	0.050	50
Phenanthrene	0.49		mg/kg	0.41	0.035	50
Anthracene	0.083	J	mg/kg	0.41	0.033	50
Pyrene	0.19	J	mg/kg	0.41	0.029	50
Benzo(a)anthracene	0.068	J	mg/kg	0.41	0.039	50
Chrysene	0.048	J	mg/kg	0.41	0.031	50
Benzo(b)fluoranthene	ND		mg/kg	0.41	0.039	50
Benzo(a)pyrene	ND		mg/kg	0.41	0.050	50
Benzo(ghi)perylene	0.056	J	mg/kg	0.41	0.035	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13 D	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 17:53		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	27.		mg/kg	0.39	0.071	50
Fluorene	0.12	J	mg/kg	0.39	0.047	50
Phenanthrene	0.24	J	mg/kg	0.39	0.034	50
Anthracene	0.047	J	mg/kg	0.39	0.032	50
Pyrene	0.12	J	mg/kg	0.39	0.028	50
Benzo(a)anthracene	0.063	J	mg/kg	0.39	0.038	50
Chrysene	0.036	J	mg/kg	0.39	0.030	50
Benzo(b)fluoranthene	0.041	J	mg/kg	0.39	0.038	50
Benzo(a)pyrene	ND		mg/kg	0.39	0.047	50
Benzo(ghi)perylene	ND		mg/kg	0.39	0.034	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14 D
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 18:09
Analyst: JJW
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.1		mg/kg	0.041	0.0074	5
Fluorene	0.0076	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.012	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0064	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	0.0066	J	mg/kg	0.041	0.0039	5
Chrysene	0.0031	J	mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	0.0051	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**207**	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	75		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15 D
Client ID: PB29-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 18:25
Analyst: JJW
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	24.		mg/kg	0.31	0.055	40
Fluorene	0.20	J	mg/kg	0.31	0.037	40
Phenanthrene	0.35		mg/kg	0.31	0.026	40
Anthracene	0.060	J	mg/kg	0.31	0.024	40
Pyrene	0.18	J	mg/kg	0.31	0.021	40
Benzo(a)anthracene	0.077	J	mg/kg	0.31	0.029	40
Chrysene	0.054	J	mg/kg	0.31	0.023	40
Benzo(b)fluoranthene	0.087	J	mg/kg	0.31	0.029	40
Benzo(a)pyrene	0.072	J	mg/kg	0.31	0.037	40
Benzo(ghi)perylene	0.083	J	mg/kg	0.31	0.026	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-16 D	Date Collected:	06/09/21 13:00
Client ID:	PB29-06-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 18:42		
Analyst:	JJW		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.4		mg/kg	0.041	0.0073	5
Fluorene	0.017	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.032	J	mg/kg	0.041	0.0035	5
Anthracene	0.0081	J	mg/kg	0.041	0.0032	5
Pyrene	0.015	J	mg/kg	0.041	0.0028	5
Benzo(a)anthracene	0.0086	J	mg/kg	0.041	0.0039	5
Chrysene	0.0049	J	mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	0.0063	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	0.0049	J	mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	0.0035	J	mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**161**	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-17 D	Date Collected:	06/09/21 13:15
Client ID:	PB29-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 18:58		
Analyst:	JJW		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.5		mg/kg	0.040	0.0073	5
Fluorene	0.018	J	mg/kg	0.040	0.0048	5
Phenanthrene	0.058		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.030	J	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.014	J	mg/kg	0.040	0.0038	5
Chrysene	0.010	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.0099	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.0083	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.0038	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**185**	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D
Client ID: PB29-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 17:11
Analyst: DV
Percent Solids: 77%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	79.		mg/kg	2.1	0.38	250
Fluorene	0.72	J	mg/kg	2.1	0.25	250
Phenanthrene	1.2	J	mg/kg	2.1	0.18	250
Anthracene	0.20	J	mg/kg	2.1	0.17	250
Pyrene	0.52	J	mg/kg	2.1	0.15	250
Benzo(a)anthracene	0.25	J	mg/kg	2.1	0.20	250
Chrysene	ND		mg/kg	2.1	0.16	250
Benzo(b)fluoranthene	ND		mg/kg	2.1	0.20	250
Benzo(a)pyrene	ND		mg/kg	2.1	0.25	250
Benzo(ghi)perylene	ND		mg/kg	2.1	0.18	250

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19 D	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 19:31		
Analyst:	JJW		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	25.		mg/kg	0.38	0.069	50
Fluorene	0.075	J	mg/kg	0.38	0.046	50
Phenanthrene	0.11	J	mg/kg	0.38	0.033	50
Anthracene	ND		mg/kg	0.38	0.031	50
Pyrene	0.048	J	mg/kg	0.38	0.027	50
Benzo(a)anthracene	ND		mg/kg	0.38	0.036	50
Chrysene	ND		mg/kg	0.38	0.029	50
Benzo(b)fluoranthene	ND		mg/kg	0.38	0.036	50
Benzo(a)pyrene	ND		mg/kg	0.38	0.046	50
Benzo(ghi)perylene	ND		mg/kg	0.38	0.033	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20 D	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 19:47		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	16.		mg/kg	0.16	0.029	20
Fluorene	0.084	J	mg/kg	0.16	0.019	20
Phenanthrene	0.14	J	mg/kg	0.16	0.014	20
Anthracene	0.029	J	mg/kg	0.16	0.013	20
Pyrene	0.067	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.034	J	mg/kg	0.16	0.015	20
Chrysene	0.018	J	mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	0.018	J	mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
Client ID: FB-210609-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 12:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/16/21 12:26
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 06/15/21 23:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	90		41-149

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-22	Date Collected:	06/09/21 14:00
Client ID:	FB-210609-2	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/15/21 23:34
Analytical Date:	06/16/21 12:46		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	80		15-120
4-Terphenyl-d14	98		41-149

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-23	Date Collected:	06/09/21 08:10
Client ID:	DUP-4	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 20:18
Analytical Date:	06/24/21 22:53		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0095		mg/kg	0.0081	0.0015	1
Fluorene	0.13		mg/kg	0.0081	0.00098	1
Phenanthrene	0.16		mg/kg	0.0081	0.00069	1
Anthracene	0.020		mg/kg	0.0081	0.00065	1
Pyrene	0.0045	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0011	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00061	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00081	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	64		18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	06/15/21 16:48	Extraction Date:	06/15/21 03:32
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 21-22 Batch: WG1512041-1					
Naphthalene	0.10	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	66		21-120
Phenol-d6	57		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	82		15-120
2,4,6-Tribromophenol	**123**	Q	10-120
4-Terphenyl-d14	100		41-149

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3546
Analytical Date:	06/22/21 12:11	Extraction Date:	06/20/21 10:51
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-20 Batch: WG1514486-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	84		10-120
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	73		30-120
2,4,6-Tribromophenol	85		10-136
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 22:36
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/23/21 20:18

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23 Batch: WG1516237-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	86		10-120
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	60		30-120
2,4,6-Tribromophenol	65		10-136
4-Terphenyl-d14	61		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 21-22 Batch: WG1512041-2 WG1512041-3								
Naphthalene	81		92		40-140	13		40
Fluorene	84		95		40-140	12		40
Phenanthrene	82		90		40-140	9		40
Anthracene	89		100		40-140	12		40
Pyrene	89		97		26-127	9		40
Benzo(a)anthracene	85		91		40-140	7		40
Chrysene	89		98		40-140	10		40
Benzo(b)fluoranthene	85		92		40-140	8		40
Benzo(a)pyrene	90		99		40-140	10		40
Benzo(ghi)perylene	91		99		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		79		21-120
Phenol-d6	58		67		10-120
Nitrobenzene-d5	78		88		23-120
2-Fluorobiphenyl	75		90		15-120
2,4,6-Tribromophenol	**131**	Q	**144**	Q	10-120
4-Terphenyl-d14	95		103		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-20 Batch: WG1514486-2 WG1514486-3								
Naphthalene	61		73		40-140	18		50
Fluorene	67		74		40-140	10		50
Phenanthrene	66		72		40-140	9		50
Anthracene	72		78		40-140	8		50
Pyrene	72		78		35-142	8		50
Benzo(a)anthracene	74		80		40-140	8		50
Chrysene	66		74		40-140	11		50
Benzo(b)fluoranthene	72		80		40-140	11		50
Benzo(a)pyrene	75		83		40-140	10		50
Benzo(ghi)perylene	70		76		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	70		80		25-120
Phenol-d6	71		81		10-120
Nitrobenzene-d5	72		82		23-120
2-Fluorobiphenyl	62		69		30-120
2,4,6-Tribromophenol	79		85		10-136
4-Terphenyl-d14	62		68		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23 Batch: WG1516237-2 WG1516237-3								
Naphthalene	82		79		40-140	4		50
Fluorene	89		87		40-140	2		50
Phenanthrene	89		86		40-140	3		50
Anthracene	98		96		40-140	2		50
Pyrene	86		81		35-142	6		50
Benzo(a)anthracene	95		96		40-140	1		50
Chrysene	77		76		40-140	1		50
Benzo(b)fluoranthene	104		97		40-140	7		50
Benzo(a)pyrene	98		95		40-140	3		50
Benzo(ghi)perylene	91		88		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	95		92		25-120
Phenol-d6	100		97		10-120
Nitrobenzene-d5	**121**	Q	117		23-120
2-Fluorobiphenyl	67		66		30-120
2,4,6-Tribromophenol	76		74		10-136
4-Terphenyl-d14	73		70		18-120

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.88		mg/kg	2.41	0.129	1	06/17/21 10:25	07/05/21 13:15	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
Date Collected: 06/09/21 08:15
Client ID: PB28-15-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.85		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 13:02	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-03	Date Collected:	06/09/21 08:30
Client ID:	PB28-12-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.70		mg/kg	2.42	0.129	1	06/17/21 10:25	07/05/21 13:06	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04

Date Collected: 06/09/21 08:55

Client ID: PB28-11-SS01

Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.22		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 13:11	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-05	Date Collected:	06/09/21 09:05
Client ID:	PB28-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.9		mg/kg	2.36	0.126	1	06/17/21 10:25	07/05/21 13:45	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE　　**Lab Number:** L2131108

Project Number: 200.00135.005　　**Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06　　Date Collected: 06/09/21 09:25

Client ID: PB28-20-SS01　　Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.59		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 13:52	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-07	Date Collected:	06/09/21 09:40
Client ID:	PB28-21-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.90		mg/kg	2.35	0.126	1	06/17/21 10:25	07/05/21 13:56	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE　　**Lab Number:** L2131108

Project Number: 200.00135.005　　**Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08　　Date Collected: 06/09/21 10:20

Client ID: PB28-17-SS01　　Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	19.0		mg/kg	2.25	0.120	1	06/17/21 10:25	07/05/21 14:01	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-09	Date Collected:	06/09/21 10:40
Client ID:	PB28-18-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	313		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 14:05	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
Client ID: PB28-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 10:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.34		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:09	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.55		mg/kg	2.40	0.129	1	06/17/21 10:25	07/05/21 14:39	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-12	Date Collected:	06/09/21 11:25
Client ID:	PB29-02-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1180		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 14:43	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13 Date Collected: 06/09/21 11:45

Client ID: PB29-03-SS01 Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.53		mg/kg	2.39	0.128	1	06/17/21 10:25	07/05/21 14:47	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-14	Date Collected:	06/09/21 11:50
Client ID:	PB29-04-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.20		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:52	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	282		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 14:56	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 Date Collected: 06/09/21 13:00
Client ID: PB29-06-SS01 Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.52		mg/kg	2.32	0.125	1	06/17/21 10:25	07/05/21 15:00	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-17	Date Collected:	06/09/21 13:15
Client ID:	PB29-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.23		mg/kg	2.38	0.128	1	06/17/21 10:25	07/05/21 15:05	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 Date Collected: 06/09/21 13:20

Client ID: PB29-08-SS01 Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	98.7		mg/kg	2.48	0.133	1	06/17/21 10:25	07/05/21 15:09	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	17.2		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 15:14	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.69		mg/kg	2.30	0.123	1	06/17/21 10:25	07/05/21 15:18	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-21	Date Collected:	06/09/21 12:00
Client ID:	FB-210609-1	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	07/01/21 16:09	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-22	Date Collected:	06/09/21 14:00
Client ID:	FB-210609-2	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	07/01/21 17:15	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-23	Date Collected:	06/09/21 08:10
Client ID:	DUP-4	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.15		mg/kg	2.37	0.127	1	06/18/21 10:10	07/07/21 17:43	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108

Project Number: 200.00135.005 | **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1511378-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	06/23/21 16:01	1,6020B	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1513004-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/17/21 10:25	07/05/21 12:53	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23 Batch: WG1513009-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/18/21 10:10	07/07/21 15:30	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1511378-2								
Lead, Total	113		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1513004-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 23 Batch: WG1513009-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1511378-3 WG1511378-4 QC Sample: L2131451-01 Client ID: MS Sample												
Lead, Total	ND	510	531.4	104		532.1	104		75-125	0		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-3 QC Sample: L2131108-01 Client ID: PB28-16-SS01												
Lead, Total	7.88	48.5	46.4	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-3 QC Sample: L2129359-01 Client ID: MS Sample												
Lead, Total	14.0	54.3	61.9	88		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-4 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Lead, Total	7.88	7.47	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-4 QC Sample: L2129359-01 Client ID: DUP Sample						
Lead, Total	14.0	18.1	mg/kg	**26**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
Client ID: PB28-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Date Collected: 06/09/21 08:30
Client ID: PB28-12-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-04
Client ID: PB28-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05
Date Collected: 06/09/21 09:05
Client ID: PB28-07-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06
Client ID: PB28-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-07	Date Collected:	06/09/21 09:40
Client ID:	PB28-21-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08
Client ID: PB28-17-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 10:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
Client ID: PB28-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 10:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-10	Date Collected:	06/09/21 10:55
Client ID:	PB28-22-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11
Client ID: PB29-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 11:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12
Client ID: PB29-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 11:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13
Client ID: PB29-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15
Client ID: PB29-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16
Client ID: PB29-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17
Date Collected: 06/09/21 13:15
Client ID: PB29-07-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18
Client ID: PB29-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23
Client ID: DUP-4
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/11/21 09:01	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1510726-1 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Solids, Total	80.2	79.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 23 QC Batch ID: WG1510727-1 QC Sample: L2130982-05 Client ID: DUP Sample						
Solids, Total	56.8	52.2	%	8		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-01A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-01B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-01F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-02A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-02B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-02F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-03A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-03B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-03F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-04A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-04B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-04F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-05A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-05B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-05F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-06A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-06B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-06F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-07A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131108-07B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-07F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-08A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-08B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-08F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-09A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-09B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-09C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-09D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-09F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-10A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-10B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-10F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-11A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-11B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-11F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-12A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-12B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-12F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-13A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-13B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-13F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-14A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-14B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-14F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-15A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-15B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-15F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-16A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-16B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-16F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-17A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-17B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-17F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-18A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-18B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-18F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-19A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-19B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-19F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-20A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-20B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-20F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-21A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-22A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-22G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-22H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-23A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-23B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-23F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

Project Name:	PES REFINERY - AST CLOSURE	Lab Number:	L2131108
Project Number:	200.00135.005	Report Date:	07/08/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/10/21

ALPHA Job #: L2131108

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
31108-01	PB28-16-5501	6/9	0800	S	TS	☑	☑	☑		6
-02	PB28-15-5501	↓	0815	↓	TS	☑	☑	☑		↓
-03	PB28-12-5501		0830		TS	☑	☑	☑		
-04	PB28-11-5501		0855		TS	☑	☑	☑		
-05	PB28-07-5501		0905		TS	☑	☑	☑		
-06	PB28-20-5501		0925		TS	☑	☑	☑		
-07	PB28-21-5501		0940		TS	☑	☑	☑		
-08	PB28-17-5501		1020		TS	☑	☑	☑		
-09	PB28-18-5501		1040		TS	☑	☑	☑		
-10	PB28-22-5501	↓	1055	↓	TS	☑	☑	☑		↓
					Container Type	G	G	G		
					Preservative	F	A	A		

2 COLD
3 COC

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/9 1500	Tom Clar AAL	6-9 1500
Tom Clar AAL	6-9 1800	[signature]	6-9-1800
[signature]	6-9 2030	[signature] 6/9	2230
[signature] 6/10 0350		[signature]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/10/21

ALPHA Job #: L2131108

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
31108-11	PB29-01-5501	6/9	1110	S	TS	✓	✓	✓		6
-12	PB29-02-5501		1125		TS	✓	✓	✓		
-13	PB29-03-5501		1145		TS	✓	✓	✓		
-14	PB29-04-5501		1150		TS	✓	✓	✓		
-15	PB29-05-5501		1250		TS	✓	✓	✓		
-16	PB29-06-5501		1300		TS	✓	✓	✓		
-17	PB29-07-5501		1315		TS	✓	✓	✓		
-18	PB29-08-5501		1320		TS	✓	✓	✓		
-19	PB29-09-5501		1335		TS	✓	✓	✓		
-20	PB29-10-5501		1355		TS	✓	✓	✓		

	VOCs (8260)	SVOCs (8270)	Lead (6010B)
Container Type	G	G	G
Preservative	F	A	A

Relinquished By:	Date/Time	Received By:	Date/Time
TS	6/9 1502	Ben Cool AAL	6-9 1500
Tom Cool AAL	6-9-21 1800	CMP	6-9-21 1800
CMP	6-9-21 2030	[illegible]	6/9 2250
[illegible] 6/10 0130		[illegible]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
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Project #: 200.00135.005

Project Manager: William Schmidt

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☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

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ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	PA-8260 (SHORTLIST 1-5)	TOTAL LEAD	8011	PA-8270	Sample Specific Comments	TOTAL # BOTTLES
31108-21	FB-210609-1	6/9	1200	W	TS				✓	✓	✓	✓		
-22	FB-210609-2	6/9	1400	W	TS				✓	✓	✓	✓		
-23	DUP-4	6/9	0810	S	TS	✓	✓	✓						6
					TS									
					TS									
					TS									
					TS									
					TS									
					TS									
					TS									
Container Type						G	G	G	-	-	-	-		
Preservative						F	A	A	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	6/9 1500	Tom Clay AAL	6-9-1500
Tom Clay AAL	6-9-21 1900	[illegible signature]	6-9- 1900
[illegible signature]	6-9- 2050	[illegible signature] 6/9 2200	
[illegible signature] 0130		[illegible signature]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

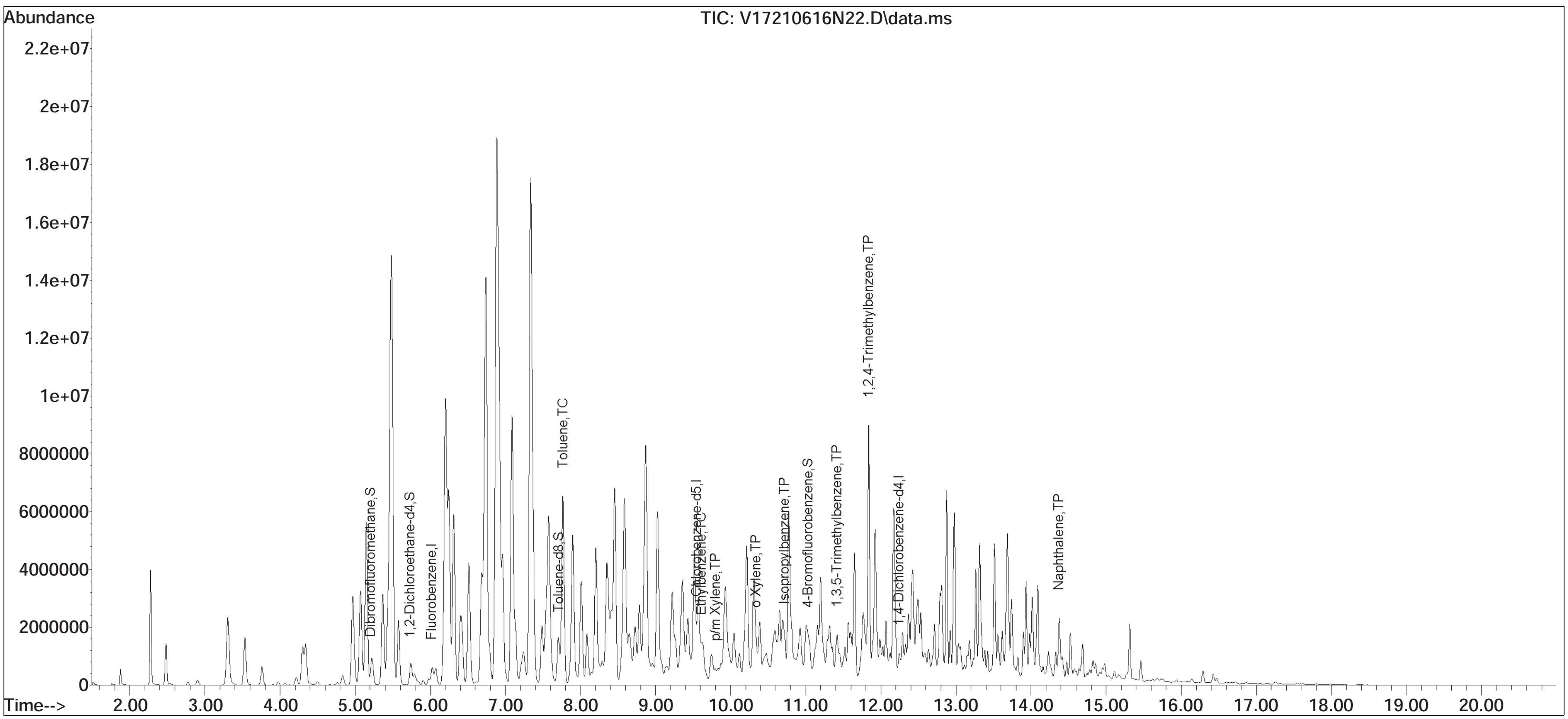
FORM NO: 01-01(HJ) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210616N\
Data File : V17210616N22.D
Acq On    : 16 Jun 2021  11:25 pm
Operator  : VOA117:JC
Sample    : L2131108-05D,31H,6.21,5,0.025,,A
Misc      : WG1513397,ICAL18005
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Jun 17 11:38:20 2021
Quant Method : I:\VOLATILES\VOA117\2021\210616N\V117_210527A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16N\V17210616N01.D•
```

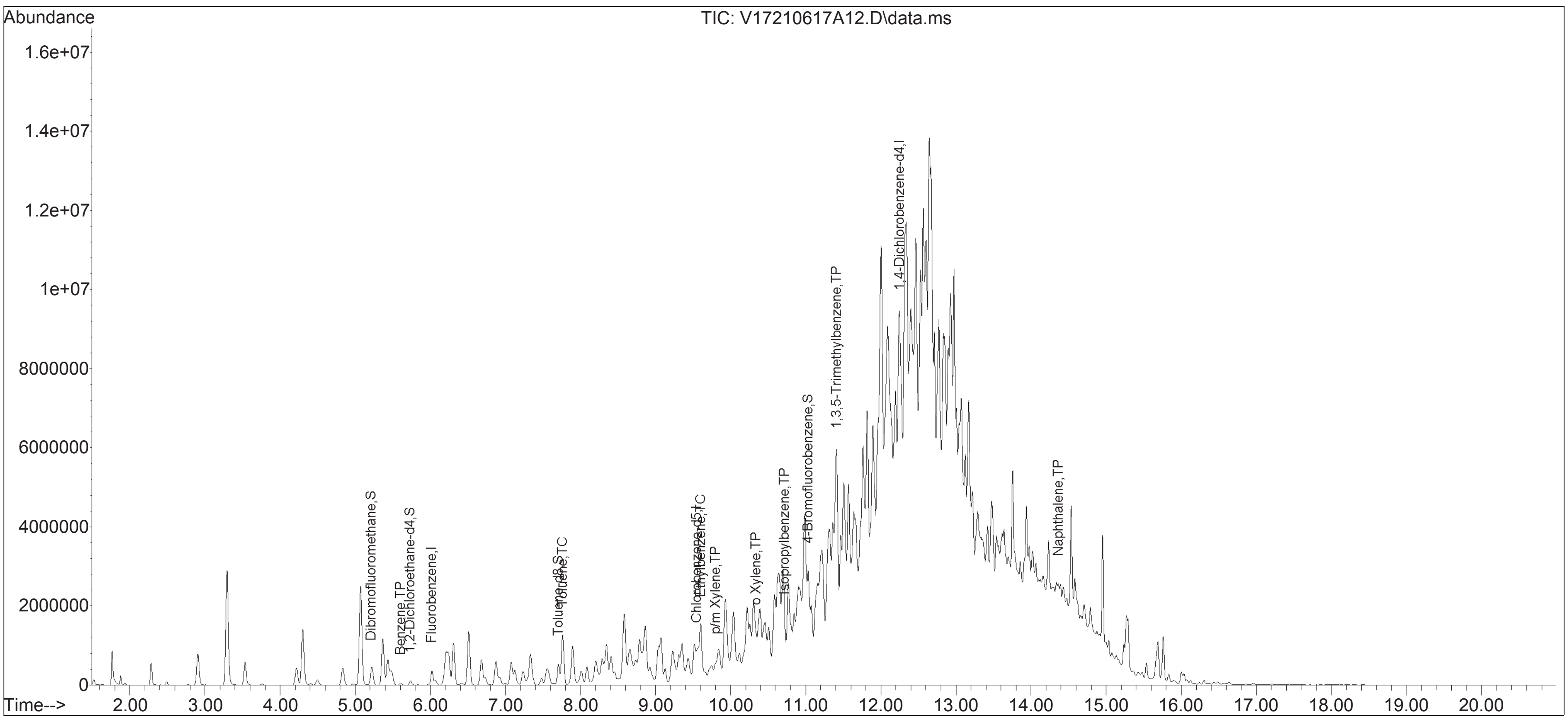


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210617A\
Data File : V17210617A12.D
Acq On : 17 Jun 2021 09:12 am
Operator : VOA117:MKS
Sample : L2131108-08,31,5.04,5,,B
Misc : WG1513560,ICAL18005
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 17 14:50:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\210617A\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list17A\V17210617A01.D•

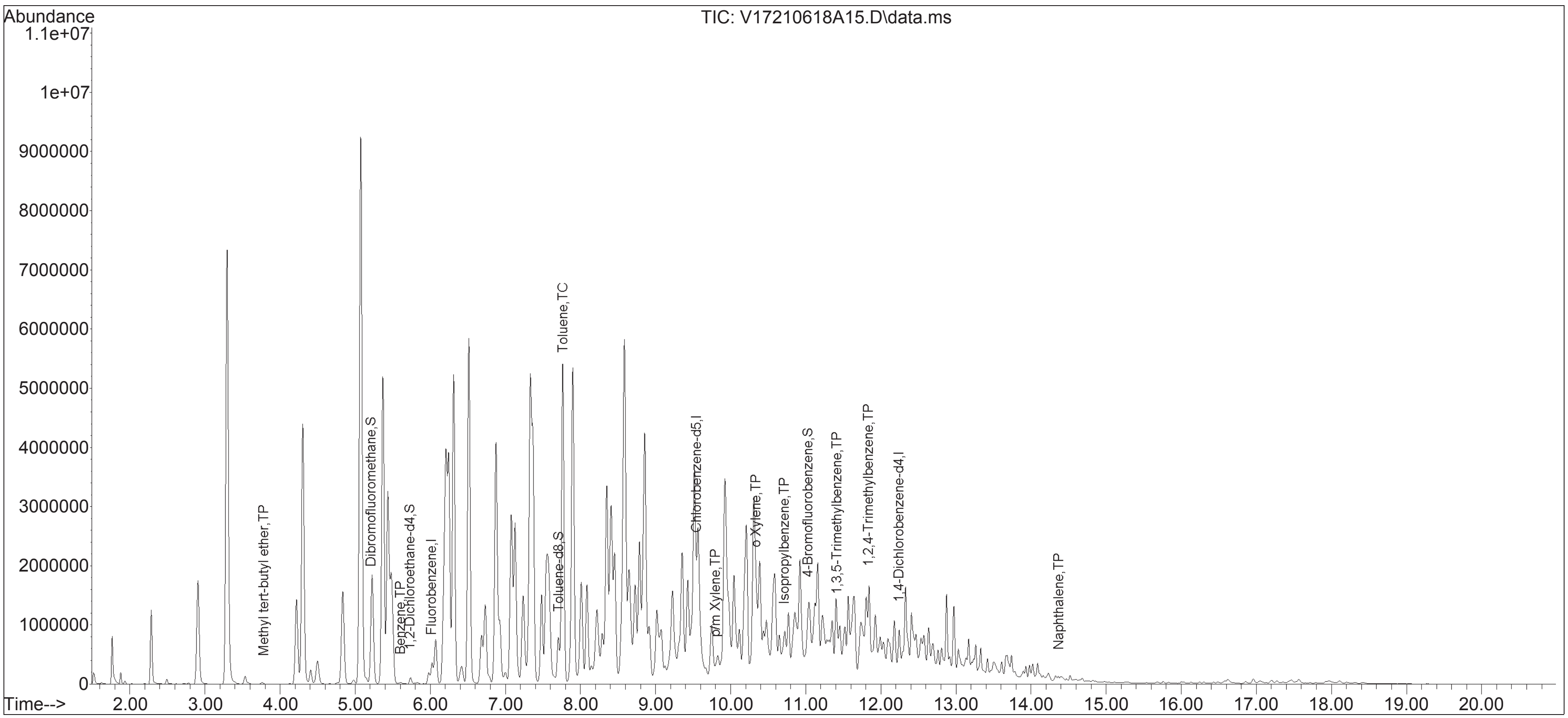


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210618A\
Data File : V17210618A15.D
Acq On : 18 Jun 2021 10:31 am
Operator : VOA117:JC
Sample : L2131108-09,31,3.63,5,,B
Misc : WG1513938,ICAL18005
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 18 14:04:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210618A\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V17210618A01.D•

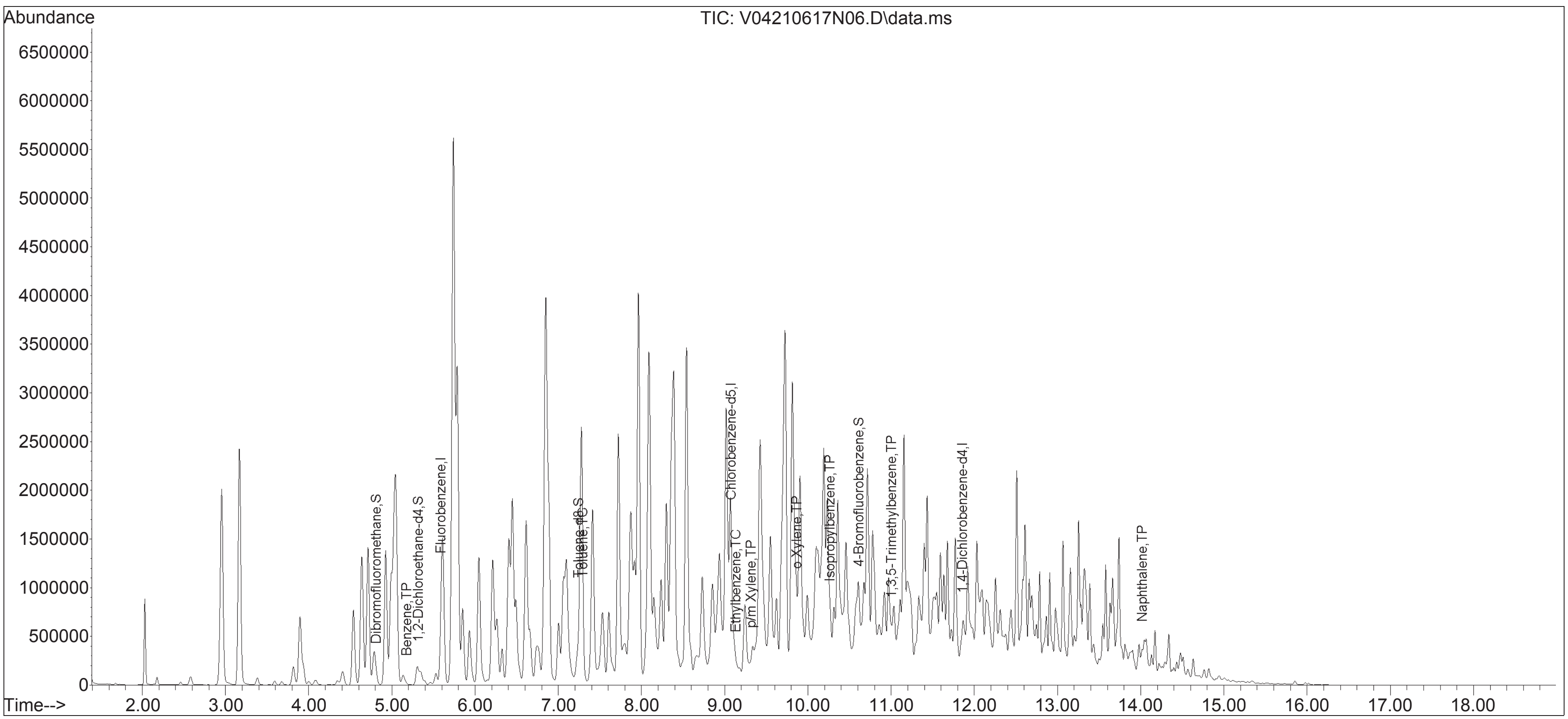


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210617N\
Data File : V04210617N06.D
Acq On : 17 Jun 2021 8:26 pm
Operator : VOA104:JC
Sample : L2131108-10,31H,5.84,5,0.100,,A
Misc : WG1513964,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 18 08:20:51 2021
Quant Method : I:\VOLATILES\VOA104\2021\210617N\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list17N\V04210617N01.D•

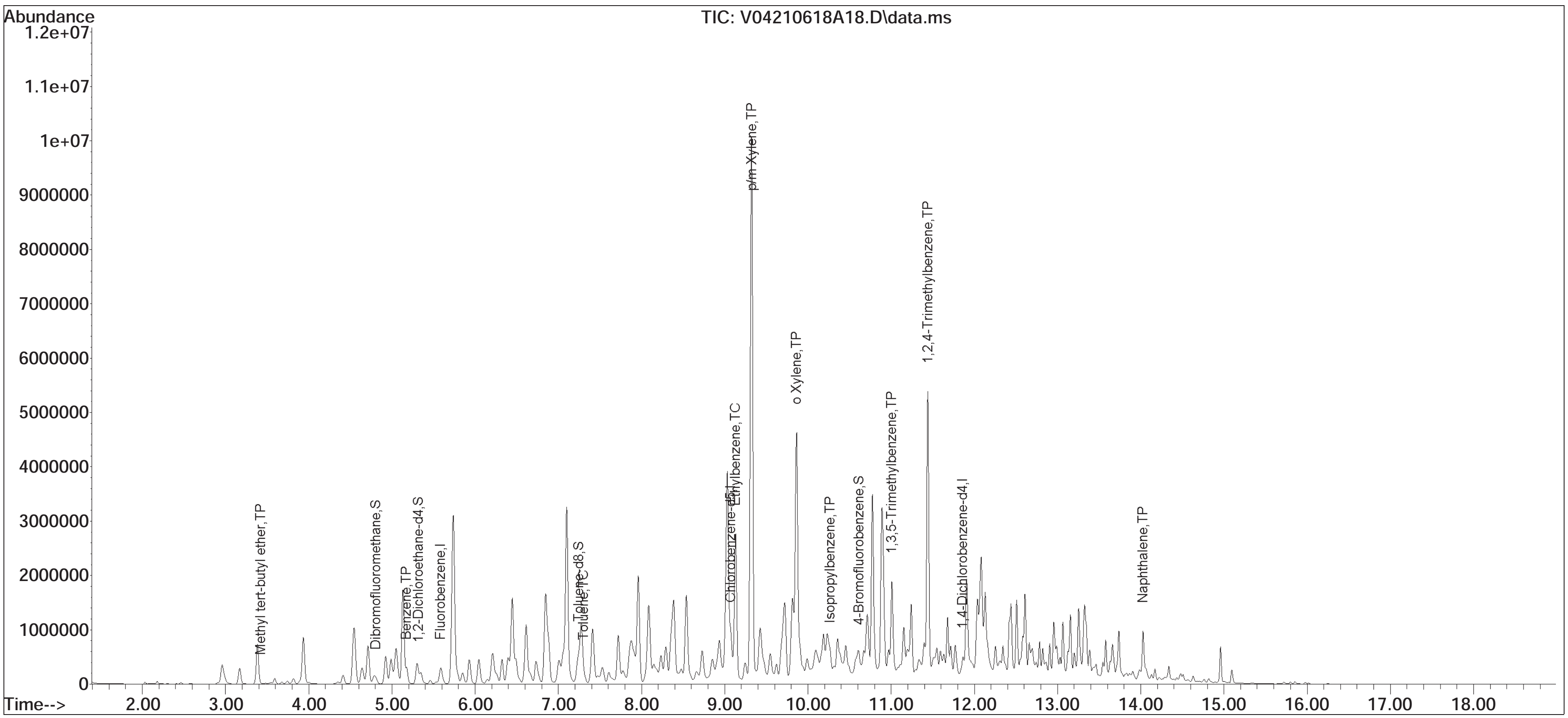


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A18.D
Acq On : 18 Jun 2021 2:55 pm
Operator : VOA104:NLK
Sample : L2131108-14,31H,6.89,5,0.100,,A
Misc : WG1513964,ICAL18000
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 19 09:06:27 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

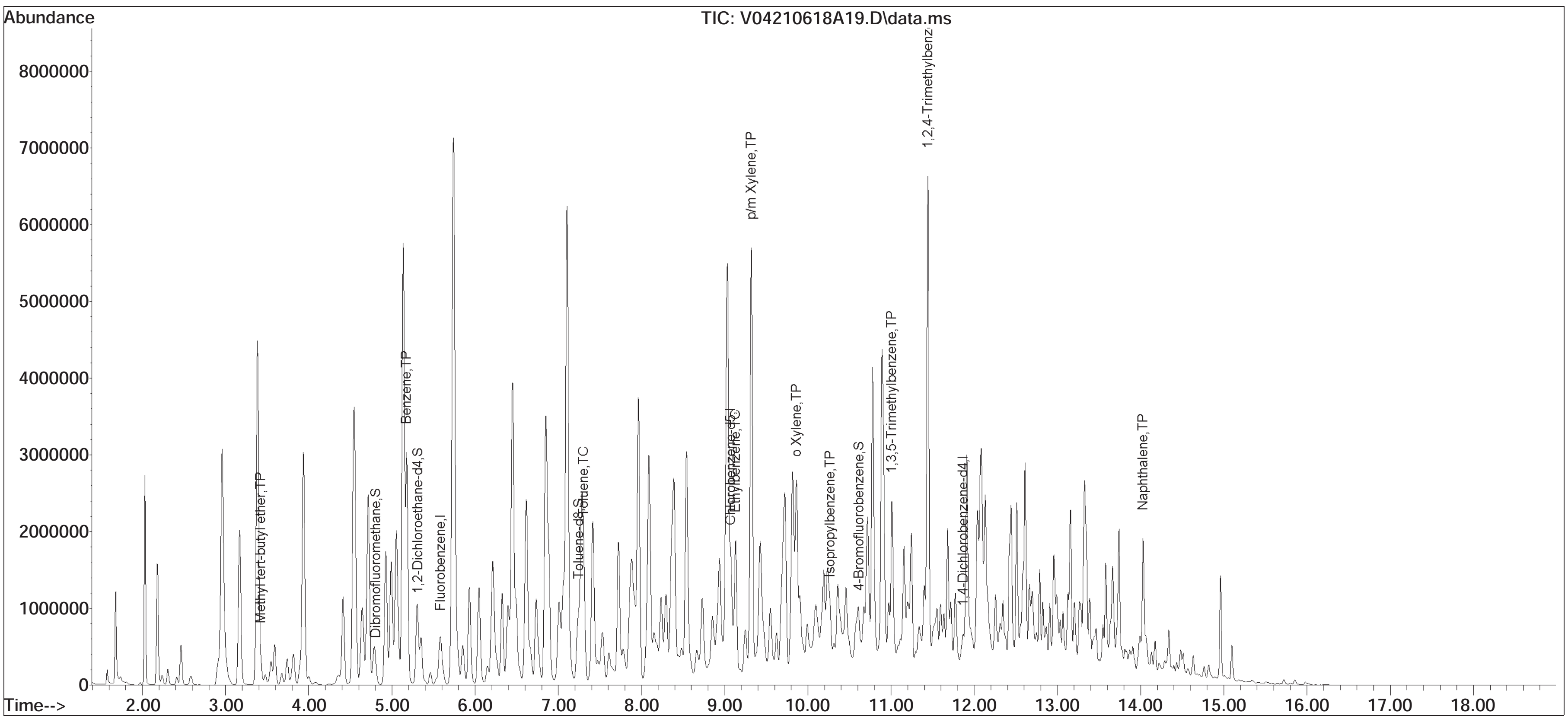


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A19.D
Acq On   : 18 Jun 2021   3:20 pm
Operator : VOA104:NLK
Sample   : L2131108-17,31H,6.29,5,0.100,,A
Misc   : WG1513964,ICAL18000
ALS Vial : 19   Sample Multiplier: 1

Quant Time: Jun 19 09:07:02 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

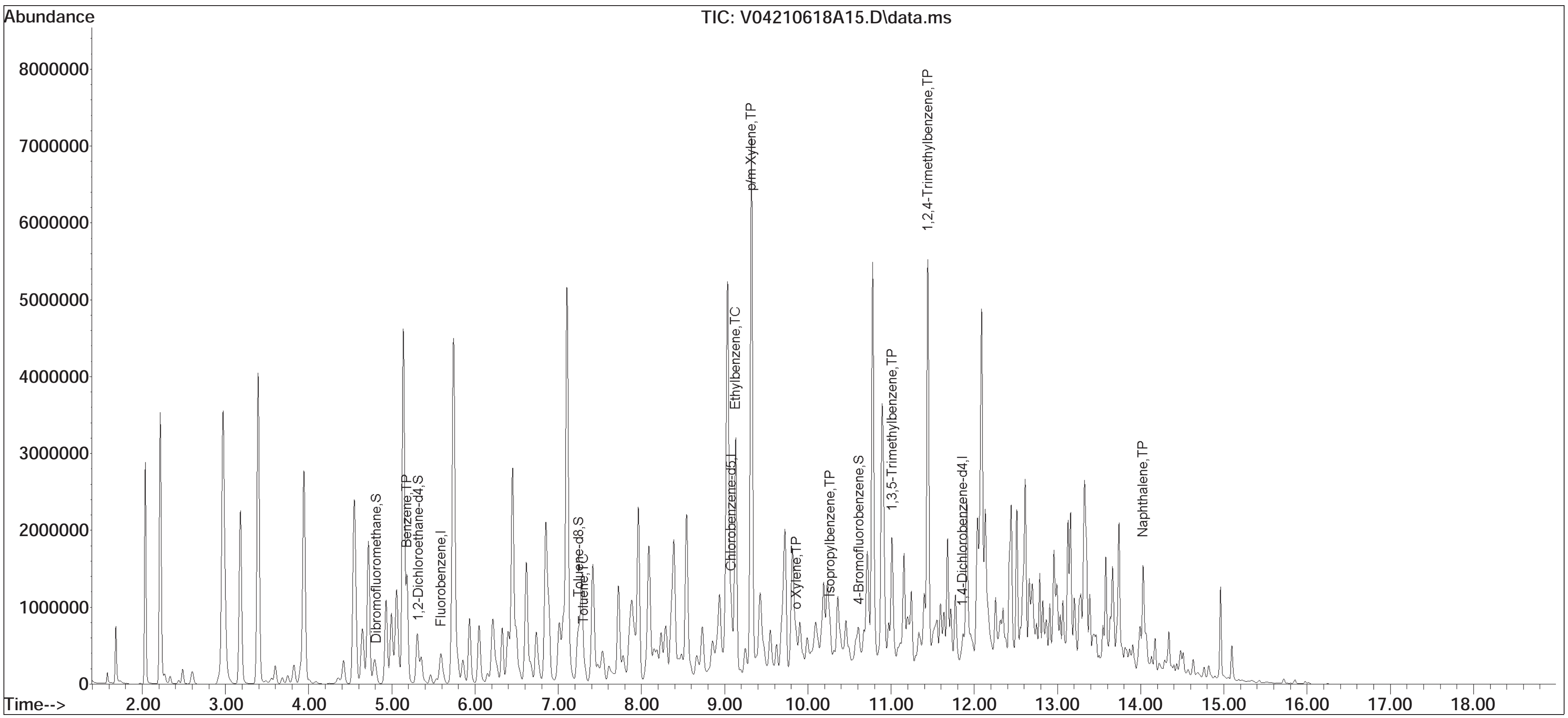


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A15.D
Acq On : 18 Jun 2021 1:40 pm
Operator : VOA104:NLK
Sample : L2131108-20D2,31H,6.26,5,0.025,,A
Misc : WG1513964,ICAL18000
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 19 09:03:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•



ANALYTICAL REPORT

Lab Number:	L2131453
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-01	PB29-11-SS01	SOIL	PHILADELPHIA, PA	06/10/21 07:40	06/10/21
L2131453-02	PB29-12-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:00	06/10/21
L2131453-03	PB29-13-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:10	06/10/21
L2131453-04	PB29-16-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:15	06/10/21
L2131453-05	PB29-21-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:40	06/10/21
L2131453-06	PB29-20-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:55	06/10/21
L2131453-07	PB29-22-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:10	06/10/21
L2131453-08	PB29-23-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:20	06/10/21
L2131453-09	PB29-19-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:05	06/10/21
L2131453-10	PB29-25-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:35	06/10/21
L2131453-11	PB29-26-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:45	06/10/21
L2131453-12	PB29-27-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:00	06/10/21
L2131453-13	PB29-24-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:40	06/10/21
L2131453-14	PB29-14-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:35	06/10/21
L2131453-15	PB29-15-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:55	06/10/21
L2131453-16	PB29-18-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:05	06/10/21
L2131453-17	PB29-17-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:20	06/10/21
L2131453-18	PB33-01-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:40	06/10/21
L2131453-19	PB33-02-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:50	06/10/21
L2131453-20	PB33-03-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:05	06/10/21
L2131453-21	PB33-04-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:10	06/10/21
L2131453-22	DUP-5	SOIL	PHILADELPHIA, PA	06/10/21 07:50	06/10/21
L2131453-23	FB-210610-1	WATER	PHILADELPHIA, PA	06/10/21 12:00	06/10/21
L2131453-24	FB-210610-2	WATER	PHILADELPHIA, PA	06/10/21 14:00	06/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-25	TB	WATER	PHILADELPHIA, PA	06/10/21 00:00	06/10/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2131453-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (159%) and 4-bromofluorobenzene (173%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2131453-06: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2131453-08D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-11: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (228%) and 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious

Case Narrative (continued)

interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-12 and -17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2131453-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (175%) and 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.
L2131453-18D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-21D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (143%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-22: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2131453-25: The sample was collected in a pre-preserved vial; however, the pH of the sample was determined to be greater than two.

Semivolatile Organics by SIM
L2131453-05D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.
L2131453-07D and -16D: The sample has elevated detection limits due to the dilution required by the sample

Case Narrative (continued)

matrix.

The WG1512751-2/-3 LCS/LCSD RPD, associated with L2131453-23 and -24, is above the acceptance criteria for naphthalene (41%).

Total Metals

The WG1514044-3 MS recoveries, performed on L2131453-01, are outside the acceptance criteria for lead (47%). A post digestion spike was performed and yielded unacceptable recoveries for lead (41%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1514044-4 Laboratory Duplicate RPD for lead (28%), performed on L2131453-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-01	Date Collected:	06/10/21 07:40
Client ID:	PB29-11-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:51
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92		mg/kg	0.12	0.012	1
Benzene	1.2		mg/kg	0.030	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.53		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	1.3		mg/kg	0.059	0.0083	1
p/m-Xylene	4.6		mg/kg	0.12	0.033	1
o-Xylene	1.8		mg/kg	0.059	0.017	1
Xylenes, Total	6.4		mg/kg	0.059	0.017	1
Isopropylbenzene	0.17		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.6		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-02	Date Collected:	06/10/21 08:00
Client ID:	PB29-12-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:18
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	12.		mg/kg	0.12	0.012	1
Benzene	6.6		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.10		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.75		mg/kg	0.062	0.0087	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.56		mg/kg	0.062	0.018	1
Xylenes, Total	1.8		mg/kg	0.062	0.018	1
Isopropylbenzene	0.30		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.64		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-03	Date Collected:	06/10/21 08:10
Client ID:	PB29-13-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 16:59
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.020	J	mg/kg	0.16	0.016	1
Benzene	0.84		mg/kg	0.039	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.078	0.020	1
Toluene	0.14		mg/kg	0.078	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.039	0.023	1
Ethylbenzene	6.3		mg/kg	0.078	0.011	1
p/m-Xylene	22.		mg/kg	0.16	0.044	1
o-Xylene	5.8		mg/kg	0.078	0.023	1
Xylenes, Total	28.		mg/kg	0.078	0.023	1
Isopropylbenzene	0.78		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	4.0		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-04	Date Collected:	06/10/21 08:15
Client ID:	PB29-16-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:02
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	8.3		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.42		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	14.		mg/kg	0.062	0.0088	1
p/m-Xylene	3.0		mg/kg	0.12	0.035	1
o-Xylene	0.89		mg/kg	0.062	0.018	1
Xylenes, Total	3.9		mg/kg	0.062	0.018	1
Isopropylbenzene	2.2		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	**159**	Q	70-130
4-Bromofluorobenzene	**173**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-05 D2	Date Collected:	06/10/21 08:40
Client ID:	PB29-21-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:13
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	350		mg/kg	5.5	1.6	50
Xylenes, Total	460		mg/kg	0.55	0.16	50
1,2,4-Trimethylbenzene	210		mg/kg	5.5	0.92	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:22
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.1	0.11	10
Benzene	29.		mg/kg	0.28	0.092	10
1,2-Dichloroethane	ND		mg/kg	0.55	0.14	10
Toluene	150		mg/kg	0.55	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	100		mg/kg	0.55	0.078	10
p/m-Xylene	350	E	mg/kg	1.1	0.31	10
o-Xylene	110		mg/kg	0.55	0.16	10
Isopropylbenzene	9.9		mg/kg	0.55	0.060	10
1,3,5-Trimethylbenzene	79.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	220	E	mg/kg	1.1	0.18	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
Client ID: PB29-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 16:11
Analyst: NLK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.30	E	mg/kg	0.0018	0.00019	1
Benzene	0.41	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.0035		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.49	E	mg/kg	0.00093	0.00013	1
p/m-Xylene	0.30		mg/kg	0.0018	0.00052	1
o-Xylene	0.0084		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.31		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.057		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.30	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	1.1	E	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
Client ID: PB29-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:21
Analyst: MV
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.57		mg/kg	0.090	0.0090	1
Benzene	1.4		mg/kg	0.022	0.0075	1
1,2-Dichloroethane	ND		mg/kg	0.045	0.012	1
Toluene	0.088		mg/kg	0.045	0.024	1
1,2-Dibromoethane	ND		mg/kg	0.022	0.013	1
Ethylbenzene	1.1		mg/kg	0.045	0.0064	1
p/m-Xylene	0.87		mg/kg	0.090	0.025	1
o-Xylene	0.054		mg/kg	0.045	0.013	1
Xylenes, Total	0.92		mg/kg	0.045	0.013	1
Isopropylbenzene	0.11		mg/kg	0.045	0.0049	1
1,3,5-Trimethylbenzene	0.70		mg/kg	0.090	0.0087	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.090	0.015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-07 D2	Date Collected:	06/10/21 09:10
Client ID:	PB29-22-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:33
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.064	5
Benzene	25.		mg/kg	0.16	0.053	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.082	5
Toluene	3.6		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	72.		mg/kg	0.32	0.045	5
p/m-Xylene	270	E	mg/kg	0.64	0.18	5
o-Xylene	42.		mg/kg	0.32	0.093	5
Xylenes, Total	310		mg/kg	0.32	0.093	5
Isopropylbenzene	7.0		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	50.		mg/kg	0.64	0.061	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.64	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	85		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-07	D	Date Collected:	06/10/21 09:10
Client ID:	PB29-22-SS01		Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:47
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	270		mg/kg	1.3	0.36	10
1,2,4-Trimethylbenzene	140		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D2
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:08
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	5
Benzene	30.		mg/kg	0.17	0.056	5
1,2-Dichloroethane	ND		mg/kg	0.33	0.086	5
Toluene	58.		mg/kg	0.33	0.18	5
1,2-Dibromoethane	ND		mg/kg	0.17	0.098	5
Ethylbenzene	110	E	mg/kg	0.33	0.047	5
p/m-Xylene	340	E	mg/kg	0.67	0.19	5
o-Xylene	100		mg/kg	0.33	0.097	5
Isopropylbenzene	7.4		mg/kg	0.33	0.036	5
1,3,5-Trimethylbenzene	70.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	190	E	mg/kg	0.67	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:12
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	110		mg/kg	0.67	0.094	10
p/m-Xylene	350		mg/kg	1.3	0.38	10
Xylenes, Total	450		mg/kg	0.33	0.097	10
1,2,4-Trimethylbenzene	190		mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09 D2
Client ID: PB29-19-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 10:05
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:58
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.064	5
Benzene	23.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	22.		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	82.		mg/kg	0.32	0.045	5
p/m-Xylene	280	E	mg/kg	0.63	0.18	5
o-Xylene	73.		mg/kg	0.32	0.092	5
Isopropylbenzene	5.9		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	66.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	170	E	mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-09 D	Date Collected:	06/10/21 10:05
Client ID:	PB29-19-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 13:56
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	380		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	190		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
Client ID: PB29-25-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:35
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:27
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.016	1
Benzene	2.0		mg/kg	0.038	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.077	0.020	1
Toluene	0.49		mg/kg	0.077	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.038	0.023	1
Ethylbenzene	0.71		mg/kg	0.077	0.011	1
p/m-Xylene	0.69		mg/kg	0.15	0.043	1
o-Xylene	0.17		mg/kg	0.077	0.022	1
Xylenes, Total	0.86		mg/kg	0.077	0.022	1
Isopropylbenzene	5.2		mg/kg	0.077	0.0084	1
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.63		mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	**166**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-11	Date Collected:	06/10/21 10:45
Client ID:	PB29-26-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:52
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.43		mg/kg	0.15	0.015	1
Benzene	11.		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.074	0.019	1
Toluene	1.5		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	1.6		mg/kg	0.074	0.010	1
p/m-Xylene	7.9		mg/kg	0.15	0.041	1
o-Xylene	2.8		mg/kg	0.074	0.021	1
Xylenes, Total	11.		mg/kg	0.074	0.021	1
Isopropylbenzene	5.1		mg/kg	0.074	0.0080	1
1,3,5-Trimethylbenzene	0.52		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.1		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**228**	Q	70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-12	Date Collected:	06/10/21 11:00
Client ID:	PB29-27-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:18
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.012	J	mg/kg	0.066	0.0094	1
p/m-Xylene	0.039	J	mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	0.039	J	mg/kg	0.066	0.019	1
Isopropylbenzene	1.8		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	0.68		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	1.7		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	**175**	Q	70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D2
Client ID: PB29-24-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 11:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:56
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.3	0.13	10
Benzene	76.		mg/kg	0.32	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.65	0.17	10
Toluene	6.3		mg/kg	0.65	0.35	10
1,2-Dibromoethane	ND		mg/kg	0.32	0.19	10
Ethylbenzene	270	E	mg/kg	0.65	0.092	10
p/m-Xylene	690	E	mg/kg	1.3	0.36	10
o-Xylene	200		mg/kg	0.65	0.19	10
Isopropylbenzene	18.		mg/kg	0.65	0.071	10
1,3,5-Trimethylbenzene	150		mg/kg	1.3	0.12	10
1,2,4-Trimethylbenzene	430	E	mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D
Date Collected: 06/10/21 11:40
Client ID: PB29-24-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:38
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	220		mg/kg	3.2	0.46	50
p/m-Xylene	630		mg/kg	6.5	1.8	50
Xylenes, Total	830		mg/kg	0.65	0.19	50
1,2,4-Trimethylbenzene	380		mg/kg	6.5	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-14	Date Collected:	06/10/21 12:35
Client ID:	PB29-14-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:27
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
Client ID: PB29-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 12:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:53
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00029	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	0.00025	J	mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.00022	J	mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00033	J	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16 Date Collected: 06/10/21 13:05
Client ID: PB29-18-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:19
Analyst: NLK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.00094		mg/kg	0.00055	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00055	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00060	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
Client ID: PB29-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:43
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.032	J	mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.026	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.025	J	mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18 D
Client ID: PB33-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:43
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.093	J	mg/kg	0.24	0.024	2
Benzene	1.2		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	ND		mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.17		mg/kg	0.12	0.017	2
p/m-Xylene	0.20	J	mg/kg	0.24	0.068	2
o-Xylene	ND		mg/kg	0.12	0.036	2
Xylenes, Total	0.20	J	mg/kg	0.12	0.036	2
Isopropylbenzene	2.6		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.24	0.041	2
Naphthalene	0.34	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	**133**	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-19 D2	Date Collected:	06/10/21 13:50
Client ID:	PB33-02-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 09:47
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	6.6		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	0.53		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	29.		mg/kg	0.12	0.017	2
p/m-Xylene	70.		mg/kg	0.25	0.069	2
o-Xylene	1.7		mg/kg	0.12	0.036	2
Xylenes, Total	72.		mg/kg	0.12	0.036	2
Isopropylbenzene	2.7		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	16.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	45.	E	mg/kg	0.25	0.041	2
Naphthalene	7.0		mg/kg	0.49	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19 D
Client ID: PB33-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:48
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	51.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-20	Date Collected:	06/10/21 14:05
Client ID:	PB33-03-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:37
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.14	0.014	1
Benzene	0.038		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.22		mg/kg	0.069	0.0097	1
p/m-Xylene	0.83		mg/kg	0.14	0.039	1
o-Xylene	0.29		mg/kg	0.069	0.020	1
Xylenes, Total	1.1		mg/kg	0.069	0.020	1
Isopropylbenzene	1.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	2.2		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	5.7		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-21 D2	Date Collected:	06/10/21 14:10
Client ID:	PB33-04-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 09:22
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.57	0.057	5
Benzene	12.		mg/kg	0.14	0.047	5
1,2-Dichloroethane	ND		mg/kg	0.28	0.073	5
Toluene	0.52		mg/kg	0.28	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.083	5
Ethylbenzene	85.	E	mg/kg	0.28	0.040	5
p/m-Xylene	280	E	mg/kg	0.57	0.16	5
o-Xylene	19.		mg/kg	0.28	0.083	5
Isopropylbenzene	13.		mg/kg	0.28	0.031	5
1,3,5-Trimethylbenzene	43.		mg/kg	0.57	0.055	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.57	0.095	5
Naphthalene	8.6		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-21 D	Date Collected:	06/10/21 14:10
Client ID:	PB33-04-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:23
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	91.		mg/kg	0.57	0.080	10
p/m-Xylene	310		mg/kg	1.1	0.32	10
Xylenes, Total	330		mg/kg	0.28	0.083	10
1,2,4-Trimethylbenzene	130		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Client ID: DUP-5
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:45
Analyst: NLK
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	1.4	E	mg/kg	0.0018	0.00018	1
Benzene	2.2	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	0.12		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.32	E	mg/kg	0.00092	0.00013	1
p/m-Xylene	0.42		mg/kg	0.0018	0.00051	1
o-Xylene	0.25		mg/kg	0.00092	0.00027	1
Xylenes, Total	0.67		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.020		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.27		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-22	Date Collected:	06/10/21 07:50
Client ID:	DUP-5	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:47
Analyst: MV
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.0		mg/kg	0.11	0.011	1
Benzene	3.6		mg/kg	0.027	0.0090	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.16		mg/kg	0.054	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.52		mg/kg	0.054	0.0077	1
p/m-Xylene	0.59		mg/kg	0.11	0.030	1
o-Xylene	0.35		mg/kg	0.054	0.016	1
Xylenes, Total	0.94		mg/kg	0.054	0.016	1
Isopropylbenzene	0.028	J	mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.44		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-23	Date Collected:	06/10/21 12:00
Client ID:	FB-210610-1	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/17/21 12:32
Analytical Date:	06/17/21 15:22		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
Date Collected: 06/10/21 12:00
Client ID: FB-210610-1
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 11:19
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
Client ID: FB-210610-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:28
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-24	Date Collected:	06/10/21 14:00
Client ID:	FB-210610-2	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 11:45
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-25	Date Collected:	06/10/21 00:00
Client ID:	TB	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 12:10
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-25 Batch: WG1513956-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,07-13,18-21 Batch: WG1514499-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,19,21 Batch: WG1514499-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:30
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,07-09 Batch: WG1514499-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,14-16,22 Batch: WG1514511-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,17 Batch: WG1514517-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 13:08
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,22 Batch: WG1514630-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-25 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
1,2-Dibromoethane	94		96		70-130	2		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20
Naphthalene	92		94		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,19,21 Batch: WG1514499-13 WG1514499-14								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,07-09 Batch: WG1514499-3 WG1514499-4								
Methyl tert butyl ether	102		99		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	100		101		70-130	1		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	105		106		70-130	1		30
Ethylbenzene	111		111		70-130	0		30
p/m-Xylene	108		108		70-130	0		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	112		113		70-130	1		30
1,3,5-Trimethylbenzene	108		109		70-130	1		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30
Naphthalene	91		94		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,07-13,18-21 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,14-16,22 Batch: WG1514511-3 WG1514511-4								
Methyl tert butyl ether	96		94		66-130	2		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	92		90		70-130	2		30
Toluene	84		84		70-130	0		30
1,2-Dibromoethane	89		88		70-130	1		30
Ethylbenzene	85		86		70-130	1		30
p/m-Xylene	86		87		70-130	1		30
o-Xylene	87		89		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	87		86		70-130	1		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		91		70-130
Toluene-d8	93		94		70-130
4-Bromofluorobenzene	101		97		70-130
Dibromofluoromethane	103		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,17 Batch: WG1514517-3 WG1514517-4								
Methyl tert butyl ether	95		95		66-130	0		30
Benzene	85		83		70-130	2		30
1,2-Dichloroethane	89		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		95		70-130	1		30
Ethylbenzene	102		101		70-130	1		30
p/m-Xylene	93		91		70-130	2		30
o-Xylene	93		92		70-130	1		30
Isopropylbenzene	105		100		70-130	5		30
1,3,5-Trimethylbenzene	107		102		70-130	5		30
1,2,4-Trimethylbenzene	107		102		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	112		113		70-130
4-Bromofluorobenzene	116		114		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,22 Batch: WG1514630-3 WG1514630-4								
Methyl tert butyl ether	109		106		66-130	3		30
Benzene	115		110		70-130	4		30
1,2-Dichloroethane	106		102		70-130	4		30
Toluene	101		97		70-130	4		30
1,2-Dibromoethane	100		99		70-130	1		30
Ethylbenzene	104		100		70-130	4		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	104		102		70-130	2		30
Isopropylbenzene	106		100		70-130	6		30
1,3,5-Trimethylbenzene	105		99		70-130	6		30
1,2,4-Trimethylbenzene	106		99		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		105		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-01 D	Date Collected:	06/10/21 07:40
Client ID:	PB29-11-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 16:46		
Analyst:	RP		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.6		mg/kg	0.040	0.0073	5
Fluorene	0.040		mg/kg	0.040	0.0048	5
Phenanthrene	0.073		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.044		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.031	J	mg/kg	0.040	0.0038	5
Chrysene	0.018	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.022	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.018	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.016	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	56		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-02	Date Collected:	06/10/21 08:00
Client ID:	PB29-12-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 17:28		
Analyst:	RP		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0011	J	mg/kg	0.0081	0.00068	1
Anthracene	ND		mg/kg	0.0081	0.00064	1
Pyrene	0.0010	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.00085	J	mg/kg	0.0081	0.00077	1
Chrysene	ND		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.00089	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
Client ID: PB29-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 17:44
Analyst: RP
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0084	0.0015	1
Fluorene	0.0013	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0018	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.00080	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	ND		mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**126**	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
Client ID: PB29-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:15
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 18:00
Analyst: RP
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 06/23/21 09:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.27		mg/kg	0.0080	0.0014	1
Fluorene	0.0024	J	mg/kg	0.0080	0.00096	1
Phenanthrene	0.0032	J	mg/kg	0.0080	0.00068	1
Anthracene	0.00088	J	mg/kg	0.0080	0.00064	1
Pyrene	0.0020	J	mg/kg	0.0080	0.00056	1
Benzo(a)anthracene	0.0013	J	mg/kg	0.0080	0.00076	1
Chrysene	0.00072	J	mg/kg	0.0080	0.00060	1
Benzo(b)fluoranthene	ND		mg/kg	0.0080	0.00076	1
Benzo(a)pyrene	ND		mg/kg	0.0080	0.00096	1
Benzo(ghi)perylene	ND		mg/kg	0.0080	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**137**	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/25/21 17:03
Analyst: RP
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	13.		mg/kg	0.16	0.028	20
Fluorene	0.064	J	mg/kg	0.16	0.019	20
Phenanthrene	0.098	J	mg/kg	0.16	0.014	20
Anthracene	0.016	J	mg/kg	0.16	0.013	20
Pyrene	0.044	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.046	J	mg/kg	0.16	0.015	20
Chrysene	ND		mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	ND		mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-06 D	Date Collected:	06/10/21 08:55
Client ID:	PB29-20-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 17:35		
Analyst:	RP		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.90		mg/kg	0.015	0.0027	2
Fluorene	0.0084	J	mg/kg	0.015	0.0018	2
Phenanthrene	0.018		mg/kg	0.015	0.0013	2
Anthracene	0.0038	J	mg/kg	0.015	0.0012	2
Pyrene	0.011	J	mg/kg	0.015	0.0011	2
Benzo(a)anthracene	0.011	J	mg/kg	0.015	0.0014	2
Chrysene	0.0056	J	mg/kg	0.015	0.0011	2
Benzo(b)fluoranthene	0.011	J	mg/kg	0.015	0.0014	2
Benzo(a)pyrene	0.010	J	mg/kg	0.015	0.0018	2
Benzo(ghi)perylene	0.013	J	mg/kg	0.015	0.0013	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D
Client ID: PB29-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/28/21 14:28
Analyst: JJW
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.6		mg/kg	0.041	0.0074	5
Fluorene	ND		mg/kg	0.041	0.0049	5
Phenanthrene	0.011	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0069	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/25/21 18:08
Analyst: RP
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.3		mg/kg	0.017	0.0030	2
Fluorene	0.0056	J	mg/kg	0.017	0.0020	2
Phenanthrene	0.0074	J	mg/kg	0.017	0.0014	2
Anthracene	0.0014	J	mg/kg	0.017	0.0013	2
Pyrene	0.0030	J	mg/kg	0.017	0.0012	2
Benzo(a)anthracene	0.0037	J	mg/kg	0.017	0.0016	2
Chrysene	ND		mg/kg	0.017	0.0012	2
Benzo(b)fluoranthene	ND		mg/kg	0.017	0.0016	2
Benzo(a)pyrene	ND		mg/kg	0.017	0.0020	2
Benzo(ghi)perylene	ND		mg/kg	0.017	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-09	Date Collected:	06/10/21 10:05
Client ID:	PB29-19-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 18:24		
Analyst:	RP		
Percent Solids:	79%		

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.38		mg/kg	0.0084	0.0015	1
Fluorene	0.0021	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0037	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.0012	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.0016	J	mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	40		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-10	Date Collected:	06/10/21 10:35
Client ID:	PB29-25-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 19:38		
Analyst:	RP		
Percent Solids:	80%		

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.21		mg/kg	0.0082	0.0015	1
Fluorene	0.014		mg/kg	0.0082	0.00098	1
Phenanthrene	0.020		mg/kg	0.0082	0.00069	1
Anthracene	0.0043	J	mg/kg	0.0082	0.00065	1
Pyrene	0.014		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0082		mg/kg	0.0082	0.00077	1
Chrysene	0.0070	J	mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	0.0095		mg/kg	0.0082	0.00077	1
Benzo(a)pyrene	0.0071	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0072	J	mg/kg	0.0082	0.00069	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	**144**	Q	23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-11	Date Collected:	06/10/21 10:45
Client ID:	PB29-26-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 19:54		
Analyst:	RP		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.12		mg/kg	0.0083	0.0015	1
Fluorene	0.088		mg/kg	0.0083	0.0010	1
Phenanthrene	0.18		mg/kg	0.0083	0.00071	1
Anthracene	0.044		mg/kg	0.0083	0.00066	1
Pyrene	0.028		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.0092		mg/kg	0.0083	0.00079	1
Chrysene	0.0079	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	0.0064	J	mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	0.0043	J	mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	0.0020	J	mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**167**	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	84		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-12	Date Collected:	06/10/21 11:00
Client ID:	PB29-27-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 20:10		
Analyst:	RP		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0082	0.0015	1
Fluorene	0.0020	J	mg/kg	0.0082	0.00098	1
Phenanthrene	0.0022	J	mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.00082	J	mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**152**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	89		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-13 D	Date Collected:	06/10/21 11:40
Client ID:	PB29-24-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 18:41		
Analyst:	RP		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.0		mg/kg	0.016	0.0030	2
Fluorene	0.0074	J	mg/kg	0.016	0.0020	2
Phenanthrene	0.011	J	mg/kg	0.016	0.0014	2
Anthracene	0.0022	J	mg/kg	0.016	0.0013	2
Pyrene	0.0056	J	mg/kg	0.016	0.0012	2
Benzo(a)anthracene	0.0077	J	mg/kg	0.016	0.0016	2
Chrysene	0.0052	J	mg/kg	0.016	0.0012	2
Benzo(b)fluoranthene	0.0074	J	mg/kg	0.016	0.0016	2
Benzo(a)pyrene	0.0049	J	mg/kg	0.016	0.0020	2
Benzo(ghi)perylene	0.0040	J	mg/kg	0.016	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
Client ID: PB29-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 12:35
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 20:43
Analyst: RP
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.011		mg/kg	0.0079	0.0014	1
Fluorene	0.016		mg/kg	0.0079	0.00095	1
Phenanthrene	0.19		mg/kg	0.0079	0.00068	1
Anthracene	0.043		mg/kg	0.0079	0.00064	1
Pyrene	0.22		mg/kg	0.0079	0.00056	1
Benzo(a)anthracene	0.17		mg/kg	0.0079	0.00075	1
Chrysene	0.14		mg/kg	0.0079	0.00060	1
Benzo(b)fluoranthene	0.25		mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.20		mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.12		mg/kg	0.0079	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**147**	Q	23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
Client ID: PB29-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 20:59
Analyst: RP
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0062	J	mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0043	J	mg/kg	0.0081	0.00068	1
Anthracene	0.0013	J	mg/kg	0.0081	0.00064	1
Pyrene	0.0079	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.012		mg/kg	0.0081	0.00077	1
Chrysene	0.0095		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.023		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.019		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.015		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**142**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	79		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16 D
Client ID: PB29-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:05
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 21:15
Analyst: RP
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012	J	mg/kg	0.038	0.0068	5
Fluorene	ND		mg/kg	0.038	0.0045	5
Phenanthrene	0.044		mg/kg	0.038	0.0032	5
Anthracene	0.017	J	mg/kg	0.038	0.0030	5
Pyrene	0.076		mg/kg	0.038	0.0026	5
Benzo(a)anthracene	0.076		mg/kg	0.038	0.0036	5
Chrysene	0.080		mg/kg	0.038	0.0028	5
Benzo(b)fluoranthene	0.28		mg/kg	0.038	0.0036	5
Benzo(a)pyrene	0.20		mg/kg	0.038	0.0045	5
Benzo(ghi)perylene	0.22		mg/kg	0.038	0.0032	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-17	Date Collected:	06/10/21 13:20
Client ID:	PB29-17-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:24
Analytical Date:	06/24/21 21:32		
Analyst:	RP		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0027	J	mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.0064	J	mg/kg	0.0084	0.00072	1
Anthracene	0.0026	J	mg/kg	0.0084	0.00068	1
Pyrene	0.013		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.029		mg/kg	0.0084	0.00080	1
Chrysene	0.019		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.061		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.050		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.041		mg/kg	0.0084	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**146**	Q	23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-22	Date Collected:	06/10/21 07:50
Client ID:	DUP-5	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:24
Analytical Date:	06/24/21 21:48		
Analyst:	RP		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.44		mg/kg	0.0075	0.0014	1
Fluorene	0.0056	J	mg/kg	0.0075	0.00090	1
Phenanthrene	0.011		mg/kg	0.0075	0.00064	1
Anthracene	0.0020	J	mg/kg	0.0075	0.00060	1
Pyrene	0.0055	J	mg/kg	0.0075	0.00053	1
Benzo(a)anthracene	0.0036	J	mg/kg	0.0075	0.00072	1
Chrysene	0.0029	J	mg/kg	0.0075	0.00056	1
Benzo(b)fluoranthene	0.0040	J	mg/kg	0.0075	0.00072	1
Benzo(a)pyrene	0.0029	J	mg/kg	0.0075	0.00090	1
Benzo(ghi)perylene	0.0035	J	mg/kg	0.0075	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**149**	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-23	Date Collected:	06/10/21 12:00
Client ID:	FB-210610-1	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/17/21 08:15
Analytical Date:	06/18/21 18:18		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	87		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
Client ID: FB-210610-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 14:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/18/21 18:38
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 06/17/21 08:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	89		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/17/21 11:45
Analyst: RP
Extraction Method: EPA 3510C
Extraction Date: 06/16/21 09:34

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23-24 Batch: WG1512751-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		21-120
Phenol-d6	28		10-120
Nitrobenzene-d5	43		23-120
2-Fluorobiphenyl	42		15-120
2,4,6-Tribromophenol	57		10-120
4-Terphenyl-d14	49		41-149

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 16:39
Analyst: RP

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-17,22 Batch: WG1515702-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00052
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.00082	J	mg/kg	0.0066	0.00062
Chrysene	0.00079	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0017	J	mg/kg	0.0066	0.00062
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.0015	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	100		25-120
Phenol-d6	106		10-120
Nitrobenzene-d5	**128**	Q	23-120
2-Fluorobiphenyl	77		30-120
2,4,6-Tribromophenol	88		10-136
4-Terphenyl-d14	93		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23-24 Batch: WG1512751-2 WG1512751-3								
Naphthalene	41		62		40-140	**41**	Q	40
Fluorene	48		69		40-140	36		40
Phenanthrene	48		64		40-140	29		40
Anthracene	52		69		40-140	28		40
Pyrene	50		66		26-127	28		40
Benzo(a)anthracene	50		64		40-140	25		40
Chrysene	54		75		40-140	33		40
Benzo(b)fluoranthene	53		68		40-140	25		40
Benzo(a)pyrene	54		71		40-140	27		40
Benzo(ghi)perylene	52		68		40-140	27		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	35		53		21-120
Phenol-d6	31		44		10-120
Nitrobenzene-d5	40		62		23-120
2-Fluorobiphenyl	42		60		15-120
2,4,6-Tribromophenol	66		95		10-120
4-Terphenyl-d14	51		66		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-17,22 Batch: WG1515702-2 WG1515702-3								
Naphthalene	51		53		40-140	4		50
Fluorene	52		54		40-140	4		50
Phenanthrene	49		51		40-140	4		50
Anthracene	52		55		40-140	6		50
Pyrene	52		57		35-142	9		50
Benzo(a)anthracene	51		56		40-140	9		50
Chrysene	46		50		40-140	8		50
Benzo(b)fluoranthene	53		57		40-140	7		50
Benzo(a)pyrene	55		57		40-140	4		50
Benzo(ghi)perylene	50		51		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57		60		25-120
Phenol-d6	55		58		10-120
Nitrobenzene-d5	56		58		23-120
2-Fluorobiphenyl	49		50		30-120
2,4,6-Tribromophenol	48		51		10-136
4-Terphenyl-d14	46		49		18-120

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-01	Date Collected:	06/10/21 07:40
Client ID:	PB29-11-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.15		mg/kg	2.35	0.126	1	06/18/21 21:00	06/24/21 22:41	EPA 3050B	1,6010D	BV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-02	Date Collected:	06/10/21 08:00
Client ID:	PB29-12-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.89		mg/kg	2.40	0.128	1	06/18/21 21:00	06/24/21 23:00	EPA 3050B	1,6010D	BV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-03	Date Collected:	06/10/21 08:10
Client ID:	PB29-13-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.68		mg/kg	2.45	0.131	1	06/18/21 21:00	06/24/21 23:04	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
Client ID: PB29-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:15
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.72		mg/kg	2.34	0.126	1	06/18/21 21:00	06/24/21 23:09	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.9		mg/kg	2.29	0.122	1	06/18/21 21:00	06/24/21 23:13	EPA 3050B	1,6010D	BV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-06	Date Collected:	06/10/21 08:55
Client ID:	PB29-20-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	37.3		mg/kg	2.18	0.117	1	06/18/21 21:00	06/28/21 18:50	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-07	Date Collected:	06/10/21 09:10
Client ID:	PB29-22-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.7		mg/kg	2.33	0.125	1	06/18/21 21:00	06/28/21 18:55	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08
Date Collected: 06/10/21 09:20
Client ID: PB29-23-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.46		mg/kg	2.53	0.136	1	06/18/21 21:00	06/28/21 19:00	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09 | Date Collected: 06/10/21 10:05

Client ID: PB29-19-SS01 | Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.8		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:05	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-10	Date Collected:	06/10/21 10:35
Client ID:	PB29-25-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.6		mg/kg	2.42	0.130	1	06/18/21 21:00	06/28/21 19:10	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11
Date Collected: 06/10/21 10:45
Client ID: PB29-26-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.93		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:15	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-12	Date Collected:	06/10/21 11:00
Client ID:	PB29-27-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.15		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:20	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13

Client ID: PB29-24-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40

Date Received: 06/10/21

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.0		mg/kg	2.39	0.128	1	06/18/21 21:00	06/28/21 19:25	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-14	Date Collected:	06/10/21 12:35
Client ID:	PB29-14-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	84.5		mg/kg	2.38	0.128	1	06/18/21 21:00	06/28/21 19:29	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-15	Date Collected:	06/10/21 12:55
Client ID:	PB29-15-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2110		mg/kg	2.32	0.124	1	06/18/21 21:00	07/02/21 15:33	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16 Date Collected: 06/10/21 13:05

Client ID: PB29-18-SS01 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	96.2		mg/kg	2.28	0.122	1	06/18/21 21:00	07/02/21 15:48	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17 Date Collected: 06/10/21 13:20

Client ID: PB29-17-SS01 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	105		mg/kg	2.49	0.133	1	06/18/21 21:00	07/02/21 15:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18 Date Collected: 06/10/21 13:40
Client ID: PB33-01-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.89		mg/kg	2.42	0.130	1	06/18/21 21:00	07/02/21 15:58	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-19	Date Collected:	06/10/21 13:50
Client ID:	PB33-02-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.41		mg/kg	2.44	0.131	1	06/18/21 21:00	07/02/21 16:02	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-20	Date Collected:	06/10/21 14:05
Client ID:	PB33-03-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.57		mg/kg	2.56	0.137	1	06/18/21 21:00	07/02/21 16:07	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-21	Date Collected:	06/10/21 14:10
Client ID:	PB33-04-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.30	0.123	1	06/19/21 09:25	06/22/21 13:36	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22 Date Collected: 06/10/21 07:50

Client ID: DUP-5 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.85		mg/kg	2.23	0.119	1	06/19/21 09:25	06/22/21 13:40	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-23	Date Collected:	06/10/21 12:00
Client ID:	FB-210610-1	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 23:03	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24 Date Collected: 06/10/21 14:00

Client ID: FB-210610-2 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 23:08	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1512604-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 18:30	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1514044-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/18/21 21:00	06/24/21 22:23	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1514081-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/19/21 09:25	06/22/21 11:57	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512604-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514044-2 SRM Lot Number: D109-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1514081-2 SRM Lot Number: D109-540								
Lead, Total	88		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512604-3 QC Sample: L2129208-01 Client ID: MS Sample												
Lead, Total	1.145	510	510.7	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-3 QC Sample: L2131453-01 Client ID: PB29-11-SS01												
Lead, Total	5.15	47.2	27.4	**47**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-3 QC Sample: L2131446-01 Client ID: MS Sample												
Lead, Total	35.5	47.3	97.3	**131**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-4 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Lead, Total	5.15	6.83	mg/kg	**28**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-4 QC Sample: L2131446-01 Client ID: DUP Sample						
Lead, Total	35.5	78.4	mg/kg	**75**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01 Date Collected: 06/10/21 07:40
Client ID: PB29-11-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02
Date Collected: 06/10/21 08:00
Client ID: PB29-12-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
Date Collected: 06/10/21 08:10
Client ID: PB29-13-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
Date Collected: 06/10/21 08:15
Client ID: PB29-16-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-06	Date Collected:	06/10/21 08:55
Client ID:	PB29-20-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07
Client ID: PB29-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 09:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09
Client ID: PB29-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
Date Collected: 06/10/21 10:35
Client ID: PB29-25-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-11	Date Collected:	06/10/21 10:45
Client ID:	PB29-26-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12
Date Collected: 06/10/21 11:00
Client ID: PB29-27-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-13	Date Collected:	06/10/21 11:40
Client ID:	PB29-24-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
Date Collected: 06/10/21 12:35
Client ID: PB29-14-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
Date Collected: 06/10/21 12:55
Client ID: PB29-15-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16
Date Collected: 06/10/21 13:05
Client ID: PB29-18-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
Client ID: PB29-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18
Client ID: PB33-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19
Date Collected: 06/10/21 13:50
Client ID: PB33-02-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20
Date Collected: 06/10/21 14:05
Client ID: PB33-03-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21
Client ID: PB33-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 14:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Client ID: DUP-5
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,05-17 QC Batch ID: WG1511236-1 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Solids, Total	81.4	80.7	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 04,18-22 QC Batch ID: WG1511291-1 QC Sample: L2127720-05 Client ID: DUP Sample						
Solids, Total	69.1	69.2	%	0		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-01A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-01B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-01F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-02A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-02B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-02F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-03A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-03B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-03F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-04A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-04B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-04C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Serial_No:07062117:08

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-04E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		TS(7),PA-8270SIM(14)
L2131453-05A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-05B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-05F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-06A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-06B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-06F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-07A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-07B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-07F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-08A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-08B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-08F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-09A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-09B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-09C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-09D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-09F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-10A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-10B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-10F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-11A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-11B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-11F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-12A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-12B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-12F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-13A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-13B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-13F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-14A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-14B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-14E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-14F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-15A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-15B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-15F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-16A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-16B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-16E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-16F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-17A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-17B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-17E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-17F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-18A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-18B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-18E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-19A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-19B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-19E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-20A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-20B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-20E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-21A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-21B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-21E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-22A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-22B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-22F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-23A	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23B	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23C	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23D	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23E	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23F	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-23G	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)
L2131453-23H	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		PB-6020T-PPB(180)
L2131453-24A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24C	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24D	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24E	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24F	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24G	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24H	Plastic 250ml HNO3 preserved	C	<2	<2	3.0	Y	Absent		PB-6020T-PPB(180)
L2131453-25A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-25B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:07062117:08

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 06/11/21 ALPHA Job #: L2131453

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31453-01	PB29-11-SS01	6/10	740	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-02	PB29-12-SS01	↓	800	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB29-13-SS01		810			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB29-16-SS01		815			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB29-21-SS01		840			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB29-20-SS01		855			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB29-22-SS01		910			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB29-23-SS01		920			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB29-19-SS01		1005			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB29-25-SS01	↓	1035	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/10/1540	[signature]	6/10/21 1540
[signature]	6/10/21 1800	[signature]	6/10/1800
[signature]	6/10 2400	[signature]	6/11 0220
6/11 0200		[signature]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 06 | 11 | 21

ALPHA Job #: L2131453

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31453-11	PB29-26-SS01	6/10	1045	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-12	PB29-27-SS01		1100			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-13	PB29-24-SS01		1140			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-14	PB29-14-SS01		1235			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-15	PB29-15-SS01		1255			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-16	PB29-18-SS01		1305			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-17	PB29-17-SS01		1320			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-18	PB33-01-SS01		1340			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB33-02-SS01		~~1403~~ 1350			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	PB33-03-SS01	↓	1405	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
				Container Type		-	-	-	-	-	-	-	-	-	-	-	-		
				Preservative		-	-	-	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/10 1540	[illegible]	6/10/21 1540
[illegible]	6/10/21 1800	[illegible]	6-10 1800
[illegible]	6-10 2200	[illegible]	6/10 2200
[illegible]	6/11 0200	[illegible]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 06/11/21

ALPHA Job #: L2131453

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

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Trenton, NJ 08619

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Fax:

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☐ These samples have been Previously analyzed by Alpha

Report Information / Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist	SHORTLIST 1-5	Sample Specific Comments	TOTAL # BOTTLES
31453-21	PB33-04-SS01	6/10	1410	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	DUP-5	6/10	750	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	FB-210610-1	6/10	1200	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-24	FB-210610-2	6/10	1400	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-25	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		2

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/10 1540	[signature] AAC	6/10/21 1540
[signature] AAC	6/10/21 1800	[signature] AAL	6-10 1800
[signature] AAC	6-10 2210	[signature]	6/10 2200
[signature] 6/11 0200		[signature]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 6-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

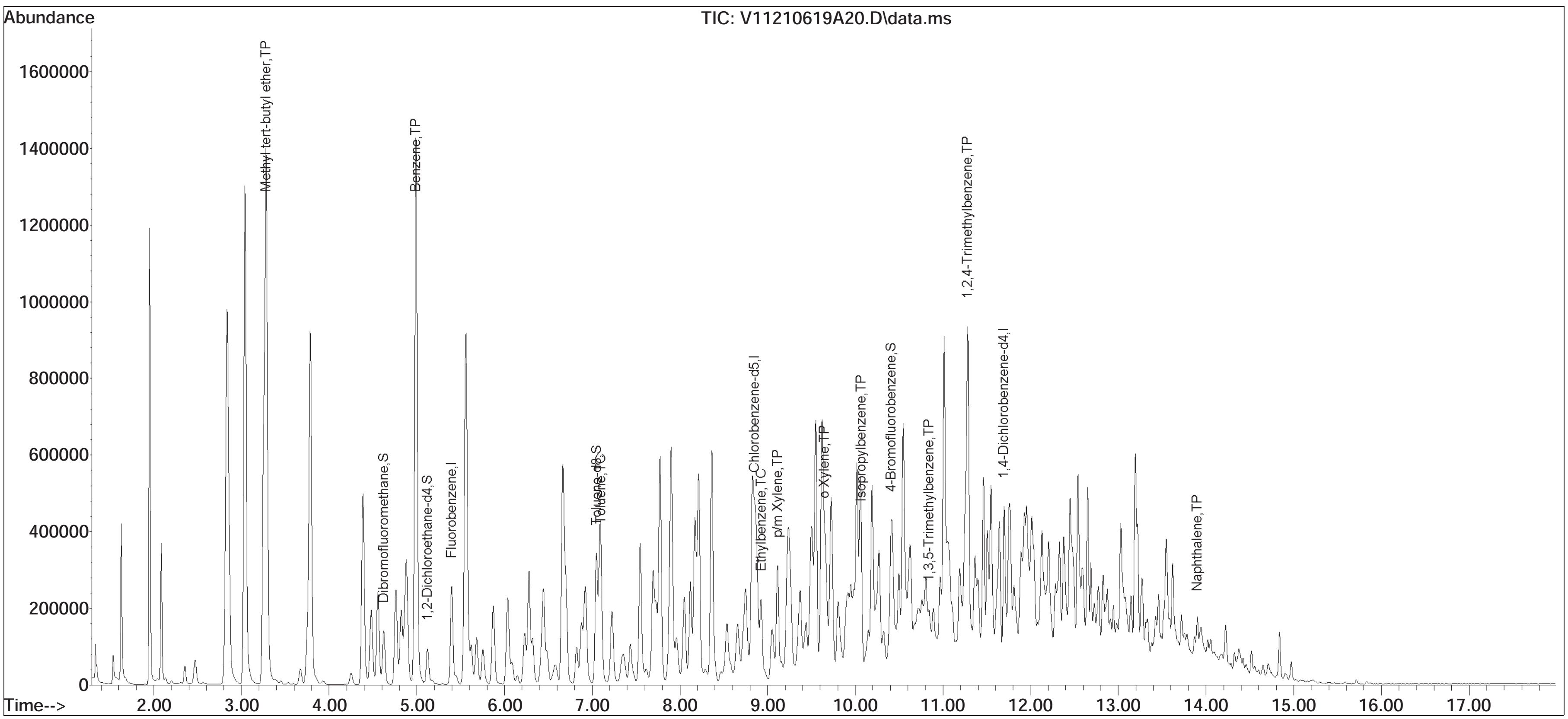
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A20.D
Acq On : 19 Jun 2021 03:18 pm
Operator : VOA111:NLK
Sample : L2131453-02,31H,6.12,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 20 08:23:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

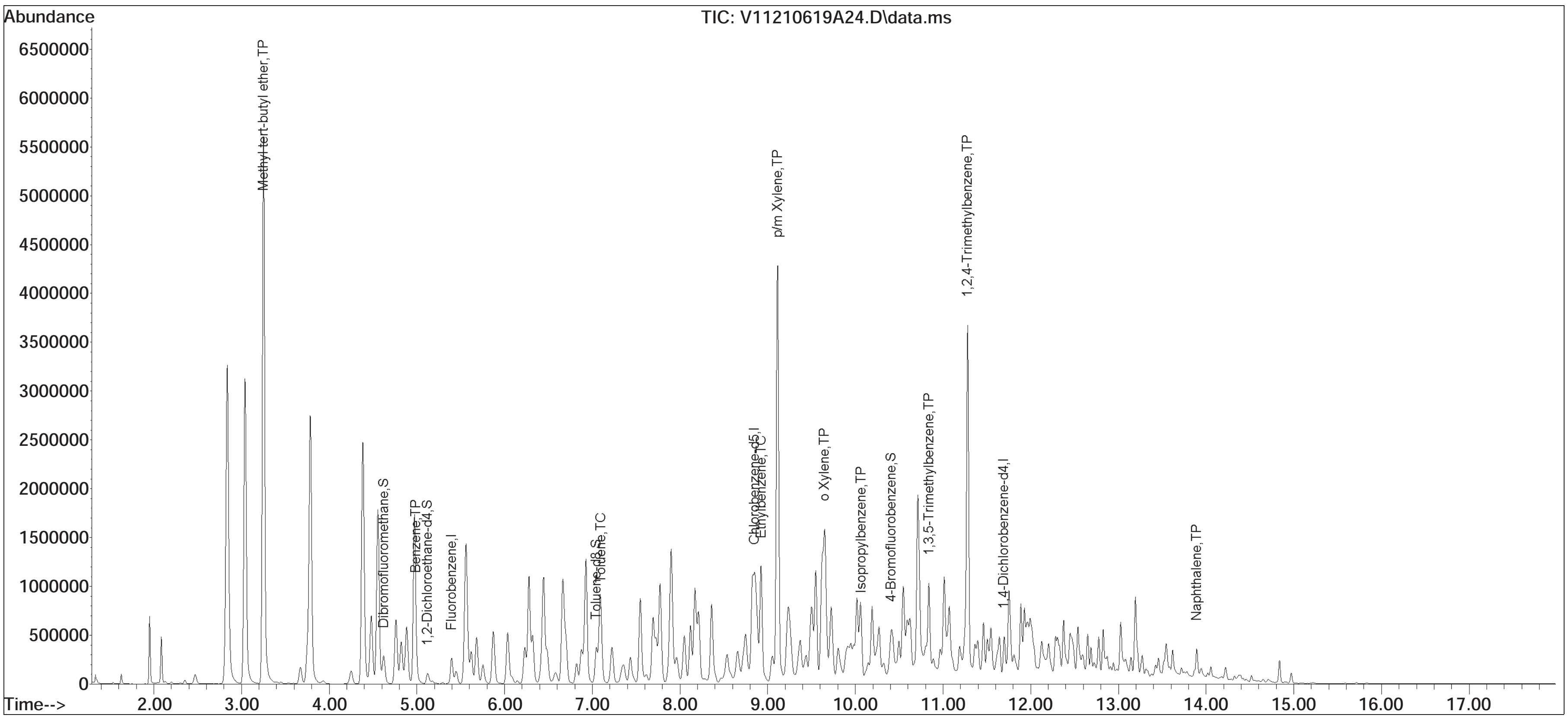


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A24.D
Acq On : 19 Jun 2021 04:59 pm
Operator : VOA111:NLK
Sample : L2131453-03,31H,5.02,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 20 08:23:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A09.D
Acq On    : 20 Jun 2021   5:02 pm
Operator  : VOA104:JC
Sample    : L2131453-04,31H,6.00,5,0.100,,A
Misc      : WG1514499,ICAL18000
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Jun 21 06:29:15 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•
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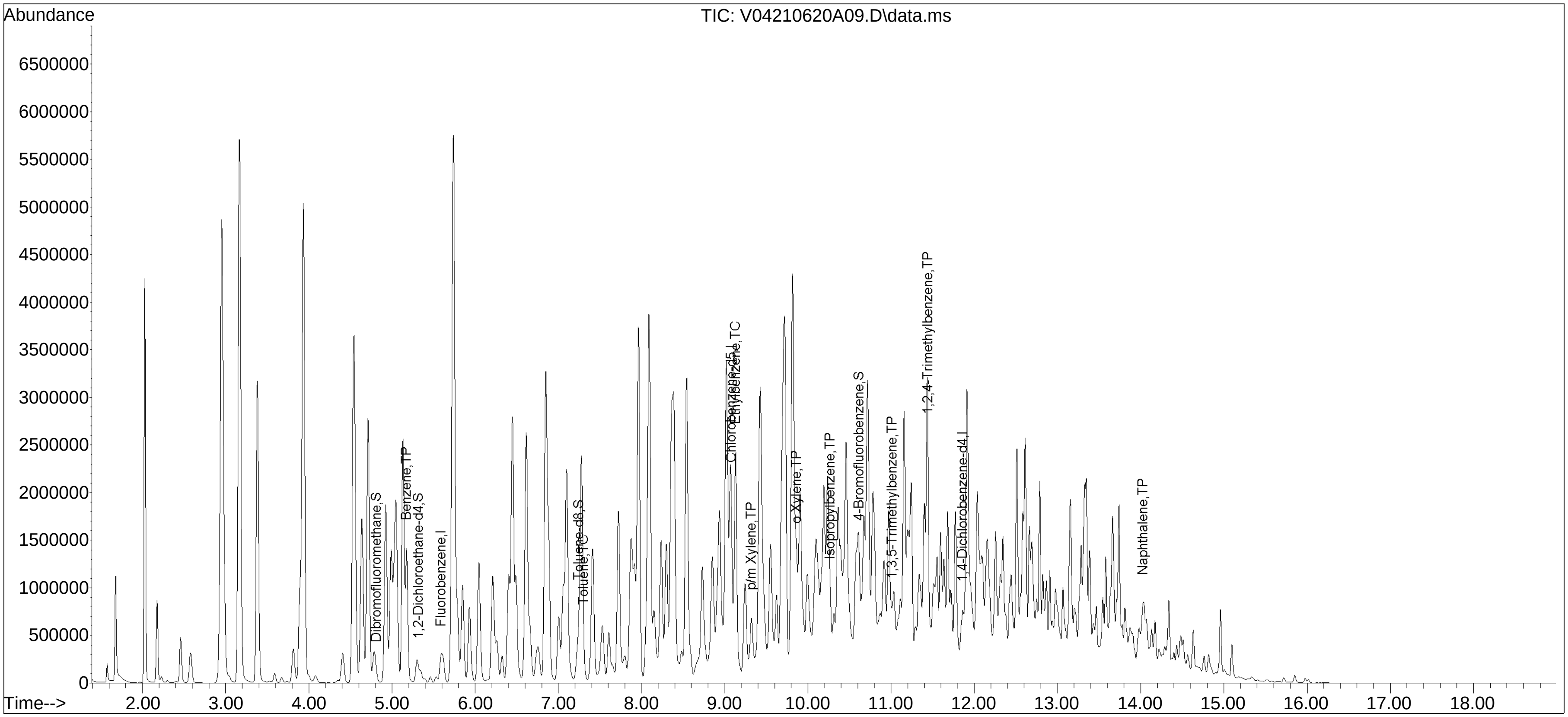
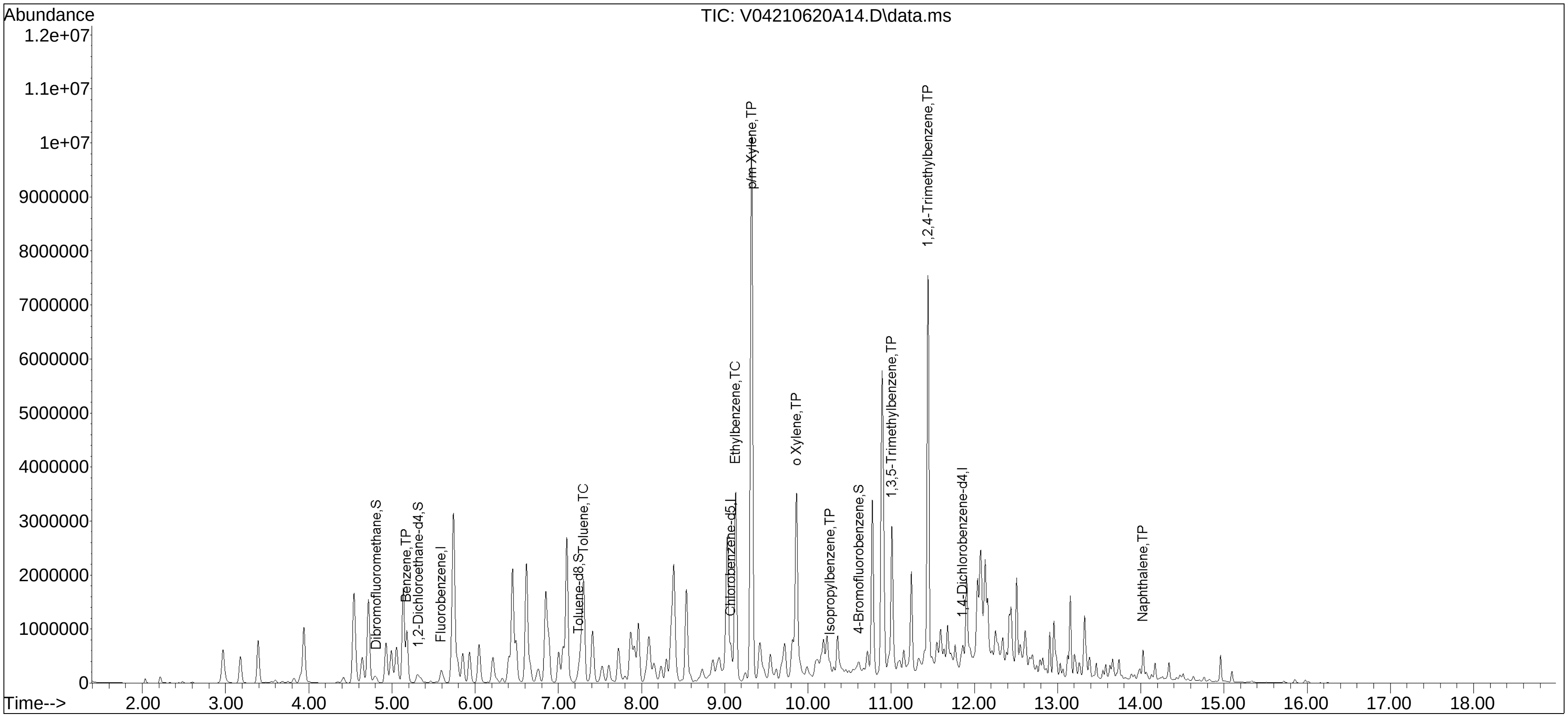


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A14.D
Acq On : 20 Jun 2021 7:08 pm
Operator : VOA104:JC
Sample : L2131453-08D2,31H,6.06,5,0.020,,A
Misc : WG1514499,ICAL18000
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 21 06:03:38 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

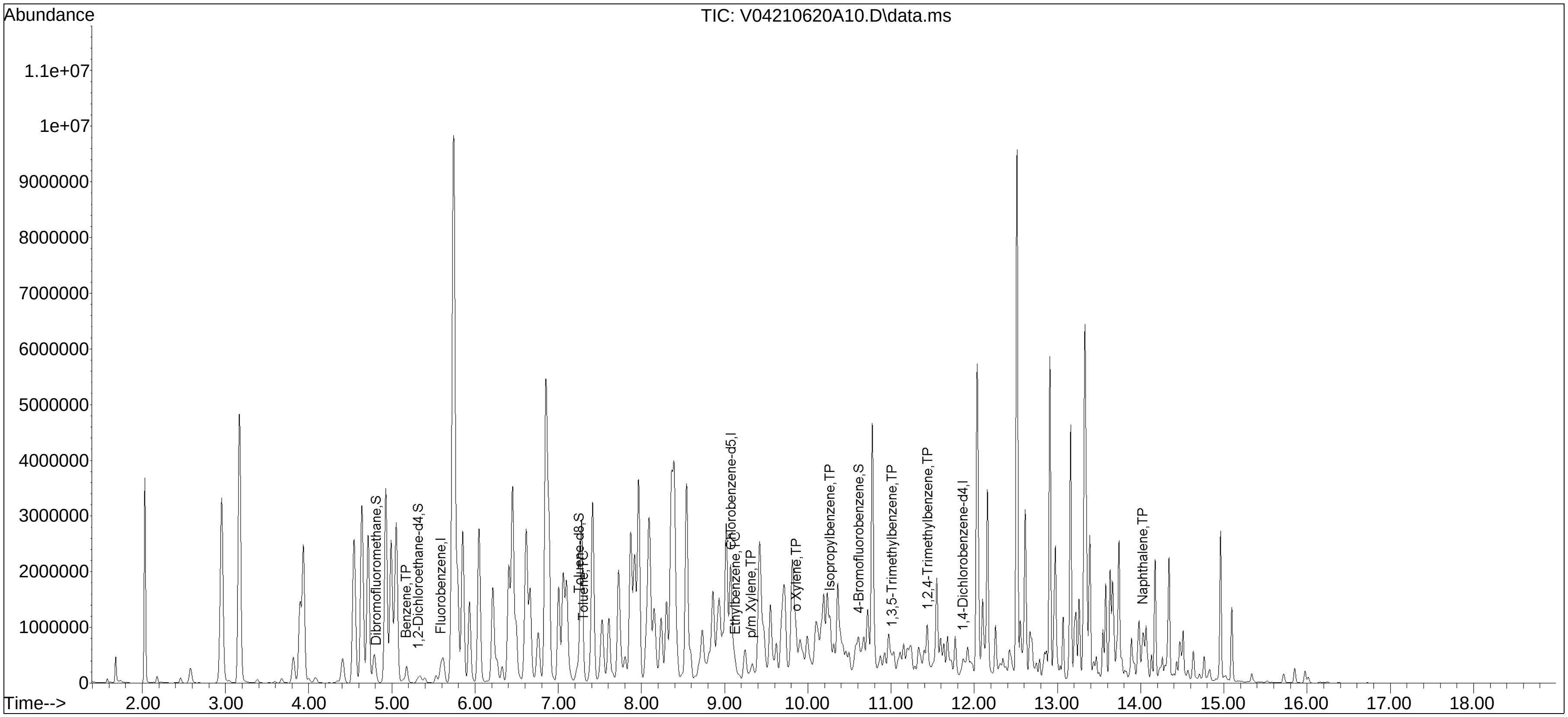


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A10.D
Acq On   : 20 Jun 2021   5:27 pm
Operator : VOA104:JC
Sample   : L2131453-10,31H,4.83,5,0.100,,A
Misc   : WG1514499,ICAL18000
ALS Vial : 10   Sample Multiplier: 1

Quant Time: Jun 21 06:31:08 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A11.D
Acq On    : 20 Jun 2021   5:52 pm
Operator  : VOA104:JC
Sample    : L2131453-11,31H,5.21,5,0.100,,A
Misc      : WG1514499,ICAL18000
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Jun 21 06:31:51 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•
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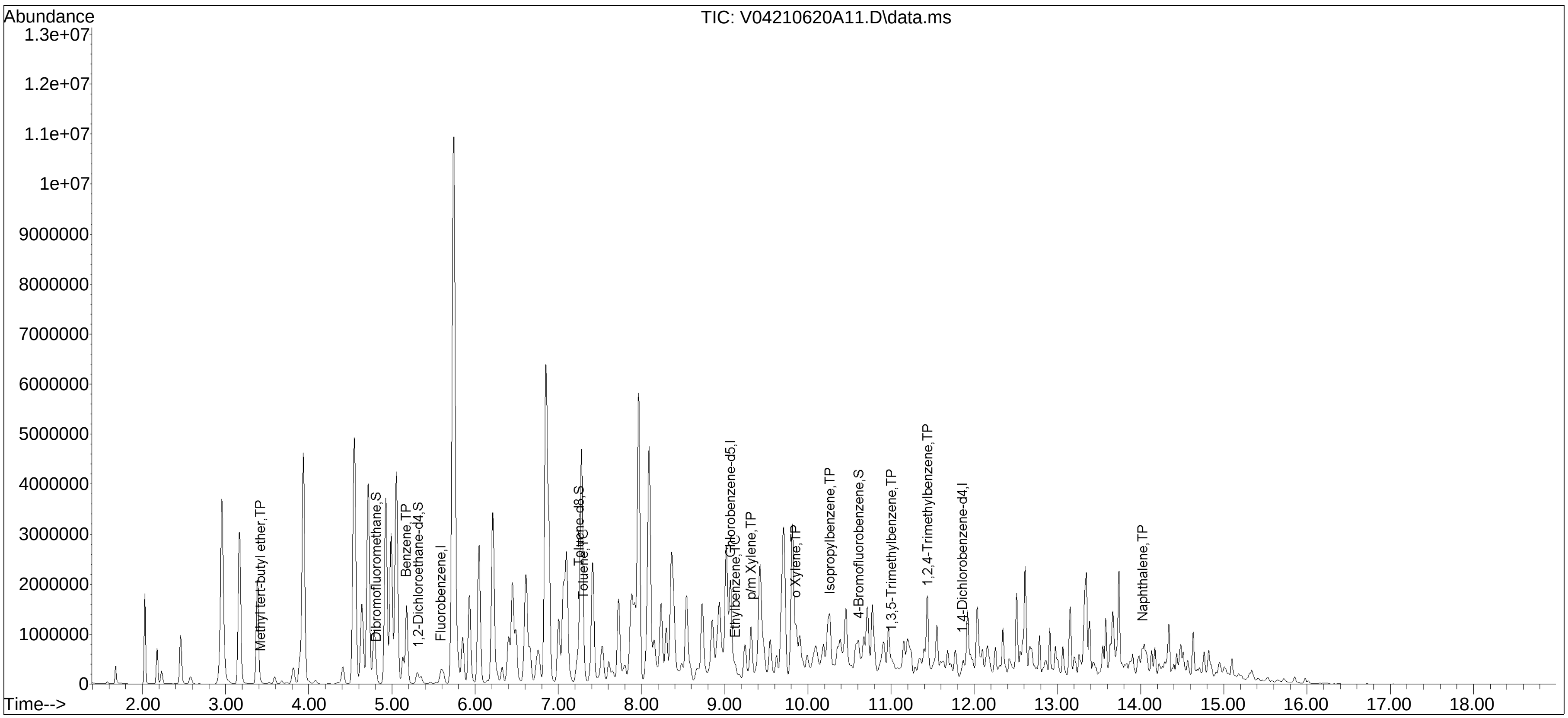
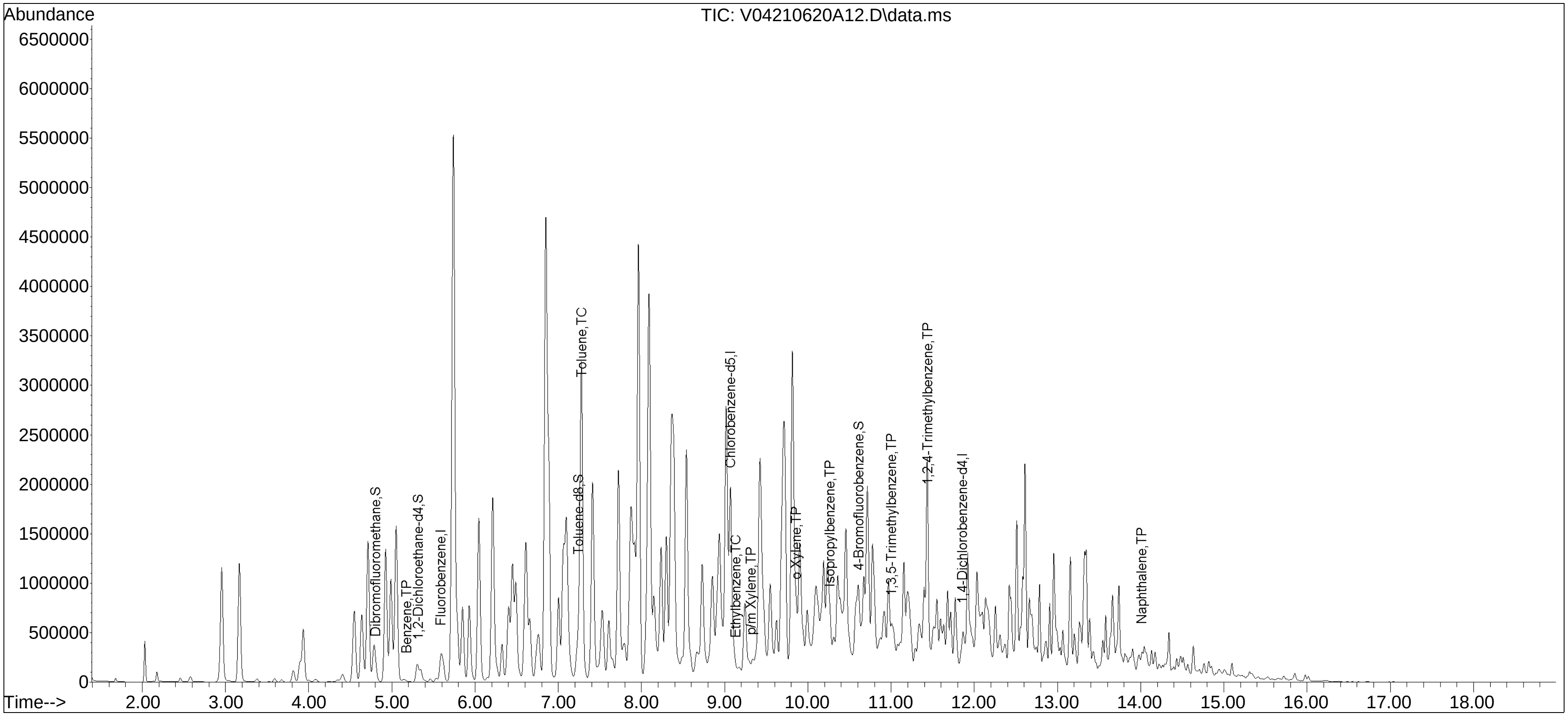


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A12.D
Acq On : 20 Jun 2021 6:18 pm
Operator : VOA104:JC
Sample : L2131453-12,31H,5.71,5,0.100,,A
Misc : WG1514499,ICAL18000
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 21 06:32:33 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

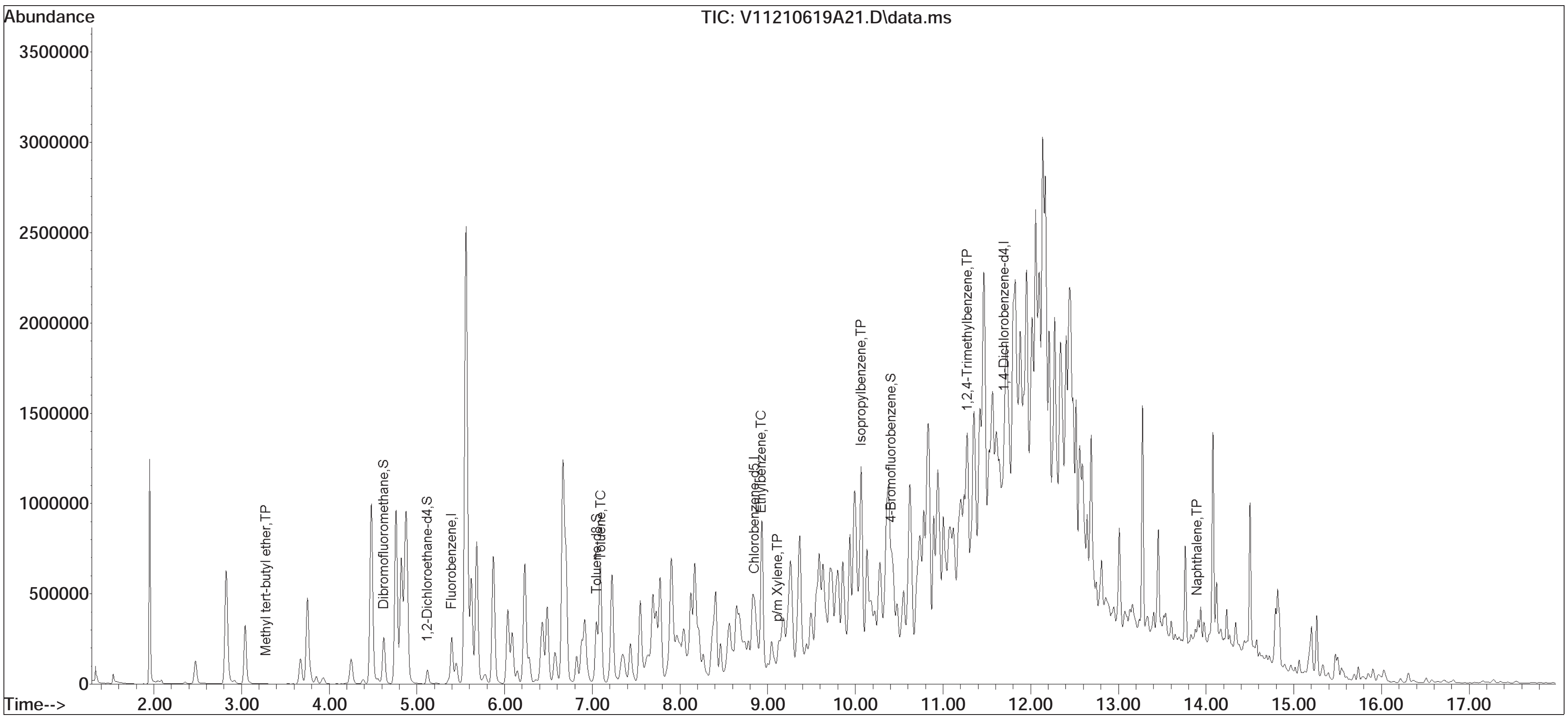


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A21.D
Acq On    : 19 Jun 2021  03:43 pm
Operator  : VOA111:NLK
Sample    : L2131453-17,31H,5.79,5,0.100,,A
Misc      : WG1514517,ICAL18049
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jun 20 13:27:50 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•
```

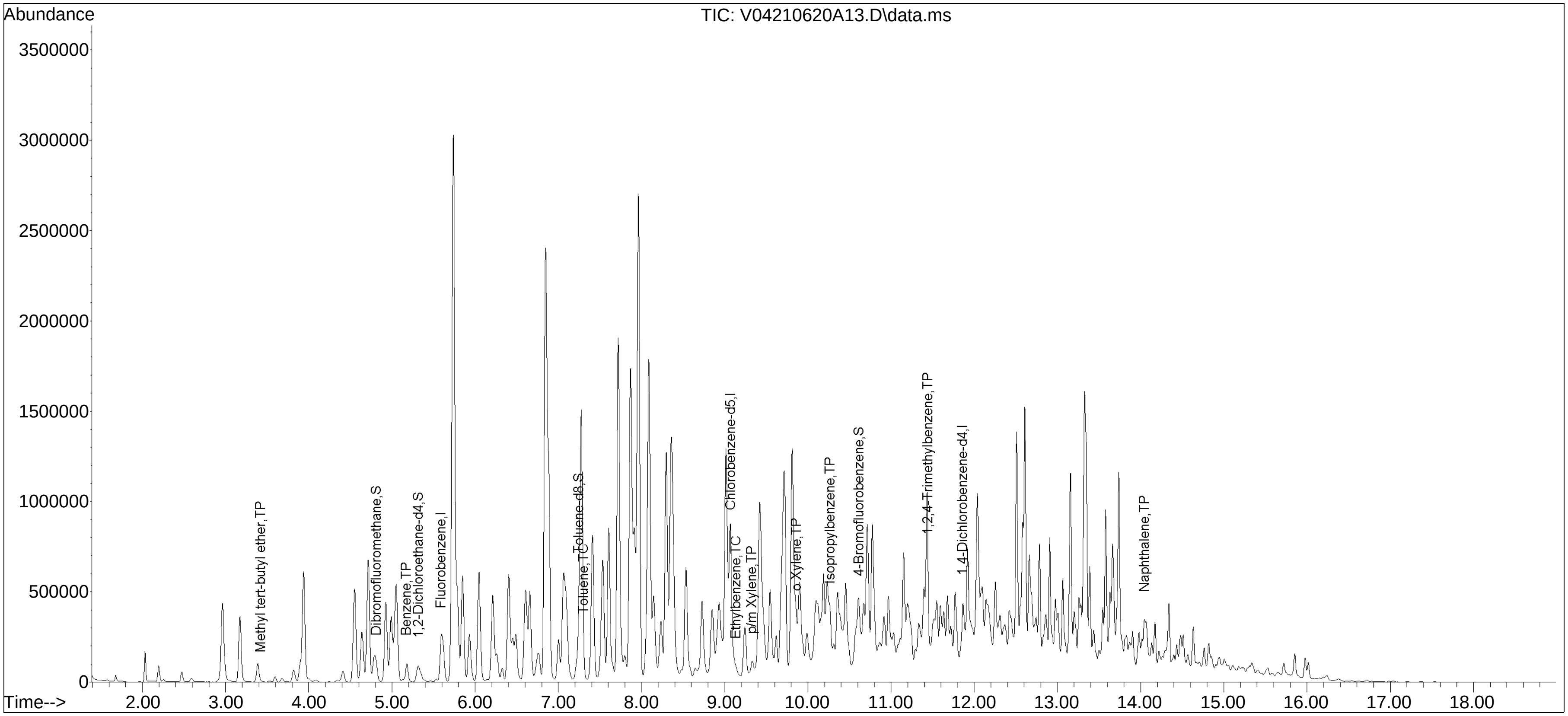


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A13.D
Acq On   : 20 Jun 2021   6:43 pm
Operator : VOA104:JC
Sample   : L2131453-18D,31H,6.54,5,0.050,,A
Misc   : WG1514499,ICAL18000
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Jun 21 06:03:34 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

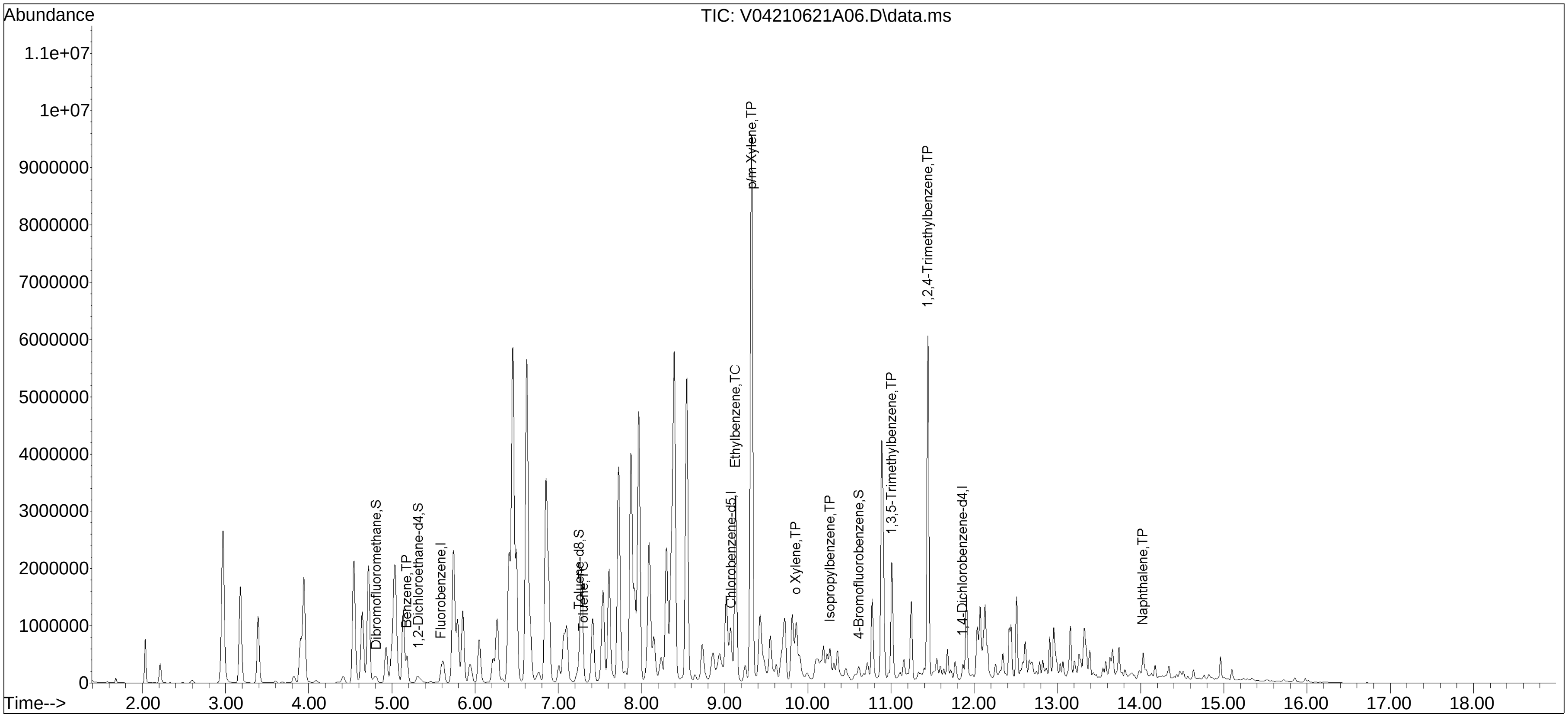


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210621A\
Data File : V04210621A06.D
Acq On : 21 Jun 2021 9:22 am
Operator : VOA104:JC
Sample : L2131453-21D2,31H,6.42,5,0.020,,A
Misc : WG1514499,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 21 11:54:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210621A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V04210621A01.D•



ANALYTICAL REPORT

Lab Number:	L2131595
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131595-01	PB33-05-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:30	06/11/21
L2131595-02	PB33-06-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:40	06/11/21
L2131595-03	PB33-07-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:50	06/11/21
L2131595-04	PB33-08-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:10	06/11/21
L2131595-05	PB33-09-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:20	06/11/21
L2131595-06	PB33-10-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:35	06/11/21
L2131595-07	PB33-11-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:45	06/11/21
L2131595-08	PB33-12-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:00	06/11/21
L2131595-09	PB33-13-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:10	06/11/21
L2131595-10	PB33-14-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:20	06/11/21
L2131595-11	PB33-15-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:30	06/11/21
L2131595-12	PB33-16-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:45	06/11/21
L2131595-13	PB33-17-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:00	06/11/21
L2131595-14	PB33-18-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:10	06/11/21
L2131595-15	PB33-19-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:20	06/11/21
L2131595-16	PB33-20-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:40	06/11/21
L2131595-17	PB33-21-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:50	06/11/21
L2131595-18	PB33-22-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:05	06/11/21
L2131595-19	PB33-23-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:20	06/11/21
L2131595-20	DUP-6	SOIL	PHILADELPHIA, PA	06/11/21 07:35	06/11/21
L2131595-21	FB-210611-1	WATER	PHILADELPHIA, PA	06/11/21 12:30	06/11/21
L2131595-22	FB-210611-2	WATER	PHILADELPHIA, PA	06/11/21 13:00	06/11/21
L2131595-23	TB	WATER	PHILADELPHIA, PA	06/11/21 07:30	06/11/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2131595-23: Headspace was noted in the sample containers submitted for PA Volatile Organics - EPA 8260C. The analysis was performed.

Volatile Organics

L2131595-02 and -06: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2131595-02 and -06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (137%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (143%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (131%) and 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-07D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (292%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (465%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-12: The internal standard (IS) response(s) for fluorobenzene (265%) and the surrogate recoveries for dibromofluoromethane (59%) and 1,2-dichloroethane-d4 (140%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2131595-14D: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-14D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-01 D2	Date Collected:	06/11/21 07:30
Client ID:	PB33-05-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 14:18
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.53	J	mg/kg	0.63	0.064	5
Benzene	46.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	190	E	mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	83.		mg/kg	0.32	0.045	5
p/m-Xylene	310	E	mg/kg	0.63	0.18	5
o-Xylene	100		mg/kg	0.32	0.092	5
Isopropylbenzene	12.		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	180	E	mg/kg	0.63	0.10	5
Naphthalene	15.		mg/kg	1.3	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-01 D	Date Collected:	06/11/21 07:30
Client ID:	PB33-05-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:43
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	180		mg/kg	1.3	0.69	20
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	410		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	180		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-02
Client ID: PB33-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:40
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:10
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0085	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.051	0.0072	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.051	0.015	1
Xylenes, Total	ND		mg/kg	0.051	0.015	1
Isopropylbenzene	0.31		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1
Naphthalene	0.078	J	mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03
Client ID: PB33-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 07:50
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:26
Analyst: JC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0074		mg/kg	0.0018	0.00018	1
Benzene	0.14		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.056		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.060		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.060		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.010		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0018		mg/kg	0.0018	0.00030	1
Naphthalene	0.0019	J	mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04
Client ID: PB33-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 08:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 15:40
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.15		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.56		mg/kg	0.052	0.0074	1
p/m-Xylene	0.054	J	mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	0.054	J	mg/kg	0.052	0.015	1
Isopropylbenzene	2.7		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.044	J	mg/kg	0.10	0.017	1
Naphthalene	0.14	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-05 D2	Date Collected:	06/11/21 08:20
Client ID:	PB33-09-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 14:46
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.53	0.054	5
Benzene	7.9		mg/kg	0.13	0.044	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.069	5
Toluene	2.7		mg/kg	0.27	0.14	5
1,2-Dibromoethane	ND		mg/kg	0.13	0.078	5
Ethylbenzene	53.		mg/kg	0.27	0.038	5
p/m-Xylene	210	E	mg/kg	0.53	0.15	5
o-Xylene	8.3		mg/kg	0.27	0.078	5
Isopropylbenzene	6.6		mg/kg	0.27	0.029	5
1,3,5-Trimethylbenzene	26.		mg/kg	0.53	0.052	5
1,2,4-Trimethylbenzene	67.		mg/kg	0.53	0.089	5
Naphthalene	7.4		mg/kg	1.1	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05 D
Client ID: PB33-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:05
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	200		mg/kg	1.1	0.30	10
Xylenes, Total	210		mg/kg	0.27	0.078	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-06	Date Collected:	06/11/21 08:35
Client ID:	PB33-10-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:33
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.015	J	mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1
Naphthalene	0.056	J	mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-07	Date Collected:	06/11/21 08:45
Client ID:	PB33-11-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:00
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.6		mg/kg	0.11	0.011	1
Benzene	12.		mg/kg	0.028	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	7.0		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	3.6		mg/kg	0.055	0.0078	1
p/m-Xylene	16.		mg/kg	0.11	0.031	1
o-Xylene	6.5		mg/kg	0.055	0.016	1
Xylenes, Total	22.		mg/kg	0.055	0.016	1
Isopropylbenzene	1.6		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	12.		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.11	0.018	1
Naphthalene	4.3		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**131**	Q	70-130
4-Bromofluorobenzene	**191**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07 D
Client ID: PB33-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:45
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 15:13
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	34.		mg/kg	0.55	0.092	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
Client ID: PB33-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:00
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:27
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.56		mg/kg	0.11	0.011	1
Benzene	2.7		mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	0.036	J	mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	2.4		mg/kg	0.053	0.0075	1
p/m-Xylene	1.9		mg/kg	0.11	0.030	1
o-Xylene	0.036	J	mg/kg	0.053	0.016	1
Xylenes, Total	1.9	J	mg/kg	0.053	0.016	1
Isopropylbenzene	0.67		mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	4.9		mg/kg	0.11	0.018	1
Naphthalene	0.72		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	**135**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
Client ID: PB33-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:53
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0023		mg/kg	0.0017	0.00017	1
Benzene	0.00053		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	0.00021	J	mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	0.0069		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1
Naphthalene	0.00070	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-10	Date Collected:	06/11/21 09:20
Client ID:	PB33-14-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:21
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00066	J	mg/kg	0.0019	0.00019	1
Benzene	0.0011		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	0.00084	J	mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	0.00019	J	mg/kg	0.00095	0.00013	1
p/m-Xylene	0.00082	J	mg/kg	0.0019	0.00053	1
o-Xylene	0.00086	J	mg/kg	0.00095	0.00028	1
Xylenes, Total	0.0017	J	mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.086		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.010		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**292**	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
Client ID: PB33-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:48
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00083	J	mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0055		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.017		mg/kg	0.0020	0.00056	1
o-Xylene	0.0065		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.024		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.016		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.015		mg/kg	0.0020	0.00033	1
Naphthalene	0.0043		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**465**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
Client ID: PB33-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:45
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:15
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0026		mg/kg	0.0018	0.00018	1
Benzene	0.0099		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0038		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.0018		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0057		mg/kg	0.0018	0.00050	1
o-Xylene	0.0021		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0078		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.034		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00058	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0033	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**140**	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	**59**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-12	Date Collected:	06/11/21 09:45
Client ID:	PB33-16-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 16:08
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.13		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	ND		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.028	J	mg/kg	0.068	0.0095	1
p/m-Xylene	0.065	J	mg/kg	0.14	0.038	1
o-Xylene	ND		mg/kg	0.068	0.020	1
Xylenes, Total	0.065	J	mg/kg	0.068	0.020	1
Isopropylbenzene	0.10		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.022	1
Naphthalene	0.047	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-13	Date Collected:	06/11/21 10:00
Client ID:	PB33-17-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:59
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00041	J	mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.00042	J	mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14 D
Client ID: PB33-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 10:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:54
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.1	0.11	10
Benzene	18.		mg/kg	0.27	0.090	10
1,2-Dichloroethane	ND		mg/kg	0.54	0.14	10
Toluene	ND		mg/kg	0.54	0.29	10
1,2-Dibromoethane	ND		mg/kg	0.27	0.16	10
Ethylbenzene	7.2		mg/kg	0.54	0.076	10
p/m-Xylene	2.2		mg/kg	1.1	0.30	10
o-Xylene	0.17	J	mg/kg	0.54	0.16	10
Xylenes, Total	2.4	J	mg/kg	0.54	0.16	10
Isopropylbenzene	8.5		mg/kg	0.54	0.059	10
1,3,5-Trimethylbenzene	1.7		mg/kg	1.1	0.10	10
1,2,4-Trimethylbenzene	29.		mg/kg	1.1	0.18	10
Naphthalene	8.0		mg/kg	2.2	0.35	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15
Client ID: PB33-19-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 11:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:22
Analyst: JC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.10		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	1.7		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.32		mg/kg	0.067	0.0094	1
p/m-Xylene	7.2		mg/kg	0.13	0.037	1
o-Xylene	4.0		mg/kg	0.067	0.019	1
Xylenes, Total	11.		mg/kg	0.067	0.019	1
Isopropylbenzene	0.079		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.13	0.022	1
Naphthalene	0.087	J	mg/kg	0.27	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16
Client ID: PB33-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:40
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:54
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.00060		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00068	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	117		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-17	Date Collected:	06/11/21 11:50
Client ID:	PB33-21-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 10:38
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00019	J	mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00036	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.00070	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Client ID: PB33-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:05
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:29
Analyst: JC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00025	J	mg/kg	0.0023	0.00023	1
Benzene	0.00050	J	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00022	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1
Naphthalene	ND		mg/kg	0.0046	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19 D2
Client ID: PB33-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 11:28
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.20		mg/kg	0.071	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	ND		mg/kg	0.14	0.077	2.5
1,2-Dibromoethane	ND		mg/kg	0.071	0.041	2.5
Ethylbenzene	0.87		mg/kg	0.14	0.020	2.5
p/m-Xylene	10.		mg/kg	0.28	0.079	2.5
o-Xylene	ND		mg/kg	0.14	0.041	2.5
Xylenes, Total	10.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	4.0		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	2.4		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.3		mg/kg	0.57	0.092	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-19 D	Date Collected:	06/11/21 12:20
Client ID:	PB33-23-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 23:44
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	62.		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	105		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-20 D2	Date Collected:	06/11/21 07:35
Client ID:	DUP-6	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 16:36
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.39	J	mg/kg	0.54	0.054	5
Benzene	30.		mg/kg	0.14	0.045	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.070	5
Toluene	130	E	mg/kg	0.27	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.079	5
Ethylbenzene	55.		mg/kg	0.27	0.038	5
p/m-Xylene	200	E	mg/kg	0.54	0.15	5
o-Xylene	70.		mg/kg	0.27	0.079	5
Isopropylbenzene	7.7		mg/kg	0.27	0.030	5
1,3,5-Trimethylbenzene	36.		mg/kg	0.54	0.052	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.54	0.090	5
Naphthalene	9.8		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	88		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-20	D	Date Collected:	06/11/21 07:35
Client ID:	DUP-6		Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/21/21 07:52
Analyst:	MV
Percent Solids:	84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	150		mg/kg	1.4	0.74	25
p/m-Xylene	240		mg/kg	2.7	0.76	25
Xylenes, Total	310		mg/kg	0.27	0.079	25
1,2,4-Trimethylbenzene	150		mg/kg	2.7	0.45	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-21	Date Collected:	06/11/21 12:30
Client ID:	FB-210611-1	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	None
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/17/21 12:32
Analytical Date:	06/17/21 15:34		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-21	Date Collected:	06/11/21 12:30
Client ID:	FB-210611-1	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/20/21 12:11
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	117		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-22	Date Collected:	06/11/21 13:00
Client ID:	FB-210611-2	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	None
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/17/21 12:32
Analytical Date:	06/17/21 15:41		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22
Client ID: FB-210611-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 13:00
Date Received: 06/11/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/20/21 12:34
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-23
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:47
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-23
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/20/21 12:57
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	117		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-23 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,18 Batch: WG1514703-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,09-13 Batch: WG1514861-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 07:25
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04-05,07,12,20 Batch: WG1514864-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02,05-08,14-15 Batch: WG1514864-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 11:01
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-23 Batch: WG1514918-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.22	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	121		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17 Batch: WG1515275-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 21-23 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-13 WG1514499-14								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,18 Batch: WG1514703-3 WG1514703-4								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,09-13 Batch: WG1514861-3 WG1514861-4								
Methyl tert butyl ether	99		99		66-130	0		30
Benzene	104		103		70-130	1		30
1,2-Dichloroethane	106		104		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	103		100		70-130	3		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	106		103		70-130	3		30
o-Xylene	107		103		70-130	4		30
Isopropylbenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	108		107		70-130	1		30
1,2,4-Trimethylbenzene	108		107		70-130	1		30
Naphthalene	110		111		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02,05-08,14-15 Batch: WG1514864-3 WG1514864-4								
Methyl tert butyl ether	99		99		66-130	0		30
Benzene	104		103		70-130	1		30
1,2-Dichloroethane	106		104		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	103		100		70-130	3		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	106		103		70-130	3		30
o-Xylene	107		103		70-130	4		30
Isopropylbenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	108		107		70-130	1		30
1,2,4-Trimethylbenzene	108		107		70-130	1		30
Naphthalene	110		111		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04-05,07,12,20 Batch: WG1514864-8 WG1514864-9								
Methyl tert butyl ether	100		108		66-130	8		30
Benzene	110		110		70-130	0		30
1,2-Dichloroethane	97		99		70-130	2		30
Toluene	109		110		70-130	1		30
1,2-Dibromoethane	104		108		70-130	4		30
Ethylbenzene	112		112		70-130	0		30
p/m-Xylene	104		104		70-130	0		30
o-Xylene	105		107		70-130	2		30
Isopropylbenzene	122		120		70-130	2		30
1,3,5-Trimethylbenzene	120		118		70-130	2		30
1,2,4-Trimethylbenzene	120		119		70-130	1		30
Naphthalene	112		116		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		106		70-130
Toluene-d8	111		113		70-130
4-Bromofluorobenzene	120		118		70-130
Dibromofluoromethane	90		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-23 Batch: WG1514918-3 WG1514918-4								
Methyl tert butyl ether	72		72		63-130	0		20
Benzene	96		94		70-130	2		20
1,2-Dichloroethane	86		88		70-130	2		20
Toluene	93		92		70-130	1		20
Ethylbenzene	97		94		70-130	3		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20
Naphthalene	85		86		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		96		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	106		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17 Batch: WG1515275-3 WG1515275-4								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

METALS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01
Date Collected: 06/11/21 07:30
Client ID: PB33-05-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.37	0.127	1	06/21/21 20:22	07/05/21 16:12	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-02	Date Collected:	06/11/21 07:40
Client ID:	PB33-06-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.69		mg/kg	2.29	0.123	1	06/21/21 20:22	07/05/21 15:58	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-03	Date Collected:	06/11/21 07:50
Client ID:	PB33-07-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	90%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.06		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 16:03	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04
Date Collected: 06/11/21 08:10
Client ID: PB33-08-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.52		mg/kg	2.22	0.119	1	06/21/21 20:22	07/05/21 16:08	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05 Date Collected: 06/11/21 08:20
Client ID: PB33-09-SS01 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.2		mg/kg	2.33	0.125	1	06/21/21 20:22	07/05/21 16:44	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06
Date Collected: 06/11/21 08:35
Client ID: PB33-10-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.25	0.120	1	06/21/21 20:22	07/05/21 16:49	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Date Collected: 06/11/21 08:45
Client ID: PB33-11-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.51		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 16:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
Date Collected: 06/11/21 09:00
Client ID: PB33-12-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.05		mg/kg	2.28	0.122	1	06/21/21 20:22	07/05/21 16:58	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
Client ID: PB33-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.33		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:03	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-10	Date Collected:	06/11/21 09:20
Client ID:	PB33-14-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.41		mg/kg	2.41	0.129	1	06/21/21 20:22	07/05/21 17:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11 | Date Collected: 06/11/21 09:30
Client ID: PB33-15-SS01 | Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:12	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
Client ID: PB33-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:45
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	46.7		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:16	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-13	Date Collected:	06/11/21 10:00
Client ID:	PB33-17-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:21	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14
Date Collected: 06/11/21 10:10
Client ID: PB33-18-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.81		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:26	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15
Client ID: PB33-19-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 11:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	61.3		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 17:48	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16
Date Collected: 06/11/21 11:40
Client ID: PB33-20-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	372		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
Date Collected: 06/11/21 11:50
Client ID: PB33-21-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.6		mg/kg	2.24	0.120	1	06/21/21 20:22	07/05/21 17:58	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Date Collected: 06/11/21 12:05
Client ID: PB33-22-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.82		mg/kg	2.17	0.116	1	06/21/21 20:22	07/05/21 18:03	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-19	Date Collected:	06/11/21 12:20
Client ID:	PB33-23-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.86		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 18:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20
Date Collected: 06/11/21 07:35
Client ID: DUP-6
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.92		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 18:12	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
Client ID: FB-210611-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:30
Date Received: 06/11/21
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 20:22	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22 Date Collected: 06/11/21 13:00
Client ID: FB-210611-2 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 20:27	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1513916-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 15:18	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1514849-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/21/21 20:22	07/05/21 15:49	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131595

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1513916-2								
Lead, Total	105		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514849-2 SRM Lot Number: D109-540								
Lead, Total	86		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1513916-3 QC Sample: L2132132-03 Client ID: MS Sample												
Lead, Total	ND	510	555.8	109		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-3 QC Sample: L2131595-01 Client ID: PB33-05-SS01												
Lead, Total	13.0	49.2	51.8	79		-	-		75-125	-		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1513916-4 QC Sample: L2132132-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-4 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Lead, Total	13.0	10.8	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01
Client ID: PB33-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-02	Date Collected:	06/11/21 07:40
Client ID:	PB33-06-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03 | Date Collected: 06/11/21 07:50
Client ID: PB33-07-SS01 | Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04 Date Collected: 06/11/21 08:10
Client ID: PB33-08-SS01 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05
Client ID: PB33-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 08:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-06	Date Collected:	06/11/21 08:35
Client ID:	PB33-10-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Date Collected: 06/11/21 08:45
Client ID: PB33-11-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
Client ID: PB33-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:00
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
Client ID: PB33-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-10
Client ID: PB33-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
Date Collected: 06/11/21 09:30
Client ID: PB33-15-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-12	Date Collected:	06/11/21 09:45
Client ID:	PB33-16-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13 | Date Collected: 06/11/21 10:00
Client ID: PB33-17-SS01 | Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14
Date Collected: 06/11/21 10:10
Client ID: PB33-18-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15
Date Collected: 06/11/21 11:20
Client ID: PB33-19-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-16	Date Collected:	06/11/21 11:40
Client ID:	PB33-20-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-17	Date Collected:	06/11/21 11:50
Client ID:	PB33-21-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Client ID: PB33-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:05
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19
Client ID: PB33-23-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-20	Date Collected:	06/11/21 07:35
Client ID:	DUP-6	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1511258-1 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Solids, Total	82.2	81.8	%	0		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-01A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-01B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-02A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-02B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-03A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-03B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-04A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-04B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-05A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-05B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-05C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-05D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-06A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-06B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-07A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-07B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-08A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-08B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-09A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-09B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-10A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-10B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-11A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-11B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-12A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131595-12B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-13A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-13B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-14A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-14B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-15A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-15B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-16A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-16B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-16C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-16D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-17A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-17B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-18A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-18B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-19A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-19B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-20A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-20B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-20E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-21A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-22A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2131595-23A	Vial HCl preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-23B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)
—

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31595-01	PB33-05-SS01	6/11	0730	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB33-06-SS01	↓	0740	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB33-07-SS01		0750			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB33-08-SS01		0810			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB33-09-SS01		0820			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	PB33-10-SS01		0835			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-07	PB33-11-SS01		0845			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-08	PB33-12-SS01		0900			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-09	PB33-13-SS01		0910			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-10	PB33-14-SS01	↓	0920	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
				Container Type		-	-	-	-	-	-	-	-	-	-	-	-		
				Preservative		-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]		RB	6/11 1350
RB	6-11 1600	[signature]	6/11 1600
[signature]	6-11 2200	[signature] AAC	6/11/21 2200
[signature] AAC	6/12/21 0240	[signature]	6/12/21 02:40

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (rev. ...)

Serial_No:07062117:20

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31595-11	PB33-15-5501	6/11	0930	S	TS	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB33-16-5501		0945			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	PB33-17-5501		1000			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-14	PB33-18-5501		1010			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-15	PB33-19-5501		1120			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-16	PB33-20-5501		1140			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-17	PB33-21-5501		1150			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-18	PB33-22-5501		1205			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB33-23-5501		1220			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	Dup-6		0735			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/11	RWS	6-11 1350
RWS	6-11 1820	[illegible]	6/11 1820
[illegible]	6-11 2200	AAL	6/11/21 2200
AAL	6/12/21 0240	[illegible]	6/12/21 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HNJ) (rev. 8-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only) MZW 6/12/21	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist 1, 2		Sample Specific Comments	TOTAL # BOTTLES
31595-21	FB-210611-1	6/11	1230	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-22	FB-210611-2	↓	1300	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	TB	↓		W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		2

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/11	RNB	6-11 1350
RNB	6/11	[signature] AAC	6/11/21 2200
[signature] AAC	6/12/21 0240	[signature]	6/12/21 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(AU) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

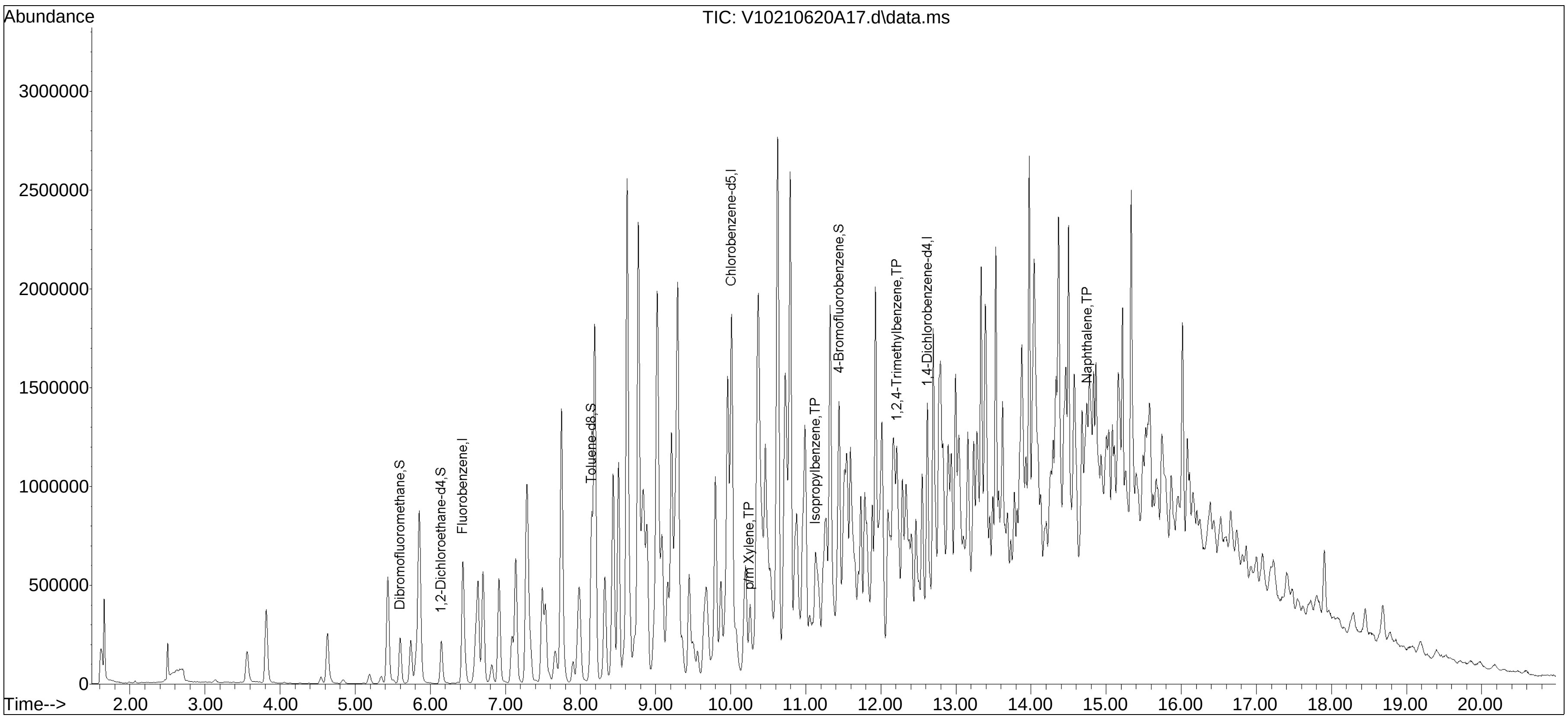
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A17.d
Acq On : 20 Jun 2021 7:10 pm
Operator : VOA110:JC
Sample : L2131595-02,31H,7.22,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 21 05:49:32 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•



Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A24.d
Acq On    : 21 Jun 2021   3:40 pm
Operator  : VOA110:JC
Sample    : L2131595-04,31H,6.36,5,0.100,,A
Misc      : WG1514864,ICAL17863
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Jun 22 08:17:24 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•
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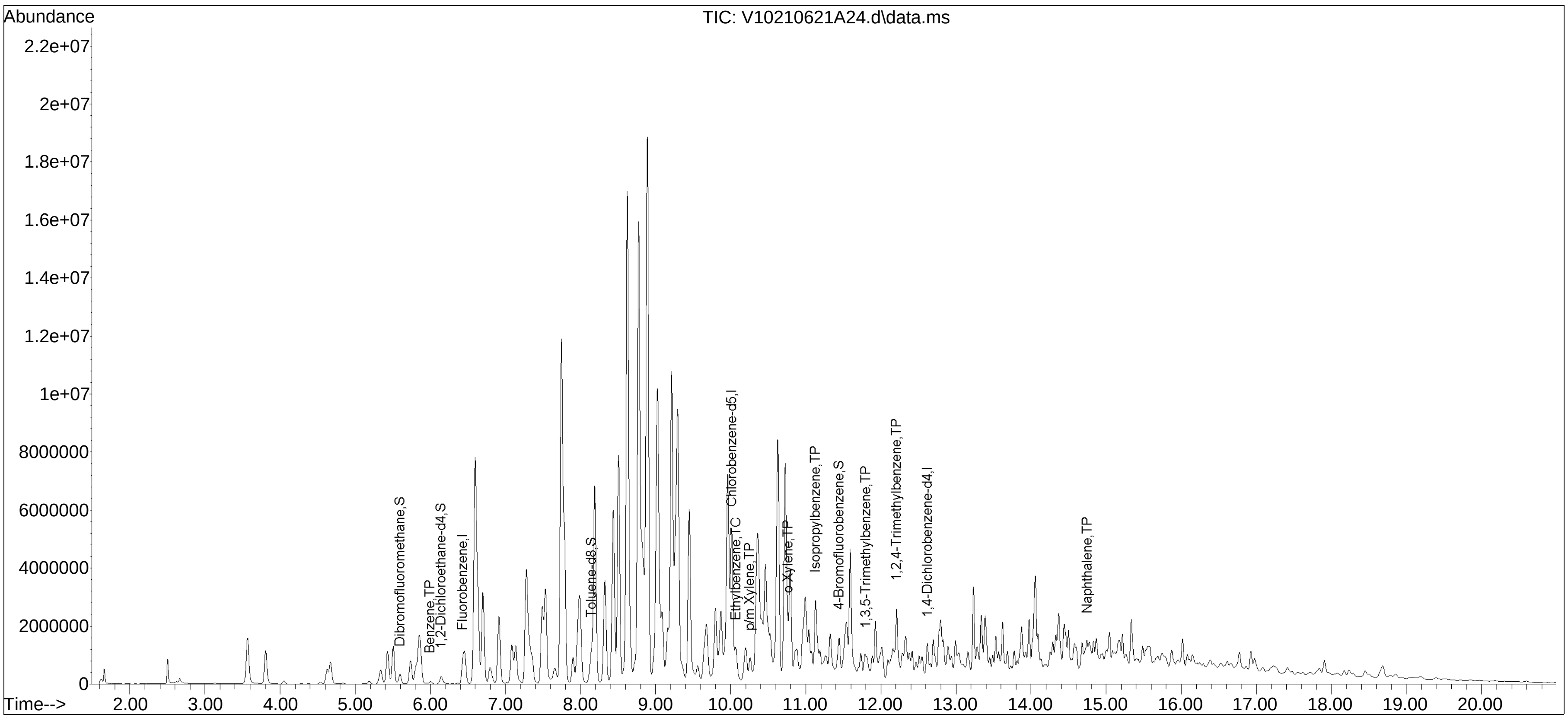
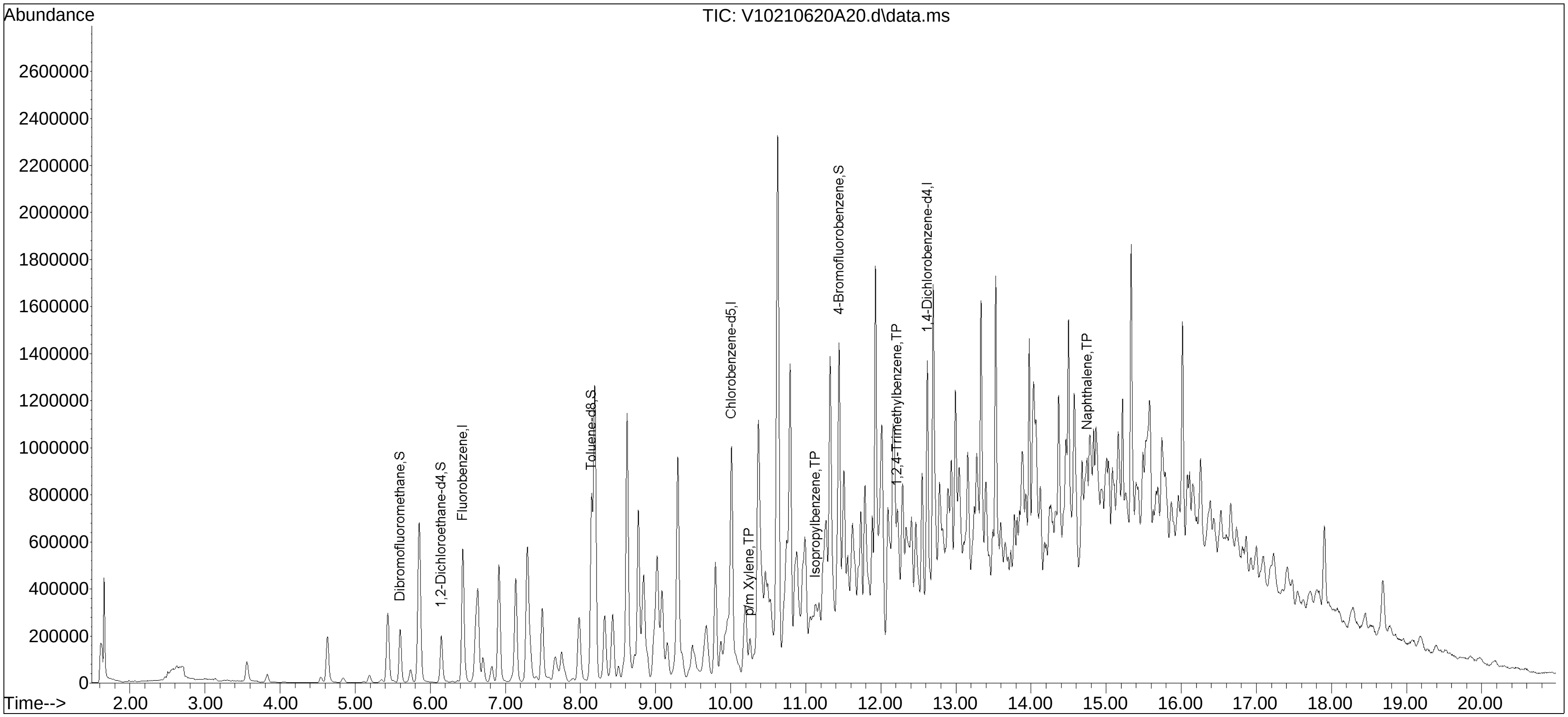


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A20.d
Acq On : 20 Jun 2021 8:33 pm
Operator : VOA110:JC
Sample : L2131595-06,31H,6.43,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 21 05:49:46 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

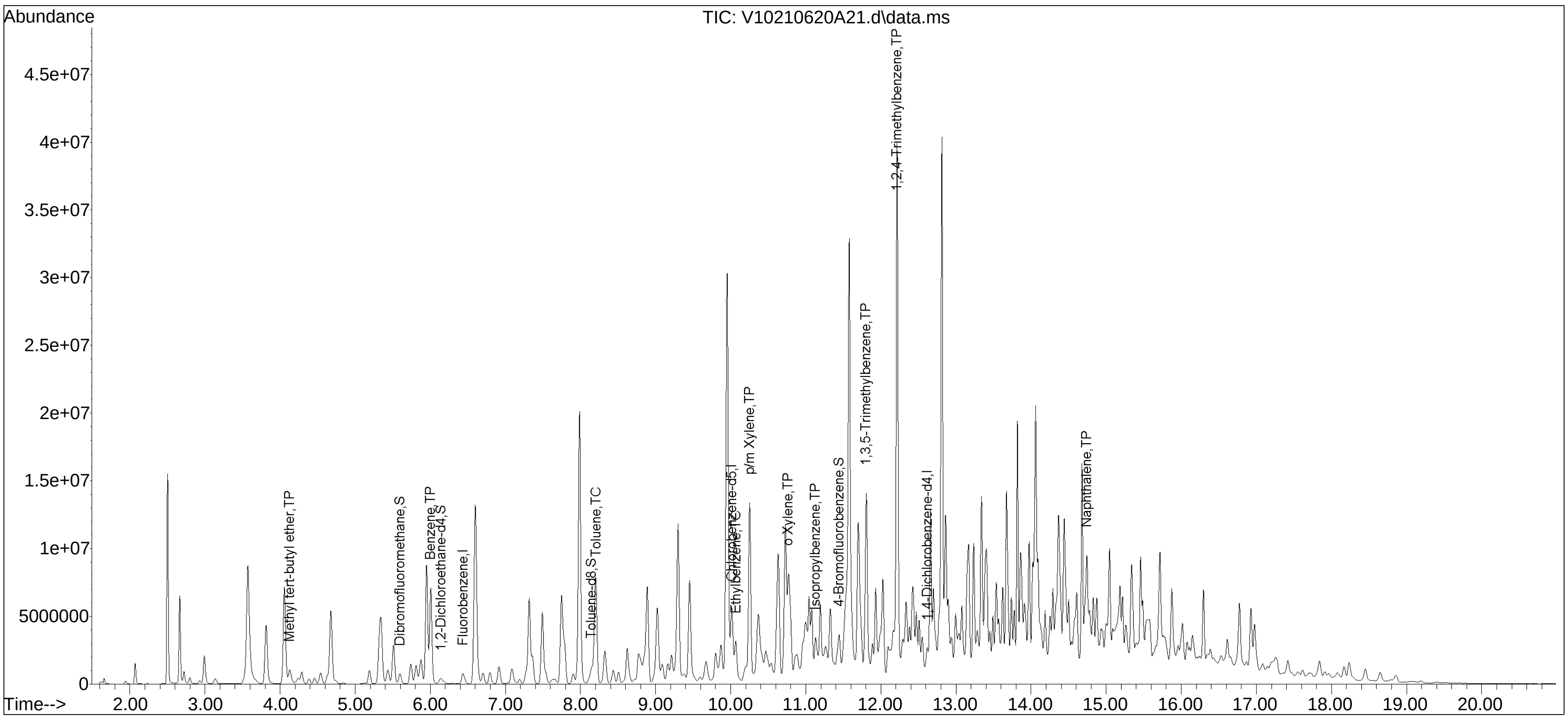


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A21.d
Acq On    : 20 Jun 2021   9:00 pm
Operator  : VOA110:JC
Sample    : L2131595-07,31H,6.81,5,0.100,,A
Misc      : WG1514864,ICAL17863
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jun 21 06:57:20 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•
```

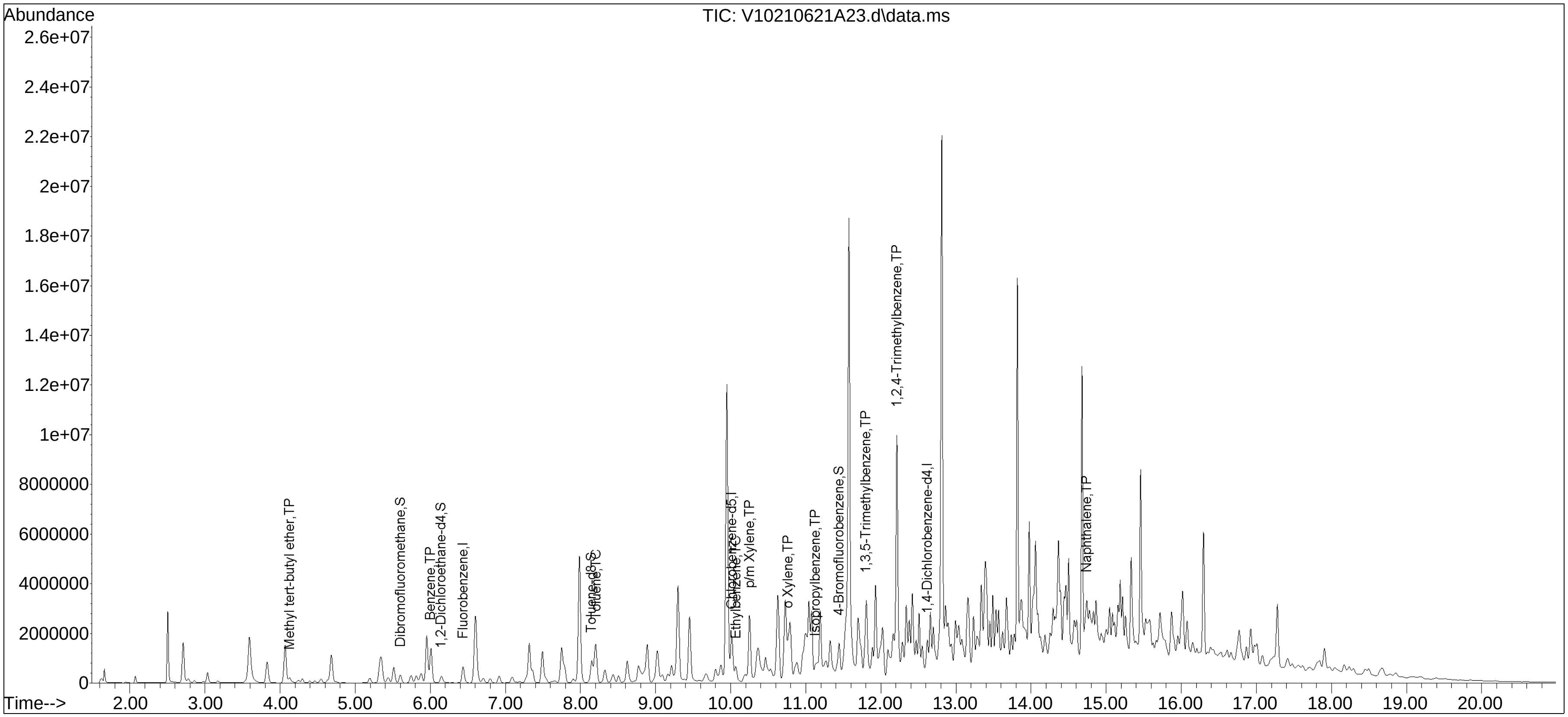


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A23.d
Acq On : 21 Jun 2021 3:13 pm
Operator : VOA110:JC
Sample : L2131595-07D,31H,6.81,5,0.020,,A
Misc : WG1514864,ICAL17863
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 22 08:17:04 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•

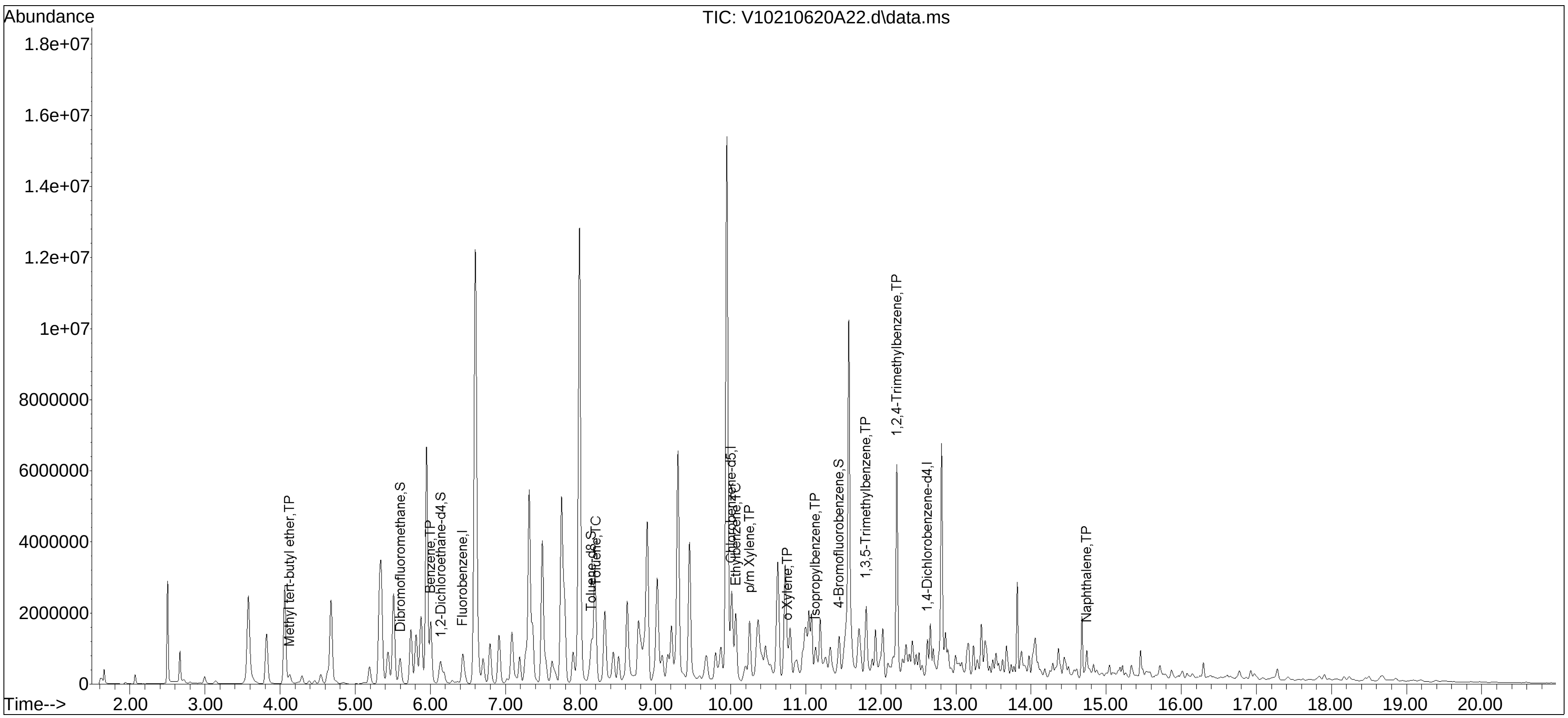


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A22.d
Acq On    : 20 Jun 2021   9:27 pm
Operator  : VOA110:JC
Sample    : L2131595-08,31H,6.58,5,0.100,,A
Misc      : WG1514864,ICAL17863
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Jun 21 06:57:47 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•
```

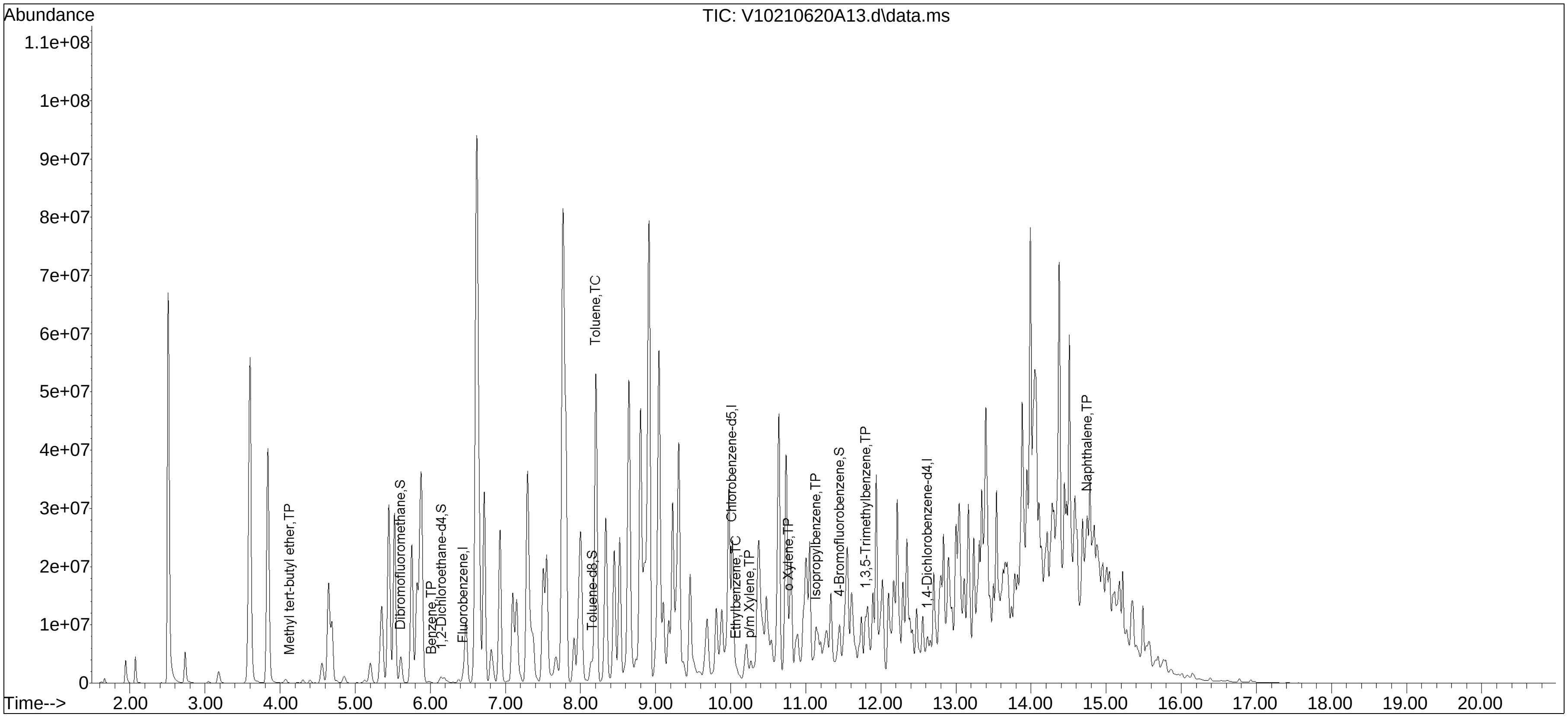


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A13.d
Acq On   : 20 Jun 2021   5:21 pm
Operator : VOA110:JC
Sample   : L2131595-10,31,6.43,5,,B
Misc   : WG1514861,ICAL17863
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Jun 21 06:52:03 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

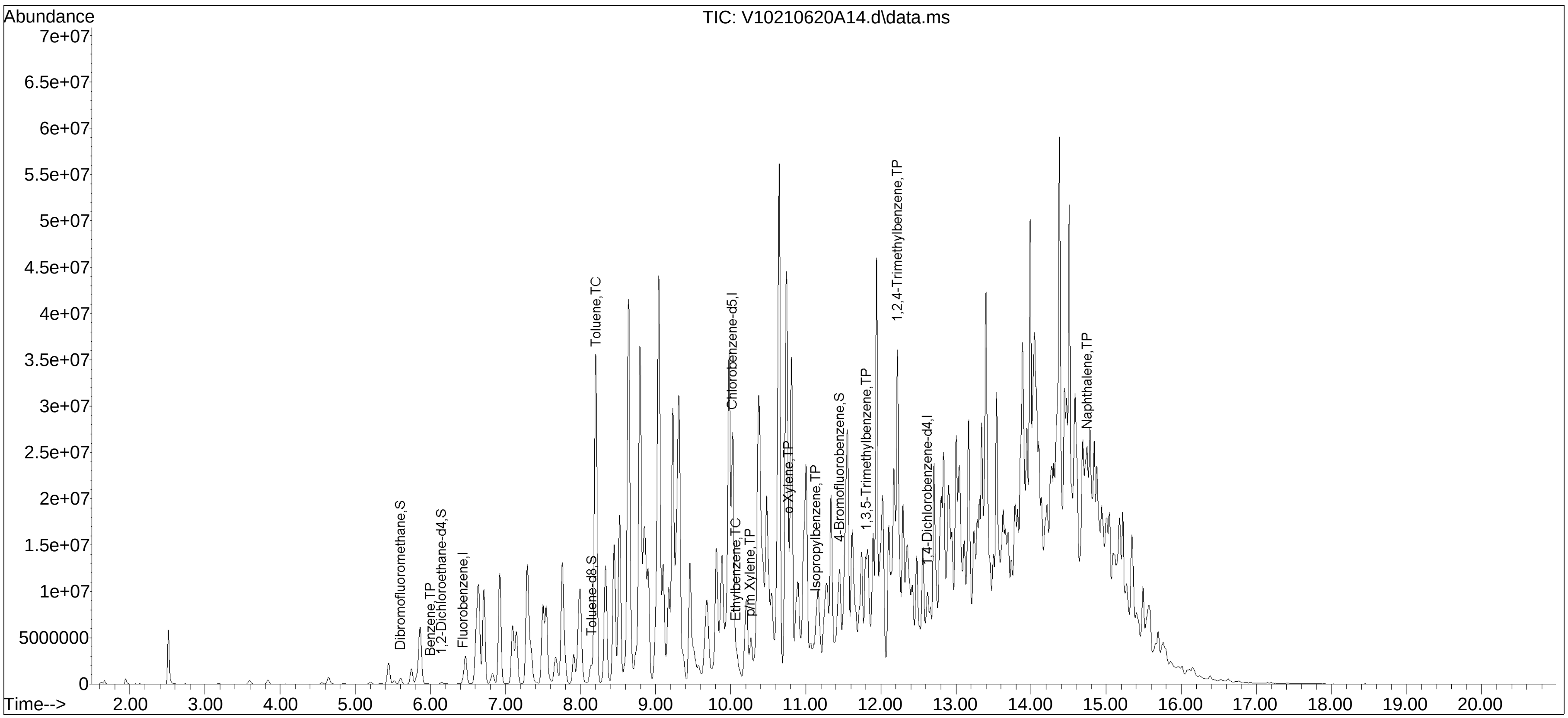


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A14.d
Acq On    : 20 Jun 2021   5:48 pm
Operator  : VOA110:JC
Sample    : L2131595-11,31,6.13,5,,B
Misc      : WG1514861,ICAL17863
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Jun 21 06:52:22 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•
```

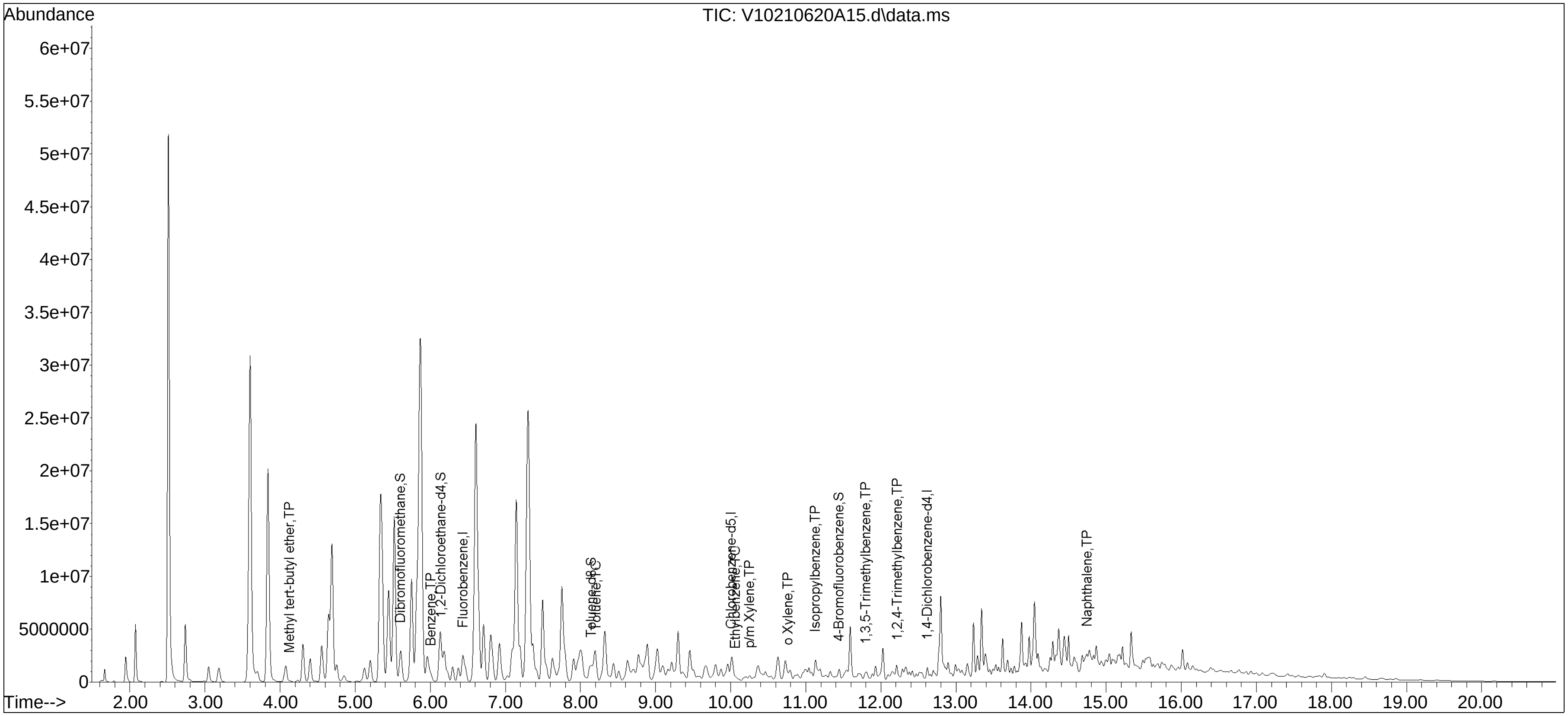


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A15.d
Acq On : 20 Jun 2021 6:15 pm
Operator : VOA110:JC
Sample : L2131595-12,31,6.21,5,,B
Misc : WG1514861,ICAL17863
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 21 06:52:59 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

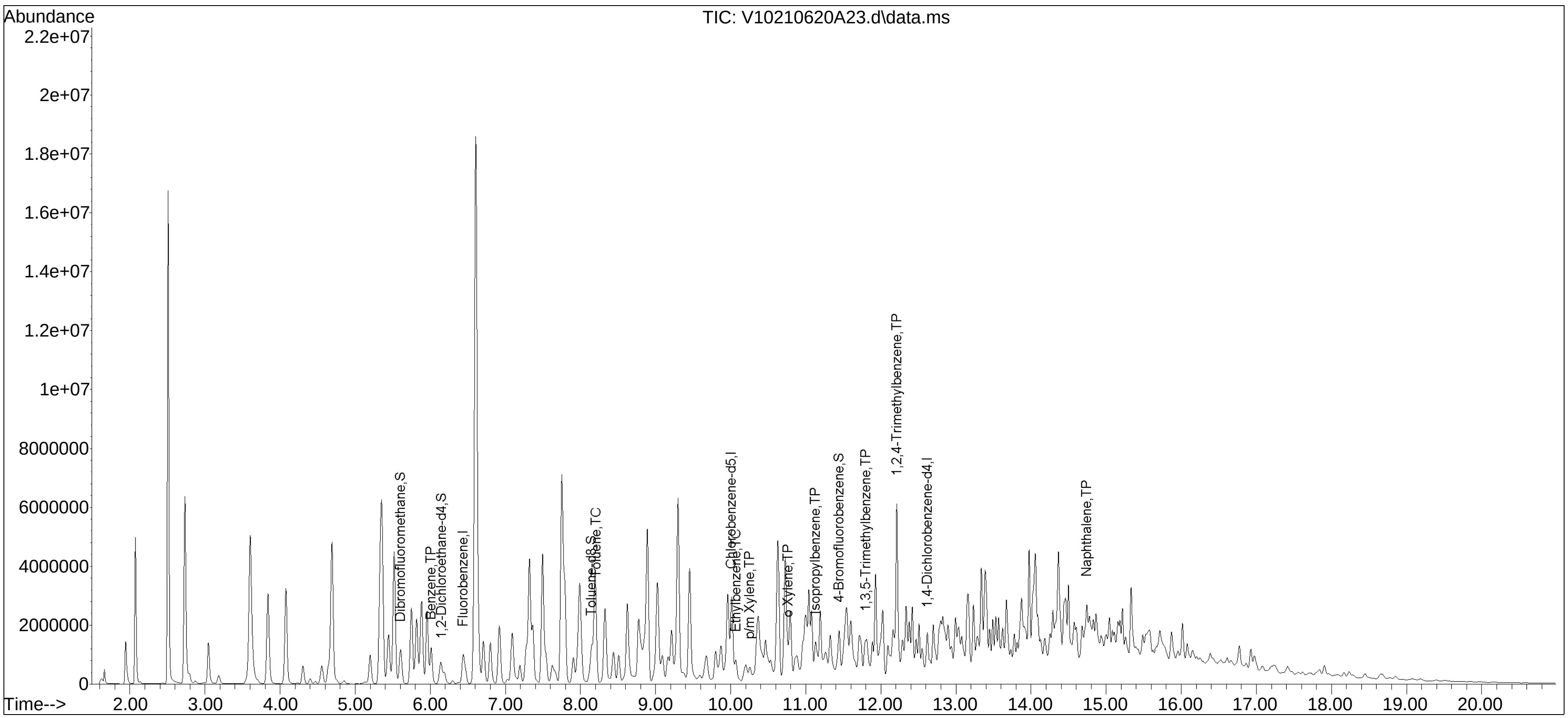


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A23.d
Acq On : 20 Jun 2021 9:54 pm
Operator : VOA110:JC
Sample : L2131595-14D,31H,6.64,5,0.010,,A
Misc : WG1514864,ICAL17863
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 21 06:58:13 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•



ANALYTICAL REPORT

Lab Number:	L2133575
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133575-01	PB34-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:35	06/21/21
L2133575-02	PB34-14-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:40	06/21/21
L2133575-03	PB35-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:45	06/21/21
L2133575-04	PB35-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:00	06/21/21
L2133575-05	PB35-08-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:05	06/21/21
L2133575-06	PB35-04-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:20	06/21/21
L2133575-07	PB35-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:30	06/21/21
L2133575-08	PB35-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:40	06/21/21
L2133575-09	PB35-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:50	06/21/21
L2133575-10	PB35-15-SS01	SOIL	PHILADELPHIA, PA	06/21/21 12:50	06/21/21
L2133575-11	PB35-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:00	06/21/21
L2133575-12	PB34-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:10	06/21/21
L2133575-13	PB34-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:20	06/21/21
L2133575-14	PB34-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:30	06/21/21
L2133575-15	PB34-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:40	06/21/21
L2133575-16	PB34-11-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:50	06/21/21
L2133575-17	PB34-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:00	06/21/21
L2133575-18	PB34-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:10	06/21/21
L2133575-19	PB40-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:25	06/21/21
L2133575-20	PB40-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:35	06/21/21
L2133575-21	DUP-7	SOIL	PHILADELPHIA, PA	06/21/21 14:45	06/21/21
L2133575-22	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/21/21
L2133575-23	FB-210621-1	WATER	PHILADELPHIA, PA	06/21/21 16:00	06/21/21
L2133575-24	FB-210621-2	WATER	PHILADELPHIA, PA	06/21/21 16:05	06/21/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2133575-19: The collection date and time on the chain of custody was 21-JUN-21 14:25; however, the collection date/time on the container label was 20-JUN-21 14:25. At the client's request, the collection date/time is reported as 21-JUN-21 14:25.

Volatile Organics

L2133575-01, -03, -07, -08, -10, -12, and -15: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2133575-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-09: The internal standard (IS) response for fluorobenzene (216%) and the surrogate recoveries for dibromofluoromethane (43%), toluene-d8 (170%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria in the Low Level analysisi due to obvious interferences. A copy of the chromatogram is

Case Narrative (continued)

included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2133575-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (198%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-11D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133575-11D and -15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (166%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-13: The internal standard (IS) response for fluorobenzene (237%) and the surrogate recoveries for dibromofluoromethane (49%) and 4-bromofluorobenzene (187%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.

L2133575-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

Total Metals

The WG1517780-3 MS recovery, performed on L2133575-01, is outside the acceptance criteria for lead (53%). A post digestion spike was performed and yielded an unacceptable recovery for lead (59%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1517780-4 Laboratory Duplicate RPD for lead (30%), performed on L2133575-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1517780-6 serial dilution analysis, associated with L2133575-01, had a %D above the acceptance criteria for lead (35%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-01	Date Collected:	06/21/21 10:35
Client ID:	PB34-12-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:06
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	1
Benzene	1.4		mg/kg	0.074	0.024	1
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	1
Toluene	0.76		mg/kg	0.15	0.080	1
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	1
Ethylbenzene	0.28		mg/kg	0.15	0.021	1
p/m-Xylene	1.5		mg/kg	0.29	0.082	1
o-Xylene	0.40		mg/kg	0.15	0.043	1
Xylenes, Total	1.9		mg/kg	0.15	0.043	1
Isopropylbenzene	3.6		mg/kg	0.15	0.016	1
1,3,5-Trimethylbenzene	0.17	J	mg/kg	0.29	0.028	1
1,2,4-Trimethylbenzene	0.84		mg/kg	0.29	0.049	1
Naphthalene	2.0		mg/kg	0.59	0.096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	**211**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02
Client ID: PB34-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:40
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:36
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00058	J	mg/kg	0.0018	0.00018	1
Benzene	0.0011		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.00014	J	mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1
Naphthalene	0.00062	J	mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03
Client ID: PB35-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:45
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:33
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.043	J	mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
p/m-Xylene	0.50		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.064	0.019	1
Xylenes, Total	0.62		mg/kg	0.064	0.019	1
Isopropylbenzene	1.3		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.049	J	mg/kg	0.13	0.021	1
Naphthalene	0.98		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04
Date Collected: 06/21/21 11:00
Client ID: PB35-03-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:03
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D2
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 08:48
Analyst: MKS
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.89		mg/kg	0.070	0.023	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	10.		mg/kg	0.14	0.076	2.5
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	2.5
Ethylbenzene	12.		mg/kg	0.14	0.020	2.5
p/m-Xylene	46.		mg/kg	0.28	0.079	2.5
o-Xylene	8.4		mg/kg	0.14	0.041	2.5
Xylenes, Total	54.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	1.2		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	59.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.2		mg/kg	0.56	0.091	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:00
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	50.		mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-06	Date Collected:	06/21/21 11:20
Client ID:	PB35-04-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:27
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.41		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.89		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	7.9		mg/kg	0.059	0.0083	1
p/m-Xylene	34.		mg/kg	0.12	0.033	1
o-Xylene	5.8		mg/kg	0.059	0.017	1
Xylenes, Total	40.		mg/kg	0.059	0.017	1
Isopropylbenzene	0.80		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	10.		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.12	0.020	1
Naphthalene	5.2		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06 D
Client ID: PB35-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 11:20
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 08:21
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	28.		mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-07	Date Collected:	06/21/21 11:30
Client ID:	PB35-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:54
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.54		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.12	0.020	1
Naphthalene	0.094	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08 Date Collected: 06/21/21 11:40
Client ID: PB35-01-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 22:21
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	0.035	J	mg/kg	0.060	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	ND		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	1
Ethylbenzene	0.042	J	mg/kg	0.12	0.017	1
p/m-Xylene	0.21	J	mg/kg	0.24	0.068	1
o-Xylene	0.050	J	mg/kg	0.12	0.035	1
Xylenes, Total	0.26	J	mg/kg	0.12	0.035	1
Isopropylbenzene	2.3		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.24	0.040	1
Naphthalene	0.18	J	mg/kg	0.48	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 22:47
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.032	J	mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.65		mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.25		mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.023	1
Naphthalene	0.045	J	mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:23
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0085		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0048		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.40	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0058		mg/kg	0.0021	0.00058	1
o-Xylene	0.0016		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0074		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.21		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00073	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.0034	J	mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	**170**	Q	70-130
4-Bromofluorobenzene	**702**	Q	70-130
Dibromofluoromethane	**43**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
Client ID: PB35-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 12:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:42
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.039	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.030	J	mg/kg	0.058	0.0082	1
p/m-Xylene	0.14		mg/kg	0.12	0.032	1
o-Xylene	0.13		mg/kg	0.058	0.017	1
Xylenes, Total	0.27		mg/kg	0.058	0.017	1
Isopropylbenzene	2.0		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.052	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.12	0.019	1
Naphthalene	0.40		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**198**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-11 D	Date Collected:	06/21/21 13:00
Client ID:	PB35-12-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 23:41
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	2
Benzene	0.71		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	0.085	J	mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.10	J	mg/kg	0.12	0.017	2
p/m-Xylene	0.13	J	mg/kg	0.24	0.068	2
o-Xylene	0.18		mg/kg	0.12	0.035	2
Xylenes, Total	0.31	J	mg/kg	0.12	0.035	2
Isopropylbenzene	4.8		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.24	0.040	2
Naphthalene	0.88		mg/kg	0.48	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**166**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12
Client ID: PB34-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:10
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 00:08
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	ND		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	ND		mg/kg	0.059	0.0083	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.059	0.017	1
Xylenes, Total	ND		mg/kg	0.059	0.017	1
Isopropylbenzene	0.013	J	mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1
Naphthalene	0.12	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2133575
Project Number: 200.00135.005.03　　**Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13　　Date Collected: 06/21/21 13:20
Client ID: PB34-05-SS01　　Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 00:34
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.20		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	0.18		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.068	0.0095	1
p/m-Xylene	0.58		mg/kg	0.14	0.038	1
o-Xylene	0.096		mg/kg	0.068	0.020	1
Xylenes, Total	0.68		mg/kg	0.068	0.020	1
Isopropylbenzene	1.8		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.14	0.022	1
Naphthalene	1.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-13	Date Collected:	06/21/21 13:20
Client ID:	PB34-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:48
Analyst: MV
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00080	J	mg/kg	0.0025	0.00025	1
Benzene	0.0031		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0085		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.0046		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.023		mg/kg	0.0025	0.00070	1
o-Xylene	0.0060		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.029		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.13		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0050		mg/kg	0.0025	0.00042	1
Naphthalene	0.0050		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	**187**	Q	70-130
Dibromofluoromethane	**49**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-14	Date Collected:	06/21/21 13:30
Client ID:	PB34-03-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/30/21 01:01
Analyst:	JC
Percent Solids:	83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.088		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	0.052		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.24		mg/kg	0.052	0.0074	1
p/m-Xylene	0.059	J	mg/kg	0.10	0.029	1
o-Xylene	0.090		mg/kg	0.052	0.015	1
Xylenes, Total	0.15	J	mg/kg	0.052	0.015	1
Isopropylbenzene	1.3		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	2.6		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	3.3		mg/kg	0.10	0.017	1
Naphthalene	0.42		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15 Date Collected: 06/21/21 13:40
Client ID: PB34-07-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:28
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	ND		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	ND		mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.018	J	mg/kg	0.075	0.010	1
p/m-Xylene	ND		mg/kg	0.15	0.042	1
o-Xylene	ND		mg/kg	0.075	0.022	1
Xylenes, Total	ND		mg/kg	0.075	0.022	1
Isopropylbenzene	0.74		mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.050	J	mg/kg	0.15	0.025	1
Naphthalene	0.71		mg/kg	0.30	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**166**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16
Client ID: PB34-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 13:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:54
Analyst: JC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	4.1		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	2.3		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	13.		mg/kg	0.068	0.0095	1
p/m-Xylene	60.	E	mg/kg	0.14	0.038	1
o-Xylene	8.4		mg/kg	0.068	0.020	1
Isopropylbenzene	0.24		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	4.5		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.14	0.023	1
Naphthalene	3.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-16 D	Date Collected:	06/21/21 13:50
Client ID:	PB34-11-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:15
Analyst: MKS
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	51.		mg/kg	0.27	0.076	2
Xylenes, Total	59.		mg/kg	0.068	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-17	Date Collected:	06/21/21 14:00
Client ID:	PB34-01-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:48
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0037	0.00037	1
Benzene	0.0040		mg/kg	0.00093	0.00031	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00048	1
Toluene	0.0013	J	mg/kg	0.0018	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00093	0.00054	1
Ethylbenzene	0.00068	J	mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0037	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00054	1
Xylenes, Total	ND		mg/kg	0.0018	0.00054	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0037	0.00036	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0037	0.00062	1
Naphthalene	ND		mg/kg	0.0074	0.0012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18
Client ID: PB34-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:10
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:21
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.31		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.12		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	4.1		mg/kg	0.059	0.0083	1
p/m-Xylene	2.9		mg/kg	0.12	0.033	1
o-Xylene	0.59		mg/kg	0.059	0.017	1
Xylenes, Total	3.5		mg/kg	0.059	0.017	1
Isopropylbenzene	0.61		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.8		mg/kg	0.12	0.020	1
Naphthalene	1.7		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
Client ID: PB40-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:25
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:13
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.0024		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20
Client ID: PB40-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:38
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	0.0027		mg/kg	0.00041	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00082	0.00021	1
Toluene	ND		mg/kg	0.00082	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00041	0.00024	1
Ethylbenzene	0.00020	J	mg/kg	0.00082	0.00012	1
p/m-Xylene	0.00069	J	mg/kg	0.0016	0.00046	1
o-Xylene	ND		mg/kg	0.00082	0.00024	1
Xylenes, Total	0.00069	J	mg/kg	0.00082	0.00024	1
Isopropylbenzene	0.00020	J	mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.00030	J	mg/kg	0.0016	0.00027	1
Naphthalene	0.00053	J	mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21
Client ID: DUP-7
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:45
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:47
Analyst: JC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.43		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.037	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	1.3		mg/kg	0.058	0.0082	1
p/m-Xylene	1.6		mg/kg	0.12	0.032	1
o-Xylene	0.047	J	mg/kg	0.058	0.017	1
Xylenes, Total	1.6	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.22		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.22		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.12	0.019	1
Naphthalene	1.9		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-22
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 11:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-23	Date Collected:	06/21/21 16:00
Client ID:	FB-210621-1	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/25/21 13:23
Analytical Date:	06/25/21 15:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-23
Client ID: FB-210621-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:16
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24
Client ID: FB-210621-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 16:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/25/21 15:51
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24 Date Collected: 06/21/21 16:05
Client ID: FB-210621-2 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:39
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06,10,16 Batch: WG1518719-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	0.0090	J	mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:39
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:09
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04 Batch: WG1518777-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 18:11
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,19-20 Batch: WG1518837-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,13 Batch: WG1518909-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-24 Batch: WG1519961-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-3 WG1518719-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	90		89		70-130	1		30
1,2-Dichloroethane	92		93		70-130	1		30
Toluene	88		86		70-130	2		30
1,2-Dibromoethane	99		101		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	89		90		70-130	1		30
Isopropylbenzene	89		87		70-130	2		30
1,3,5-Trimethylbenzene	89		87		70-130	2		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	94		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	99		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06,10,16 Batch: WG1518719-8 WG1518719-9								
Methyl tert butyl ether	92		90		66-130	2		30
Benzene	85		81		70-130	5		30
1,2-Dichloroethane	91		88		70-130	3		30
Toluene	84		80		70-130	5		30
1,2-Dibromoethane	97		99		70-130	2		30
Ethylbenzene	85		82		70-130	4		30
p/m-Xylene	85		82		70-130	4		30
o-Xylene	84		82		70-130	2		30
Isopropylbenzene	89		84		70-130	6		30
1,3,5-Trimethylbenzene	88		82		70-130	7		30
1,2,4-Trimethylbenzene	86		81		70-130	6		30
Naphthalene	94		94		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04 Batch: WG1518777-3 WG1518777-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	100		102		70-130	2		30
1,2-Dichloroethane	90		92		70-130	2		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	99		99		70-130	0		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	96		96		70-130	0		30
o-Xylene	98		95		70-130	3		30
Isopropylbenzene	97		96		70-130	1		30
1,3,5-Trimethylbenzene	99		97		70-130	2		30
1,2,4-Trimethylbenzene	100		98		70-130	2		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		90		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	107		109		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,19-20 Batch: WG1518837-3 WG1518837-4								
Methyl tert butyl ether	89		88		66-130	1		30
Benzene	84		82		70-130	2		30
1,2-Dichloroethane	97		95		70-130	2		30
Toluene	96		93		70-130	3		30
1,2-Dibromoethane	95		94		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	109		108		70-130	1		30
1,3,5-Trimethylbenzene	109		110		70-130	1		30
1,2,4-Trimethylbenzene	108		108		70-130	0		30
Naphthalene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		113		70-130
Toluene-d8	108		106		70-130
4-Bromofluorobenzene	113		116		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,13 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-24 Batch: WG1519961-3 WG1519961-4								
Methyl tert butyl ether	96		97		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	96		98		70-130	2		20
Ethylbenzene	98		98		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		97		70-130	2		20
1,3,5-Trimethylbenzene	93		96		64-130	3		20
1,2,4-Trimethylbenzene	93		94		70-130	1		20
Naphthalene	85		93		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		103		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

METALS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
Date Collected: 06/21/21 10:35
Client ID: PB34-12-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	66.2		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 19:36	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02
Client ID: PB34-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 10:40
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	144		mg/kg	2.17	0.116	1	06/28/21 23:57	07/14/21 20:05	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-03	Date Collected:	06/21/21 10:45
Client ID:	PB35-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	84.4		mg/kg	2.26	0.121	1	06/28/21 23:57	07/14/21 20:10	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04
Date Collected: 06/21/21 11:00
Client ID: PB35-03-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	417		mg/kg	2.16	0.116	1	06/28/21 23:57	07/14/21 20:14	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.41		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:18	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06 Date Collected: 06/21/21 11:20
Client ID: PB35-04-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.32		mg/kg	2.41	0.129	1	06/28/21 23:57	07/14/21 20:23	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-07 Date Collected: 06/21/21 11:30

Client ID: PB35-02-SS01 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.32		mg/kg	2.45	0.132	1	06/28/21 23:57	07/14/21 20:27	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08 Date Collected: 06/21/21 11:40
Client ID: PB35-01-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	2.46	0.132	1	06/28/21 23:57	07/14/21 20:31	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 11:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.54		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:44	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
Client ID: PB35-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 12:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.62		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 20:48	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-11	Date Collected:	06/21/21 13:00
Client ID:	PB35-12-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.73		mg/kg	2.40	0.128	1	06/28/21 23:57	07/14/21 20:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12 Date Collected: 06/21/21 13:10

Client ID: PB34-06-SS01 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.84		mg/kg	2.24	0.120	1	06/28/21 23:57	07/14/21 20:57	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13 Date Collected: 06/21/21 13:20

Client ID: PB34-05-SS01 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	244		mg/kg	2.27	0.122	1	06/28/21 23:57	07/14/21 21:02	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14 Date Collected: 06/21/21 13:30

Client ID: PB34-03-SS01 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1330		mg/kg	2.25	0.121	1	06/28/21 23:57	07/14/21 21:06	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15 Date Collected: 06/21/21 13:40
Client ID: PB34-07-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	124		mg/kg	2.70	0.145	1	06/28/21 23:57	07/14/21 21:10	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16
Date Collected: 06/21/21 13:50
Client ID: PB34-11-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	34.8		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 21:14	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-17	Date Collected:	06/21/21 14:00
Client ID:	PB34-01-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	74%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	177		mg/kg	2.55	0.137	1	06/28/21 23:57	07/14/21 21:19	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18
Date Collected: 06/21/21 14:10
Client ID: PB34-02-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	20.0		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 21:23	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
Date Collected: 06/21/21 14:25
Client ID: PB40-05-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	355		mg/kg	2.19	0.117	1	06/28/21 23:57	07/14/21 21:36	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-20	Date Collected:	06/21/21 14:35
Client ID:	PB40-06-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	247		mg/kg	2.32	0.124	1	06/28/21 23:57	07/14/21 21:40	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-21	Date Collected:	06/21/21 14:45
Client ID:	DUP-7	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	29.8		mg/kg	2.20	0.118	1	06/29/21 09:00	07/13/21 20:00	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-23 Date Collected: 06/21/21 16:00
Client ID: FB-210621-1 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/15/21 19:47	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24 Date Collected: 06/21/21 16:05

Client ID: FB-210621-2 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/15/21 19:51	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1515564-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/12/21 14:00	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1517780-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/28/21 23:57	07/14/21 19:02	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21 Batch: WG1517946-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/29/21 09:00	07/13/21 16:48	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1515564-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1517780-2 SRM Lot Number: D109-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21 Batch: WG1517946-2 SRM Lot Number: D109-540								
Lead, Total	97		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1515564-3 QC Sample: L2133576-07 Client ID: MS Sample												
Lead, Total	8.680	530	543.0	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-3 QC Sample: L2133575-01 Client ID: PB34-12-SS01												
Lead, Total	66.2	53.1	94.5	**53**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-3 QC Sample: L2134264-01 Client ID: MS Sample												
Lead, Total	11.0	51.7	55.2	85		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-4 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	49.0	mg/kg	**30**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-4 QC Sample: L2134264-01 Client ID: DUP Sample						
Lead, Total	11.0	9.52	mg/kg	14		20

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Lab Serial Dilution Analysis
Batch Quality Control

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-6 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	89.1	mg/kg	**35**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
Client ID: PB34-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-02	Date Collected:	06/21/21 10:40
Client ID:	PB34-14-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03
Date Collected: 06/21/21 10:45
Client ID: PB35-05-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04 | Date Collected: 06/21/21 11:00

Client ID: PB35-03-SS01 | Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06
Date Collected: 06/21/21 11:20
Client ID: PB35-04-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-07
Client ID: PB35-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:30
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08
Client ID: PB35-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:40
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Date Collected: 06/21/21 11:50
Client ID: PB35-07-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-10	Date Collected:	06/21/21 12:50
Client ID:	PB35-15-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11
Client ID: PB35-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12
Date Collected: 06/21/21 13:10
Client ID: PB34-06-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-13	Date Collected:	06/21/21 13:20
Client ID:	PB34-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14
Client ID: PB34-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:30
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-15
Date Collected: 06/21/21 13:40
Client ID: PB34-07-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16
Client ID: PB34-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-17
Date Collected: 06/21/21 14:00
Client ID: PB34-01-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18
Client ID: PB34-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:10
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
Client ID: PB40-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:25
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-20	Date Collected:	06/21/21 14:35
Client ID:	PB40-06-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21
Date Collected: 06/21/21 14:45
Client ID: DUP-7
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.6		%	0.100	NA	1	-	06/22/21 12:18	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1515199-1 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Solids, Total	75.6	75.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515283-1 QC Sample: L2132596-01 Client ID: DUP Sample						
Solids, Total	26.6	25.5	%	4		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-01B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-01E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-02B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-02E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-03B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-03E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-04B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-04E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-05B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-05C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-05E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-06B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-06E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-07A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-07B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-07E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-08B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-08E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-09A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-09B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-09E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-10A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-10B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-10E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-11A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-11B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-11E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-12A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-12B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-12E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-13A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-13B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-13E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-14A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-14B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-14E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-15A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-15B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-15E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-16A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-16B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-16C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-16E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-17A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-17B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-17E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-18A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-18B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-18E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-19A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-19B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-19E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-20A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-20B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-20E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-21A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-21B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-21E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-22A	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-22B	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)
L2133575-23A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133575-24A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: *DU Report with 'J' Qualifiers*

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:07192109:18

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Program
Criteria:

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33575-01	PB34-12-SS01	6/21	1035	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB34-14-SS01	6/21	1040	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB35-05-SS01	↓	1045	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB35-03-SS01	↓	1100	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB35-08-SS01	↓	1105	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	PB35-04-SS01	↓	1120	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-07	PB35-02-SS01	↓	1130	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-08	PB35-01-SS01	↓	1140	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-09	PB35-07-SS01	↓	1150	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-10	PB35-15-SS01	↓	1250	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/21 1615	[signature] TC AAL	6/21/21 1615
[signature] AAL	6/21/21 2230	[signature] AAL	6/21 1430
[signature] AAL	6/21 2230	[signature] AAL	6/21/21 22:00
[signature] AAL	6/22/21 0215	[signature]	6/22/21 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HAZ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33575 -11	PB35-12-SS01	6/21	1300	S	TS	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB34-06-SS01		1310			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	PB34-05-SS01		1320			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-14	PB34-03-SS01		1330			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-15	PB34-07-SS01		1340			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-16	PB34-11-SS01		1350			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-17	PB34-01-SS01		1400			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-18	PB34-02-SS01		1410			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB40-05-SS01		1425			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	PB40-06-SS01		1435			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/21 1615	[signature] AAL	6/21/21 1615
[signature] AAL	6/21/21 1800	[signature]	6-21 1800
[signature] AAL	6-21 2000	[signature] AAL	6/21/21 22:00
[signature] AAL	6/22/21 0215	[signature]	6/22/21 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
33575-21	Dup-7	6/21	1445	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
-23	FB-210621-1	6/21	1600	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-24	FB-210621-2	6/21	1605	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

SAMPLE HANDLING

Filtration
☐ Done
☒ Not Needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/21 1615	[signature] AAL	6/21/21 1615
[signature] AAL 2000	6/21/21	[signature]	6-21/2[illegible]
[signature] AAL	6/21 2030	[signature] AAL	6/21/21 22:00
[signature] AAL	6/22/21 02:15	[signature]	6/22/21 0215

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

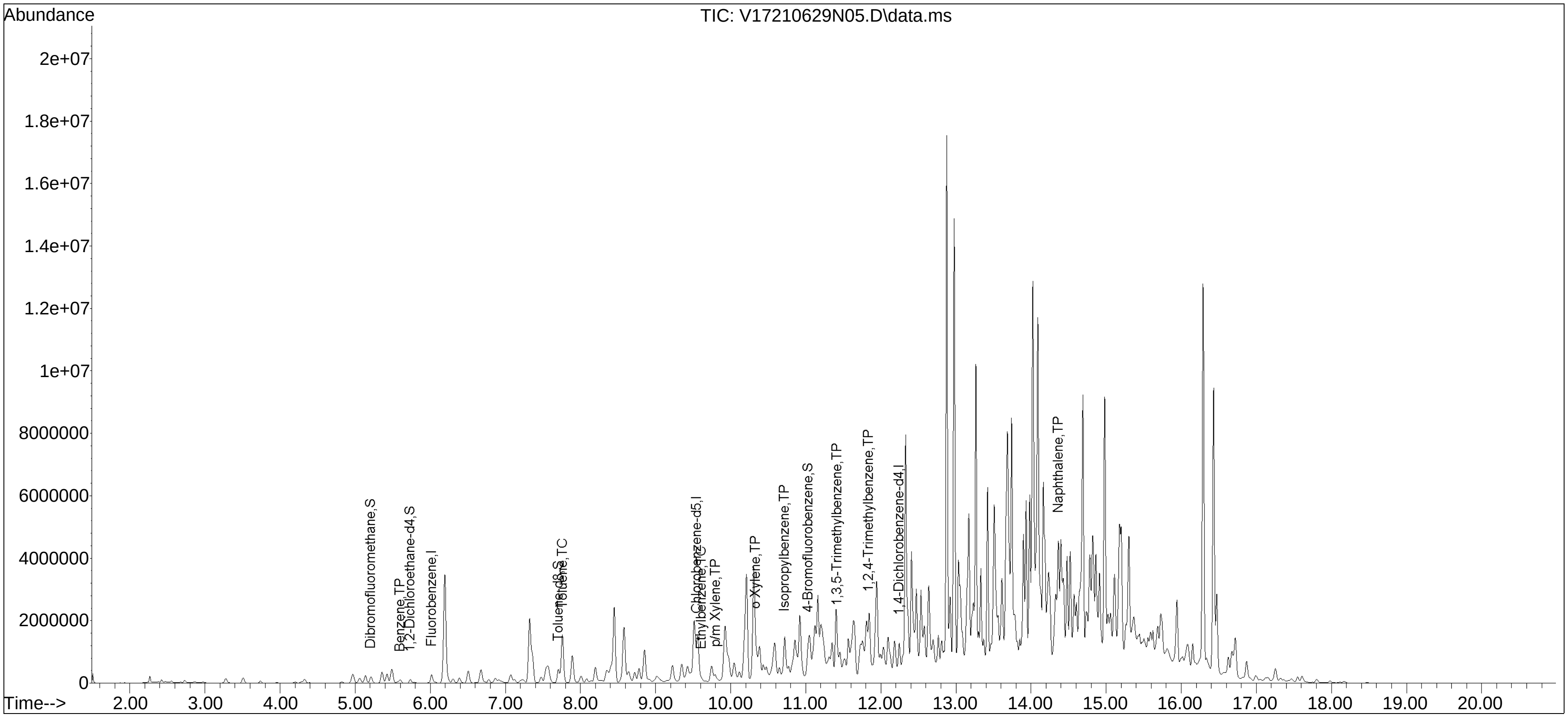
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N05.D
Acq On   : 29 Jun 2021 08:06 pm
Operator : VOA117:JC
Sample   : L2133575-01,31H,2.52,5,0.100,,A
Misc   : WG1518719,ICAL18099
ALS Vial : 5   Sample Multiplier: 1

Quant Time: Jun 30 06:09:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

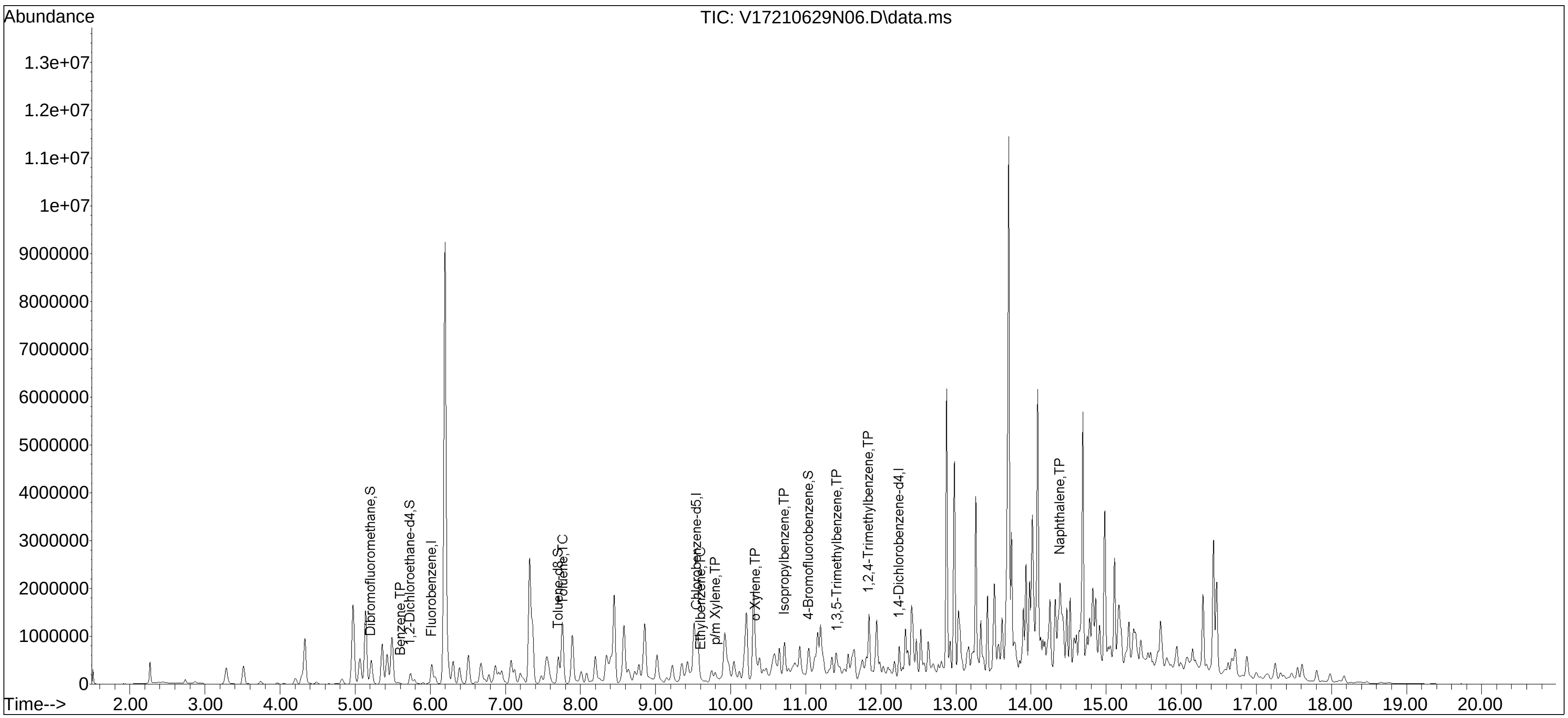


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N06.D
Acq On : 29 Jun 2021 08:33 pm
Operator : VOA117:JC
Sample : L2133575-03,31H,5.67,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 30 06:10:09 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

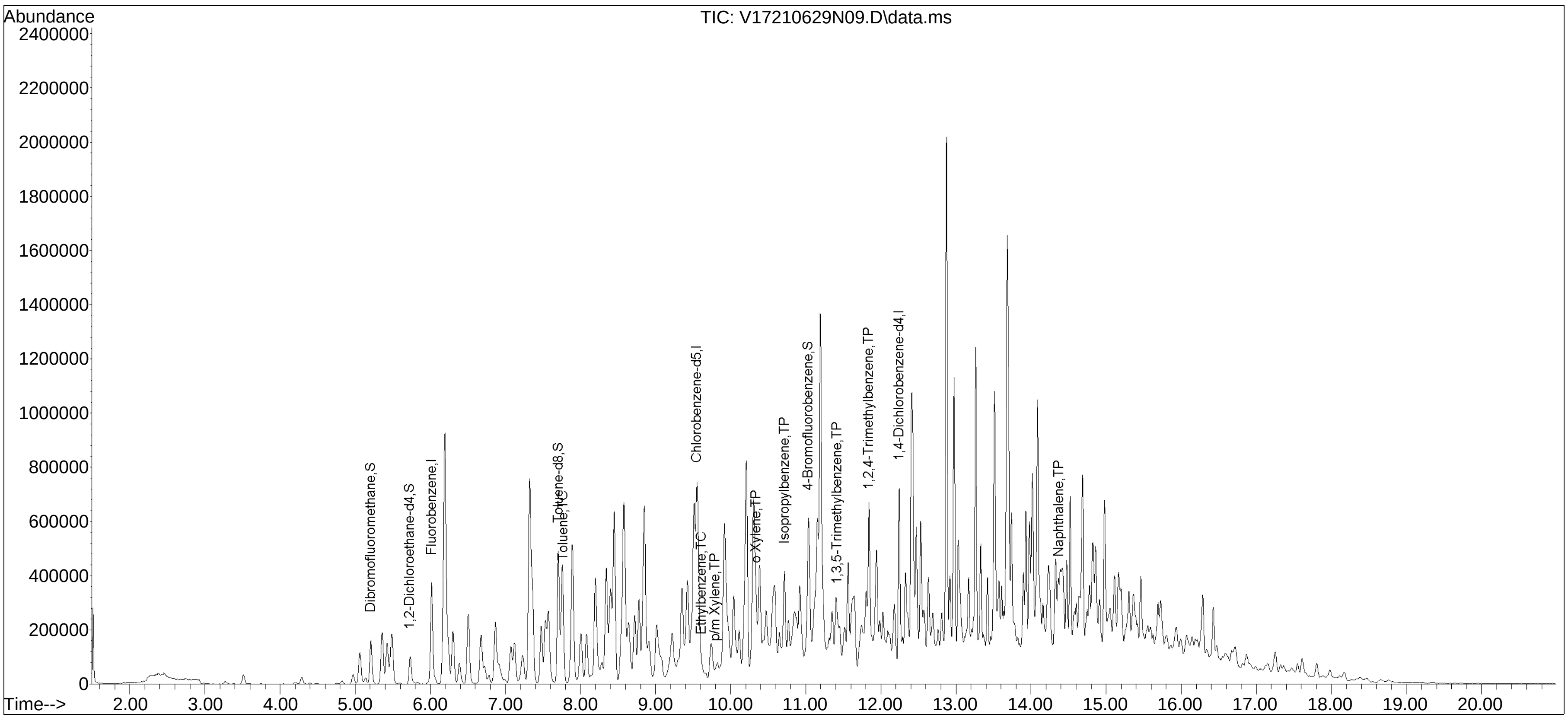


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N09.D
Acq On : 29 Jun 2021 09:54 pm
Operator : VOA117:JC
Sample : L2133575-07,31H,6.40,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 30 06:11:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

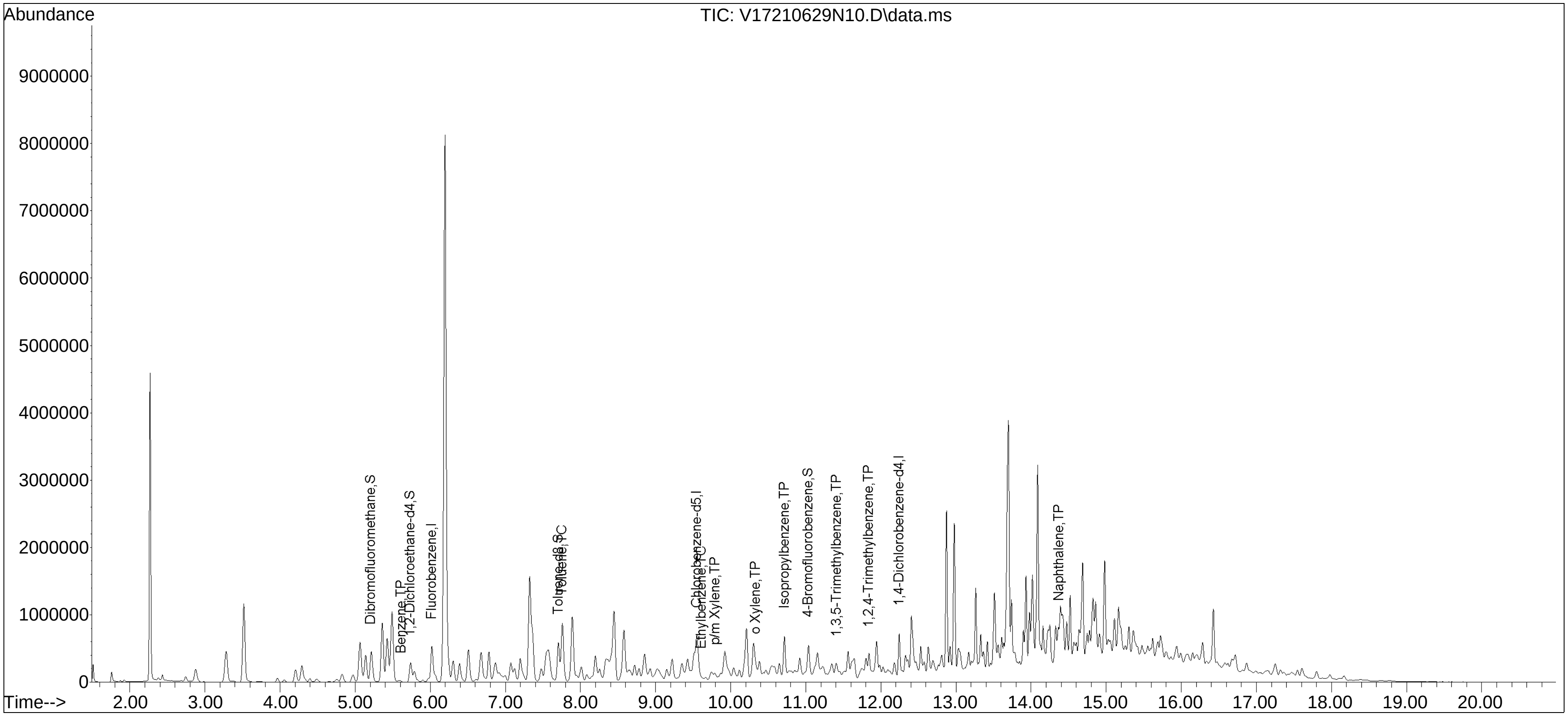


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N10.D
Acq On    : 29 Jun 2021  10:21 pm
Operator  : VOA117:JC
Sample    : L2133575-08,31H,3.12,5,0.100,,A
Misc      : WG1518719,ICAL18099
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Jun 30 06:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•
```

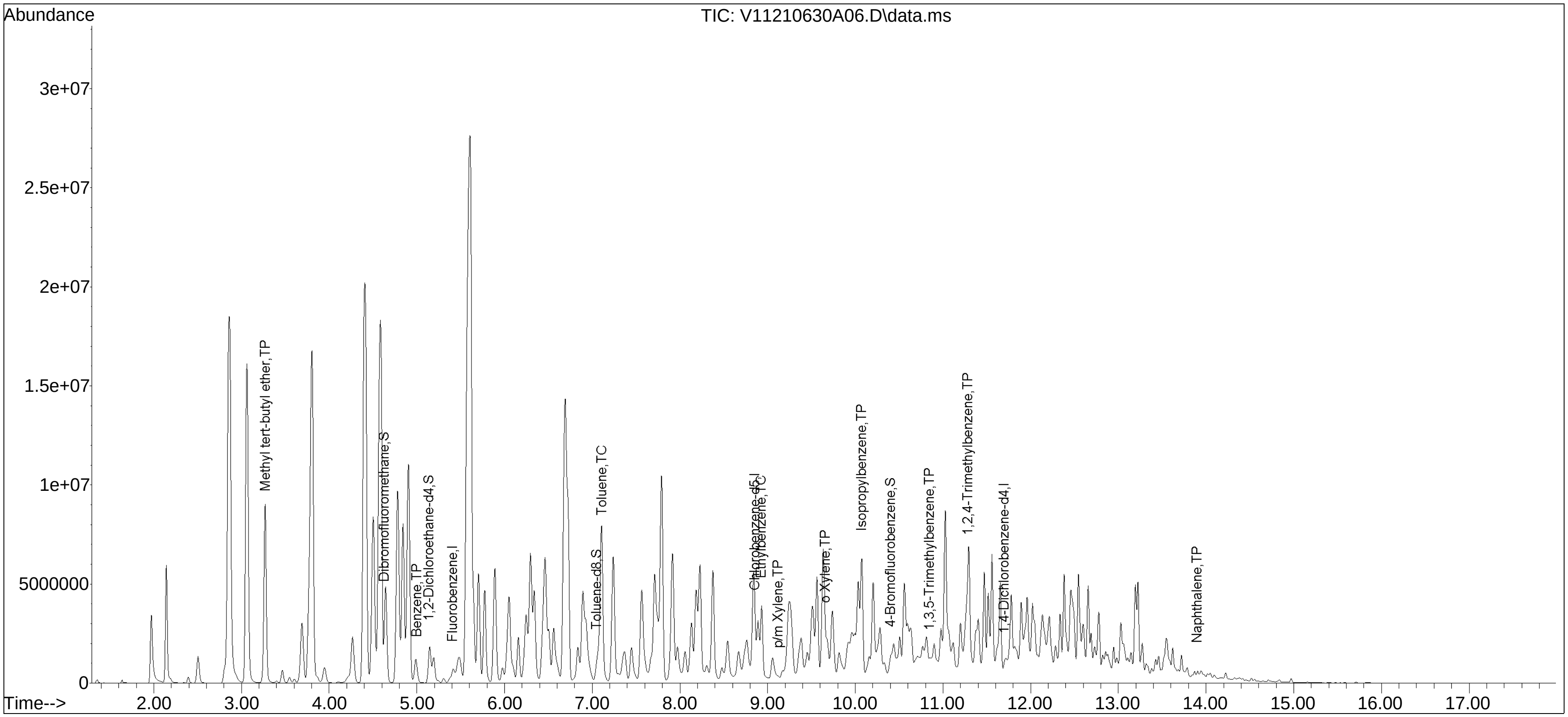


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A06.D
Acq On : 30 Jun 2021 07:23 am
Operator : VOA111:MV
Sample : L2133575-09,31,6.00,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 30 11:00:54 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

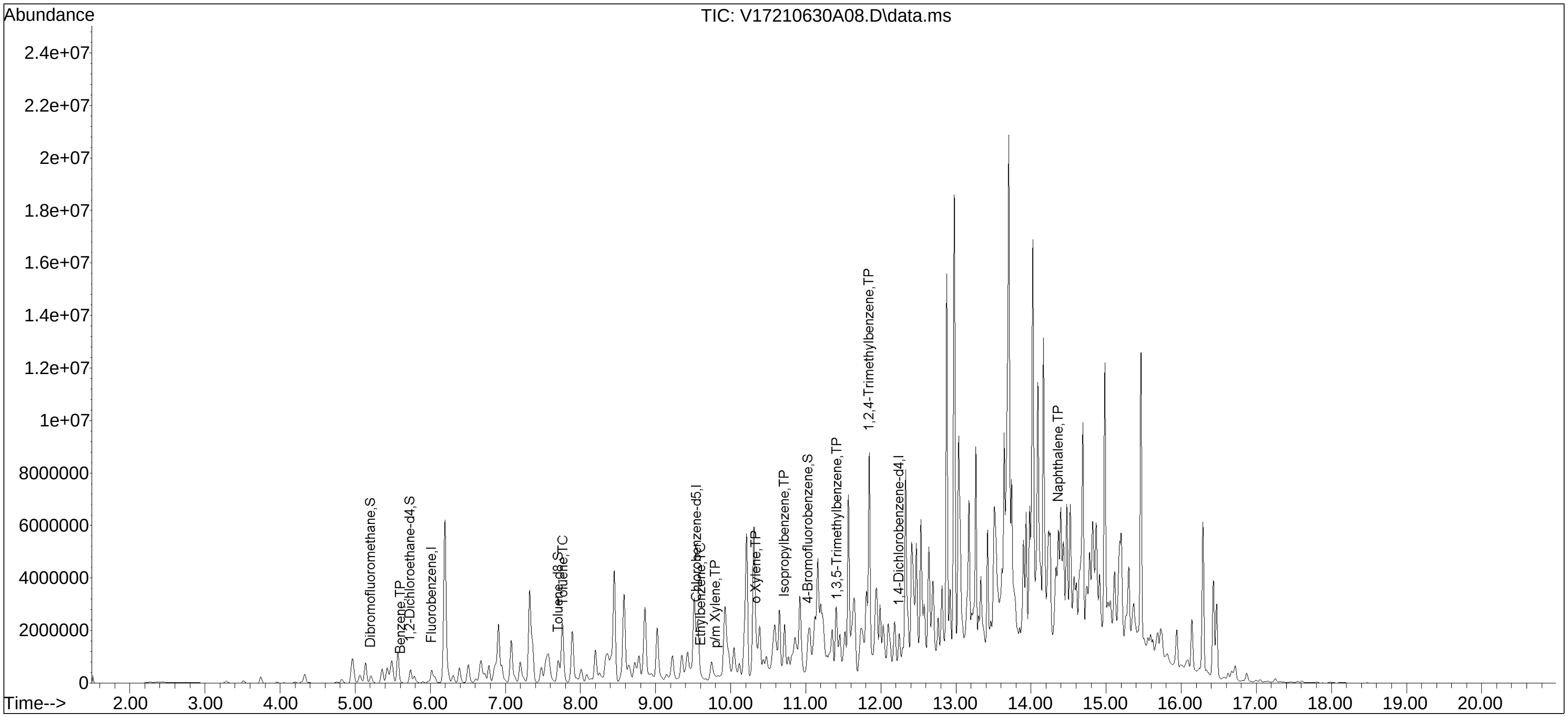


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210630A\
Data File : V17210630A08.D
Acq On : 30 Jun 2021 09:42 am
Operator : VOA117:MKS
Sample : L2133575-10,31H,6.35,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jun 30 13:47:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210630A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V17210630A01.D•

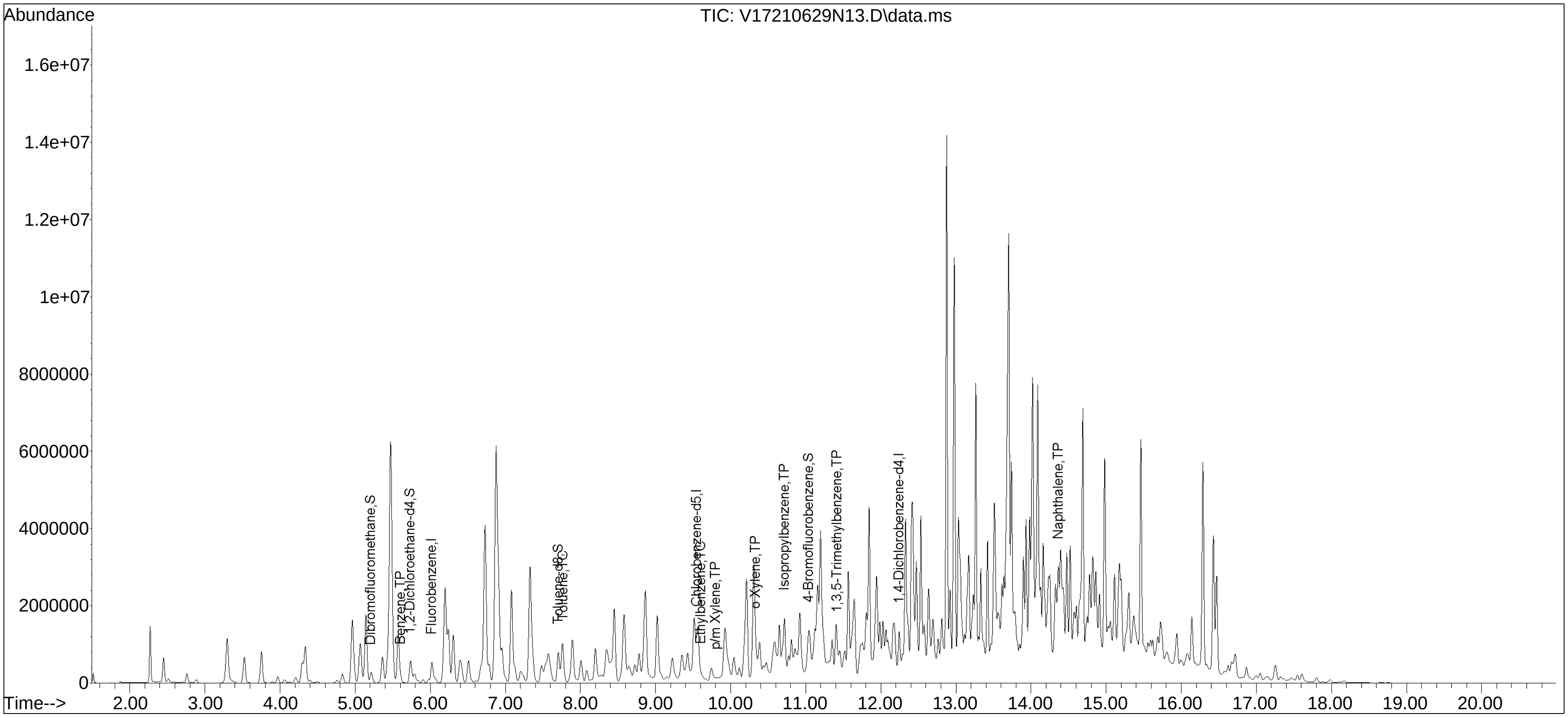


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N13.D
Acq On    : 29 Jun 2021  11:41 pm
Operator  : VOA117:JC
Sample    : L2133575-11D,31H,6.11,5,0.050,,A
Misc      : WG1518719,ICAL18099
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jun 30 06:15:22 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•
```

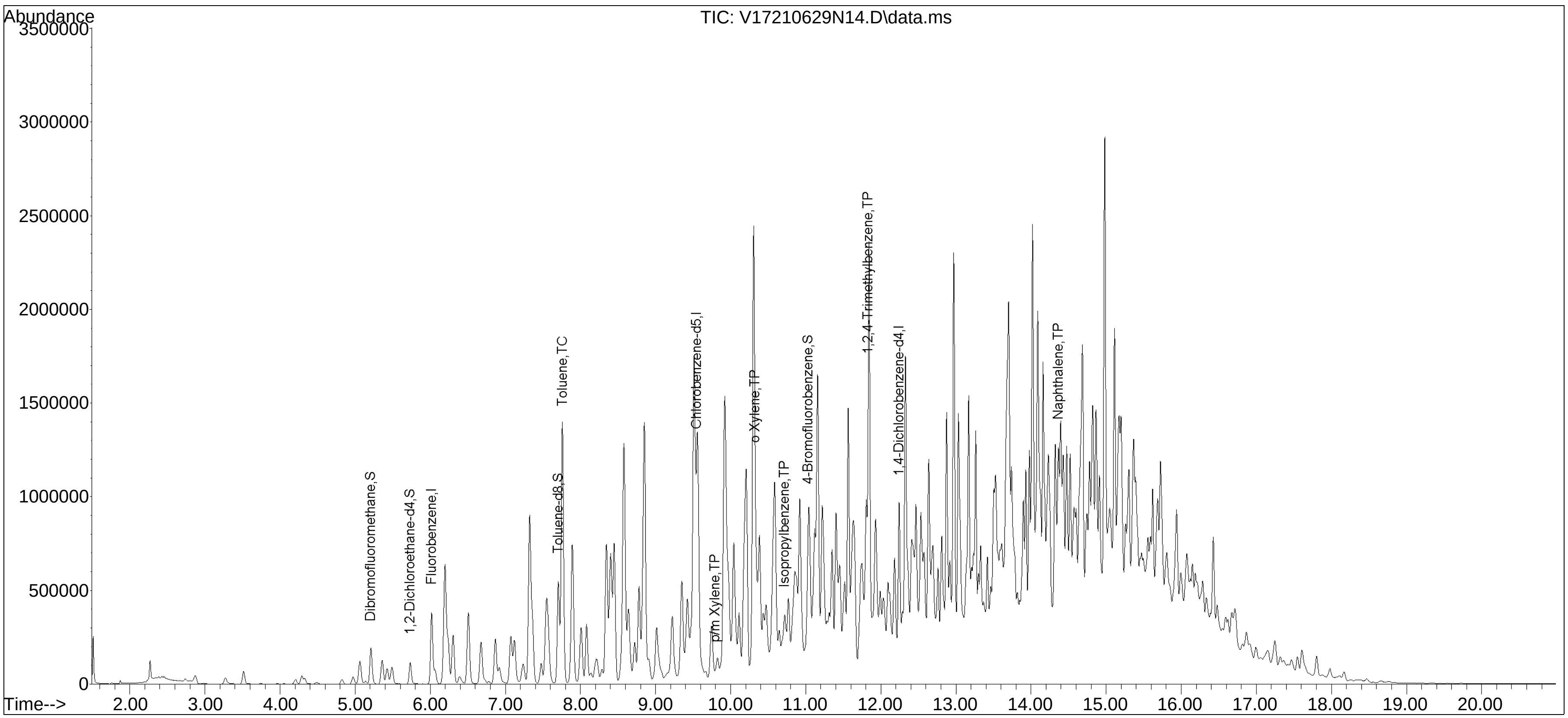


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N14.D
Acq On    : 30 Jun 2021  12:08 am
Operator  : VOA117:JC
Sample    : L2133575-12,31H,6.19,5,0.100,,A
Misc      : WG1518719,ICAL18099
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Jun 30 06:15:35 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•
```

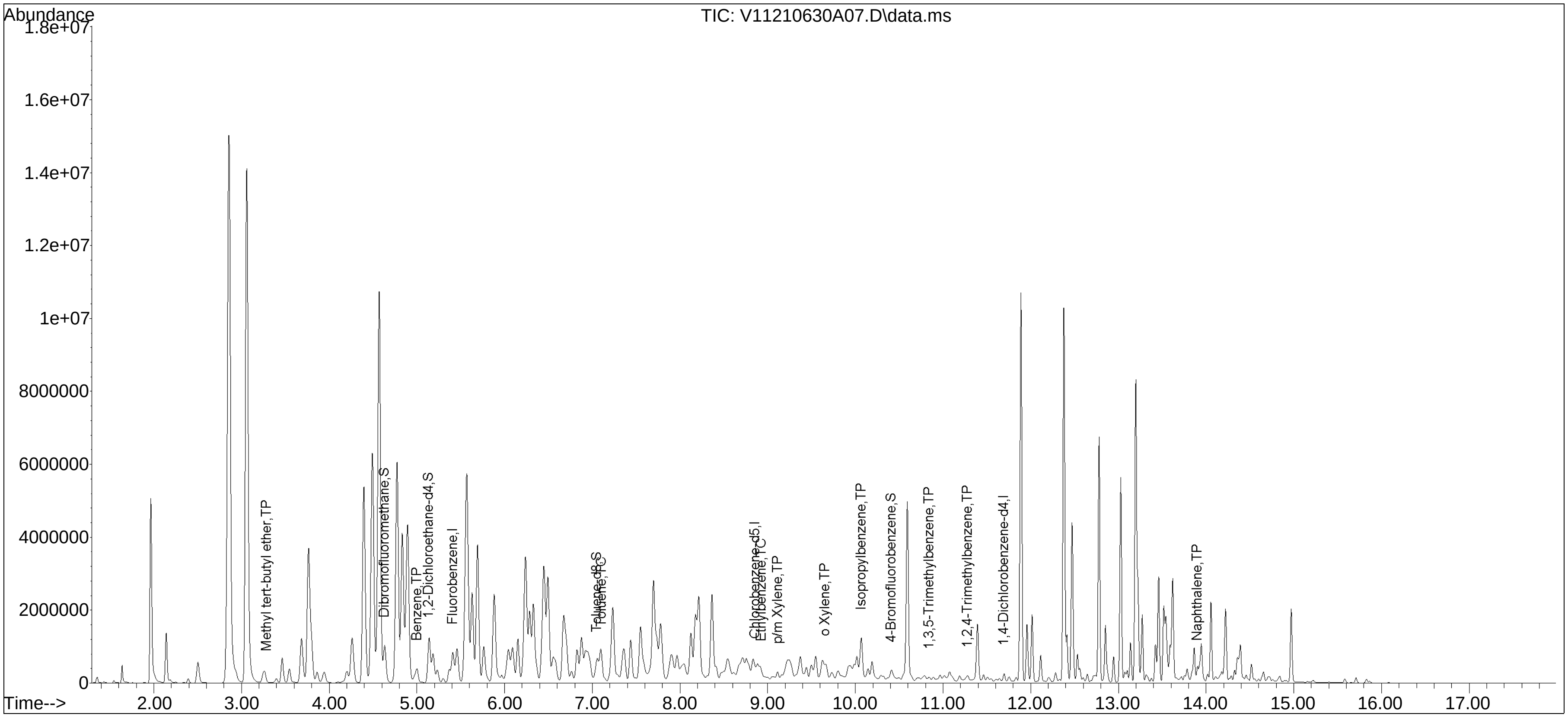


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A07.D
Acq On : 30 Jun 2021 07:48 am
Operator : VOA111:MV
Sample : L2133575-13,31,4.76,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jun 30 11:01:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

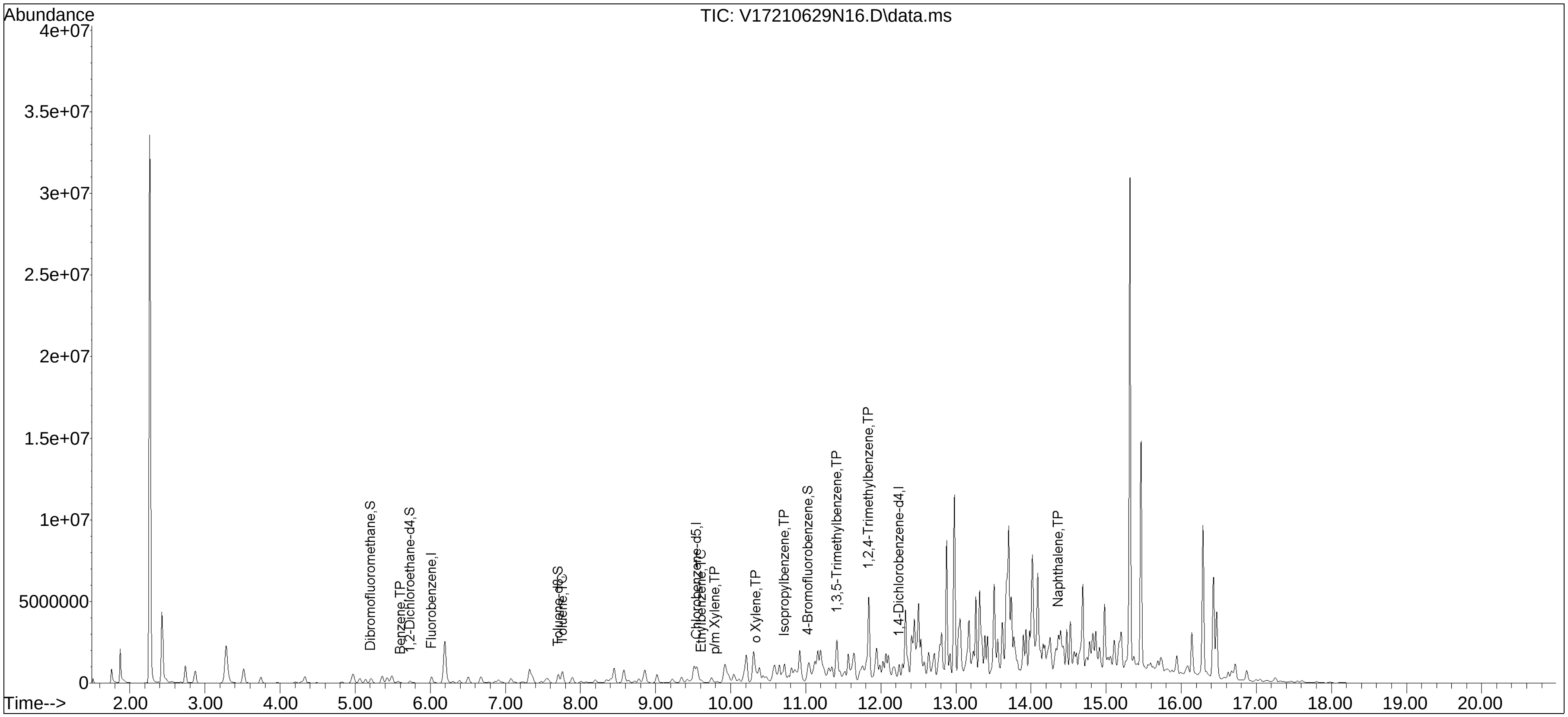


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N16.D
Acq On   : 30 Jun 2021 01:01 am
Operator : VOA117:JC
Sample   : L2133575-14,31H,7.15,5,0.100,,A
Misc   : WG1518719,ICAL18099
ALS Vial : 16   Sample Multiplier: 1

Quant Time: Jun 30 06:02:10 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

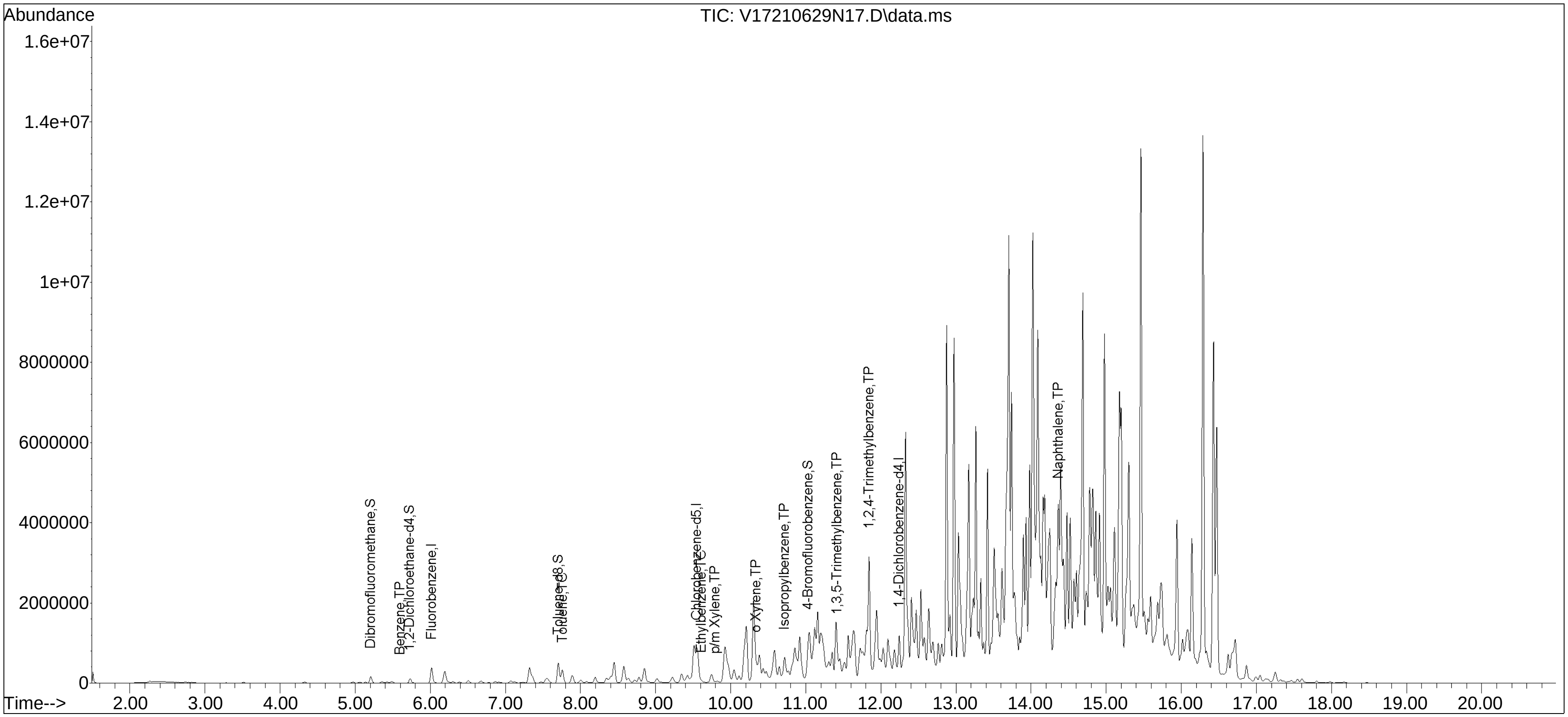


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N17.D
Acq On : 30 Jun 2021 01:28 am
Operator : VOA117:JC
Sample : L2133575-15,31H,5.95,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 30 06:17:17 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

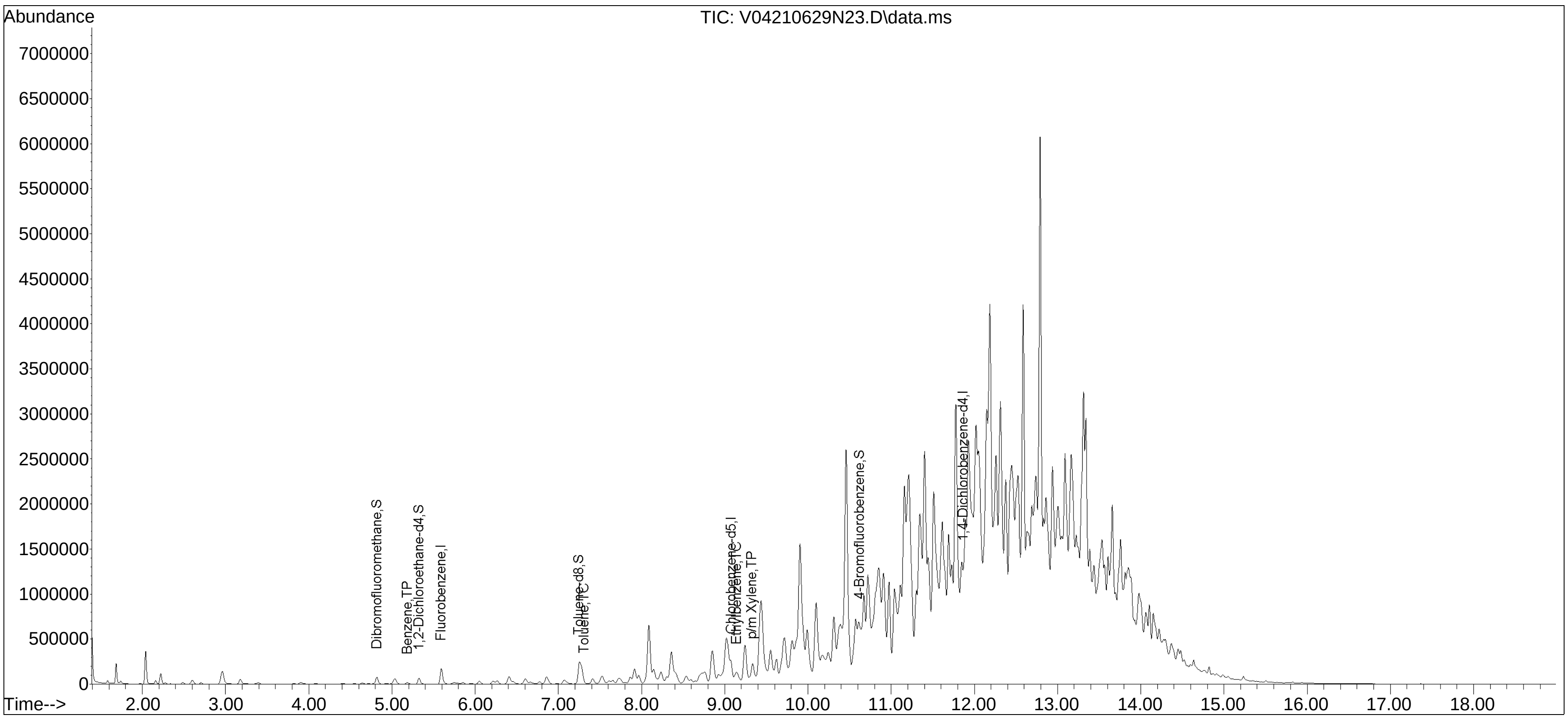


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\210629N\
Data File : V04210629N23.D
Acq On    : 30 Jun 2021   1:48 am
Operator  : VOA104:JC
Sample    : L2133575-17,31,3.66,5,,C
Misc      : WG1518837,ICAL18000
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jun 30 07:20:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210629N\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V04210629N01.D•
```



ANALYTICAL REPORT

Lab Number:	L2133823
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133823-01	PB40-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:00	06/22/21
L2133823-02	PB40-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:20	06/22/21
L2133823-03	PB40-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:30	06/22/21
L2133823-04	PB40-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:50	06/22/21
L2133823-05	PB40-07-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:00	06/22/21
L2133823-06	PB40-08-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:15	06/22/21
L2133823-07	PB40-09-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:30	06/22/21
L2133823-08	PB40-10-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:45	06/22/21
L2133823-09	PB40-11-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:55	06/22/21
L2133823-10	PB40-12-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:05	06/22/21
L2133823-11	PB40-13-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:15	06/22/21
L2133823-12	PB40-14-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:30	06/22/21
L2133823-13	PB40-15-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:40	06/22/21
L2133823-14	PB40-16-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:50	06/22/21
L2133823-15	PB128-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:10	06/22/21
L2133823-16	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:15	06/22/21
L2133823-17	PB128-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:25	06/22/21
L2133823-18	PB128-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:35	06/22/21
L2133823-19	PB128-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:45	06/22/21
L2133823-20	PB128-05-SS01	SOIL	PHILADELPHIA, PA	06/22/21 13:00	06/22/21
L2133823-21	DUP-8	SOIL	PHILADELPHIA, PA	06/22/21 13:10	06/22/21
L2133823-22	FB-210622-1	WATER	PHILADELPHIA, PA	06/22/21 12:00	06/22/21
L2133823-23	FB-210622-2	WATER	PHILADELPHIA, PA	06/22/21 13:20	06/22/21
L2133823-24	TB	WATER	PHILADELPHIA, PA	06/22/21 00:00	06/22/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2133823-16: The analyses were canceled at the client's request.

Volatile Organics

L2133823-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (253%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-02D, -06D, and -08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133823-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (262%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-03, -04, -05, and -10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2133823-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (244%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2133823-06D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (301%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (156%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (358%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (776%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-17: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2133823-17 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (44%), and 1,4-

Case Narrative (continued)

dichlorobenzene-d4 (34%) and the surrogate recovery for 4-bromofluorobenzene (239%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.
L2133823-19: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2133823-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (252%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-20 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-20: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

Total Metals
The WG1517740-3 MS recovery for lead (0%), performed on L2133823-01, does not apply because the sample concentration is greater than four times the spike amount added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-01	Date Collected:	06/22/21 08:00
Client ID:	PB40-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 13:48
Analyst: AJK
Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.040	J	mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.087	0.022	1
Toluene	0.062	J	mg/kg	0.087	0.047	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.061	J	mg/kg	0.087	0.012	1
p/m-Xylene	0.21		mg/kg	0.17	0.049	1
o-Xylene	0.055	J	mg/kg	0.087	0.025	1
Xylenes, Total	0.26	J	mg/kg	0.087	0.025	1
Isopropylbenzene	3.9		mg/kg	0.087	0.0095	1
1,3,5-Trimethylbenzene	0.027	J	mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.17	0.029	1
Naphthalene	1.2		mg/kg	0.35	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**253**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-02 D	Date Collected:	06/22/21 08:20
Client ID:	PB40-02-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 12:31
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	ND		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	ND		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	0.044	J	mg/kg	0.12	0.017	2
p/m-Xylene	ND		mg/kg	0.25	0.069	2
o-Xylene	0.12		mg/kg	0.12	0.036	2
Xylenes, Total	0.12		mg/kg	0.12	0.036	2
Isopropylbenzene	12.		mg/kg	0.12	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	0.058	J	mg/kg	0.25	0.041	2
Naphthalene	1.8		mg/kg	0.50	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**262**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-03	Date Collected:	06/22/21 08:30
Client ID:	PB40-03-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 14:14
Analyst: AJK
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	1
Benzene	0.039	J	mg/kg	0.065	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	1
Toluene	0.10	J	mg/kg	0.13	0.071	1
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	1
Ethylbenzene	0.14		mg/kg	0.13	0.018	1
p/m-Xylene	0.34		mg/kg	0.26	0.073	1
o-Xylene	0.12	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.46	J	mg/kg	0.13	0.038	1
Isopropylbenzene	3.2		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.059	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.26	0.044	1
Naphthalene	1.9		mg/kg	0.52	0.085	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**244**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-04	Date Collected:	06/22/21 08:50
Client ID:	PB40-04-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 14:39
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.014	J	mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.036	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.069		mg/kg	0.060	0.0084	1
p/m-Xylene	0.22		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	0.22		mg/kg	0.060	0.017	1
Isopropylbenzene	0.49		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.12	0.020	1
Naphthalene	0.15	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**168**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05
Client ID: PB40-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 16:09
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0086	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.026	J	mg/kg	0.052	0.0073	1
p/m-Xylene	0.057	J	mg/kg	0.10	0.029	1
o-Xylene	0.020	J	mg/kg	0.052	0.015	1
Xylenes, Total	0.077	J	mg/kg	0.052	0.015	1
Isopropylbenzene	0.064		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	0.23		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.74		mg/kg	0.10	0.017	1
Naphthalene	0.12	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**142**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06 D
Client ID: PB40-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:15
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 12:57
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	2
Benzene	ND		mg/kg	0.055	0.018	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	2
Toluene	ND		mg/kg	0.11	0.060	2
1,2-Dibromoethane	ND		mg/kg	0.055	0.032	2
Ethylbenzene	0.029	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.062	2
o-Xylene	0.069	J	mg/kg	0.11	0.032	2
Xylenes, Total	0.069	J	mg/kg	0.11	0.032	2
Isopropylbenzene	1.1		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.021	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.22	0.037	2
Naphthalene	0.63		mg/kg	0.44	0.072	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-07	Date Collected:	06/22/21 09:30
Client ID:	PB40-09-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:07
Analyst: MV
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0049		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0012		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0014		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	0.0024	J	mg/kg	0.0042	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08 D
Client ID: PB40-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:45
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 13:23
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.023	2
Benzene	ND		mg/kg	0.056	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.061	2
1,2-Dibromoethane	ND		mg/kg	0.056	0.033	2
Ethylbenzene	0.24		mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.063	2
o-Xylene	0.10	J	mg/kg	0.11	0.033	2
Xylenes, Total	0.10	J	mg/kg	0.11	0.033	2
Isopropylbenzene	4.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	0.17	J	mg/kg	0.22	0.038	2
Naphthalene	0.50		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**301**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09 Date Collected: 06/22/21 09:55
Client ID: PB40-11-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:32
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.023		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.030		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.027		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.078		mg/kg	0.0022	0.00060	1
o-Xylene	0.047		mg/kg	0.0011	0.00031	1
Xylenes, Total	0.12		mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.021		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.037		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.11		mg/kg	0.0022	0.00036	1
Naphthalene	0.035		mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
Client ID: PB40-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:05
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 16:36
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.13	0.013	1
Benzene	0.59		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	0.17		mg/kg	0.065	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.83		mg/kg	0.065	0.0092	1
p/m-Xylene	0.97		mg/kg	0.13	0.037	1
o-Xylene	0.084		mg/kg	0.065	0.019	1
Xylenes, Total	1.0		mg/kg	0.065	0.019	1
Isopropylbenzene	1.4		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.040	J	mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.13	0.022	1
Naphthalene	0.79		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
Client ID: PB40-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:15
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:57
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00095		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	0.0025		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	0.00042	J	mg/kg	0.0013	0.00019	1
p/m-Xylene	0.0012	J	mg/kg	0.0026	0.00074	1
o-Xylene	0.0020		mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0032	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.038		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00026	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0026	0.00044	1
Naphthalene	0.0058		mg/kg	0.0053	0.00086	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**358**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12 Date Collected: 06/22/21 10:30
Client ID: PB40-14-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 10:22
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.12		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0094		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.010		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.011		mg/kg	0.0020	0.00057	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.029		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.023		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.073		mg/kg	0.0020	0.00034	1
Naphthalene	0.033		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13
Client ID: PB40-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 10:40
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 10:47
Analyst: AJK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0018		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0033		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0075		mg/kg	0.0020	0.00057	1
o-Xylene	0.0093		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.017		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.012		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.032		mg/kg	0.0020	0.00034	1
Naphthalene	0.016		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**141**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
Client ID: PB40-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 10:50
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 11:12
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00070		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	0.0027		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.0025		mg/kg	0.00098	0.00014	1
p/m-Xylene	0.0072		mg/kg	0.0020	0.00055	1
o-Xylene	0.024		mg/kg	0.00098	0.00029	1
Xylenes, Total	0.031		mg/kg	0.00098	0.00029	1
Isopropylbenzene	0.046		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0020	0.00033	1
Naphthalene	0.0028	J	mg/kg	0.0039	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**776**	Q	70-130
Dibromofluoromethane	82		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-15	Date Collected:	06/22/21 12:10
Client ID:	PB128-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 00:39
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.15		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.085	0.022	1
Toluene	0.27		mg/kg	0.085	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.24		mg/kg	0.085	0.012	1
p/m-Xylene	17.		mg/kg	0.17	0.048	1
o-Xylene	0.088		mg/kg	0.085	0.025	1
Xylenes, Total	17.		mg/kg	0.085	0.025	1
Isopropylbenzene	2.6		mg/kg	0.085	0.0093	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.17	0.028	1
Naphthalene	3.1		mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-15 D	Date Collected:	06/22/21 12:10
Client ID:	PB128-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:10
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	42.		mg/kg	0.43	0.071	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17 Date Collected: 06/22/21 12:25
Client ID: PB128-02-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:04
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	0.38		mg/kg	0.044	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.089	0.023	1
Toluene	0.18		mg/kg	0.089	0.048	1
1,2-Dibromoethane	ND		mg/kg	0.044	0.026	1
Ethylbenzene	0.53		mg/kg	0.089	0.012	1
p/m-Xylene	0.34		mg/kg	0.18	0.050	1
o-Xylene	0.29		mg/kg	0.089	0.026	1
Xylenes, Total	0.63		mg/kg	0.089	0.026	1
Isopropylbenzene	0.47		mg/kg	0.089	0.0097	1
1,3,5-Trimethylbenzene	0.069	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.32		mg/kg	0.18	0.030	1
Naphthalene	1.2		mg/kg	0.36	0.058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
Client ID: PB128-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:25
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 08:55
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00083	J	mg/kg	0.0030	0.00030	1
Benzene	0.016		mg/kg	0.00076	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	0.0027		mg/kg	0.0015	0.00082	1
1,2-Dibromoethane	ND		mg/kg	0.00076	0.00044	1
Ethylbenzene	0.018		mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0036		mg/kg	0.0030	0.00085	1
o-Xylene	0.010		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.014		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.027		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0045		mg/kg	0.0030	0.00050	1
Naphthalene	0.034		mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**239**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
Client ID: PB128-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:35
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 00:14
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0043	0.00044	1
Benzene	ND		mg/kg	0.0011	0.00036	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00056	1
Toluene	ND		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00064	1
Ethylbenzene	ND		mg/kg	0.0022	0.00030	1
p/m-Xylene	0.0014	J	mg/kg	0.0043	0.0012	1
o-Xylene	0.0012	J	mg/kg	0.0022	0.00063	1
Xylenes, Total	0.0026	J	mg/kg	0.0022	0.00063	1
Isopropylbenzene	0.0048		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0043	0.00042	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0043	0.00072	1
Naphthalene	ND		mg/kg	0.0087	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-19	Date Collected:	06/22/21 12:45
Client ID:	PB128-04-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:29
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	1.3		mg/kg	0.045	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	0.32		mg/kg	0.091	0.049	1
1,2-Dibromoethane	ND		mg/kg	0.045	0.026	1
Ethylbenzene	0.16		mg/kg	0.091	0.013	1
p/m-Xylene	0.65		mg/kg	0.18	0.051	1
o-Xylene	0.24		mg/kg	0.091	0.026	1
Xylenes, Total	0.89		mg/kg	0.091	0.026	1
Isopropylbenzene	3.5		mg/kg	0.091	0.0099	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.18	0.030	1
Naphthalene	0.44		mg/kg	0.36	0.059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**252**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
Client ID: PB128-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 13:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:54
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.021	1
Benzene	1.4		mg/kg	0.053	0.017	1
1,2-Dichloroethane	ND		mg/kg	0.10	0.027	1
Toluene	1.3		mg/kg	0.10	0.057	1
1,2-Dibromoethane	ND		mg/kg	0.053	0.031	1
Ethylbenzene	0.54		mg/kg	0.10	0.015	1
p/m-Xylene	5.7		mg/kg	0.21	0.059	1
o-Xylene	0.53		mg/kg	0.10	0.031	1
Xylenes, Total	6.2		mg/kg	0.10	0.031	1
Isopropylbenzene	1.5		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	1.5		mg/kg	0.21	0.020	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.21	0.035	1
Naphthalene	1.0		mg/kg	0.42	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-20	Date Collected:	06/22/21 13:00
Client ID:	PB128-05-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 09:20
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0044	0.00045	1
Benzene	0.0056		mg/kg	0.0011	0.00037	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00057	1
Toluene	0.0061		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00065	1
Ethylbenzene	0.0021	J	mg/kg	0.0022	0.00031	1
p/m-Xylene	0.020		mg/kg	0.0044	0.0012	1
o-Xylene	0.017		mg/kg	0.0022	0.00065	1
Xylenes, Total	0.037		mg/kg	0.0022	0.00065	1
Isopropylbenzene	0.12		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0044	0.00043	1
1,2,4-Trimethylbenzene	0.016		mg/kg	0.0044	0.00074	1
Naphthalene	0.0092		mg/kg	0.0089	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**191**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21
Client ID: DUP-8
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:10
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 02:19
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	1.2		mg/kg	0.049	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.098	0.025	1
Toluene	1.0		mg/kg	0.098	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.049	0.029	1
Ethylbenzene	0.52		mg/kg	0.098	0.014	1
p/m-Xylene	6.2		mg/kg	0.20	0.055	1
o-Xylene	0.54		mg/kg	0.098	0.029	1
Xylenes, Total	6.7		mg/kg	0.098	0.029	1
Isopropylbenzene	1.9		mg/kg	0.098	0.011	1
1,3,5-Trimethylbenzene	3.6		mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	8.4		mg/kg	0.20	0.033	1
Naphthalene	1.6		mg/kg	0.39	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-22	Date Collected:	06/22/21 12:00
Client ID:	FB-210622-1	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/25/21 13:23
Analytical Date:	06/25/21 15:57		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22
Client ID: FB-210622-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 11:39
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23
Client ID: FB-210622-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 13:20
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/25/21 16:03
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23
Client ID: FB-210622-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 13:20
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 12:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-24	Date Collected:	06/22/21 00:00
Client ID:	TB	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 12:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 22-23 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,09,11-14 Batch: WG1518909-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-06,08,10 Batch: WG1519110-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18 Batch: WG1519269-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1519270-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15,17,19-21 Batch: WG1519270-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,20 Batch: WG1519390-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22-23 Batch: WG1520387-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24 Batch: WG1520863-5					
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133823

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 22-23 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,09,11-14 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-06,08,10 Batch: WG1519110-3 WG1519110-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18 Batch: WG1519269-3 WG1519269-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15,17,19-21 Batch: WG1519270-3 WG1519270-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1519270-8 WG1519270-9								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,20 Batch: WG1519390-3 WG1519390-4								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22-23 Batch: WG1520387-3 WG1520387-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	99		100		70-130	1		20
1,2-Dichloroethane	100		110		70-130	10		20
Toluene	95		100		70-130	5		20
Ethylbenzene	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	98		100		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	103		100		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-01	Date Collected:	06/22/21 08:00
Client ID:	PB40-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	272		mg/kg	2.90	0.155	1	06/29/21 08:20	07/19/21 09:46	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-02	Date Collected:	06/22/21 08:20
Client ID:	PB40-02-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.14		mg/kg	2.39	0.128	1	06/29/21 08:20	07/16/21 19:39	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03 Date Collected: 06/22/21 08:30
Client ID: PB40-03-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	297		mg/kg	2.64	0.141	1	06/29/21 08:20	07/16/21 19:44	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04
Date Collected: 06/22/21 08:50
Client ID: PB40-04-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.3		mg/kg	2.27	0.121	1	06/29/21 08:20	07/16/21 19:49	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05
Date Collected: 06/22/21 09:00
Client ID: PB40-07-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	463		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 19:54	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06 Date Collected: 06/22/21 09:15
Client ID: PB40-08-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	41.1		mg/kg	2.04	0.110	1	06/29/21 08:20	07/16/21 19:59	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07
Date Collected: 06/22/21 09:30
Client ID: PB40-09-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.5		mg/kg	2.08	0.112	1	06/29/21 08:20	07/16/21 20:23	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08

Date Collected: 06/22/21 09:45

Client ID: PB40-10-SS01

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	58.2		mg/kg	2.20	0.118	1	06/29/21 08:20	07/16/21 20:27	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY

Lab Number: L2133823

Project Number: 200.00135.005.03

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09

Date Collected: 06/22/21 09:55

Client ID: PB40-11-SS01

Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	258		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 20:37	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
Date Collected: 06/22/21 10:05
Client ID: PB40-12-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1070		mg/kg	2.42	0.130	1	06/29/21 08:20	07/16/21 20:42	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
Date Collected: 06/22/21 10:15
Client ID: PB40-13-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.13		mg/kg	2.35	0.126	1	06/29/21 08:20	07/16/21 21:21	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12
Date Collected: 06/22/21 10:30
Client ID: PB40-14-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	248		mg/kg	2.28	0.122	1	06/29/21 08:20	07/16/21 20:47	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-13	Date Collected:	06/22/21 10:40
Client ID:	PB40-15-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	34.4		mg/kg	2.10	0.113	1	06/29/21 08:20	07/16/21 21:26	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-14	Date Collected:	06/22/21 10:50
Client ID:	PB40-16-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	40.1		mg/kg	2.33	0.125	1	06/29/21 08:20	07/16/21 21:31	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
Date Collected: 06/22/21 12:10
Client ID: PB128-01-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1980		mg/kg	2.46	0.132	1	06/29/21 08:20	07/16/21 21:36	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-17	Date Collected:	06/22/21 12:25
Client ID:	PB128-02-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	74%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	361		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 21:41	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-18	Date Collected:	06/22/21 12:35
Client ID:	PB128-03-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.84		mg/kg	2.60	0.139	1	06/29/21 08:20	07/16/21 21:46	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19
Date Collected: 06/22/21 12:45
Client ID: PB128-04-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	310		mg/kg	2.32	0.124	1	06/29/21 08:20	07/16/21 21:51	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
Client ID: PB128-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 13:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1070		mg/kg	2.57	0.138	1	06/29/21 08:20	07/16/21 21:56	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21 | Date Collected: 06/22/21 13:10

Client ID: DUP-8 | Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1470		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 22:11	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-22	Date Collected:	06/22/21 12:00
Client ID:	FB-210622-1	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 22:52	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2133823

Project Number: 200.00135.005.03　　**Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23　　Date Collected: 06/22/21 13:20

Client ID: FB-210622-2　　Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 22:57	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 22-23 Batch: WG1517034-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 16:46	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-15,17-21 Batch: WG1517740-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/29/21 08:20	07/16/21 20:13	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 Batch: WG1517034-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 Batch: WG1517740-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 QC Batch ID: WG1517034-3 WG1517034-4 QC Sample: L2134066-03 Client ID: MS Sample												
Lead, Total	ND	510	487.7	96		479.8	94		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-3 QC Sample: L2133823-01 Client ID: PB40-01-SS01												
Lead, Total	272	60.3	214	**0**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-4 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	235	mg/kg	15		20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-6 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	297	mg/kg	9		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-01
Client ID: PB40-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 08:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02
Date Collected: 06/22/21 08:20
Client ID: PB40-02-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03
Date Collected: 06/22/21 08:30
Client ID: PB40-03-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133823

Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04
Client ID: PB40-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 08:50
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05
Client ID: PB40-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 09:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06
Client ID: PB40-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:15
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07
Client ID: PB40-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:30
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-08	Date Collected:	06/22/21 09:45
Client ID:	PB40-10-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09
Date Collected: 06/22/21 09:55
Client ID: PB40-11-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
Client ID: PB40-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 10:05
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
Date Collected: 06/22/21 10:15
Client ID: PB40-13-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12
Client ID: PB40-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:30
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13
Date Collected: 06/22/21 10:40
Client ID: PB40-15-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.9		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
Date Collected: 06/22/21 10:50
Client ID: PB40-16-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
Client ID: PB128-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:10
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
Client ID: PB128-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
Client ID: PB128-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:35
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19
Client ID: PB128-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:45
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
Date Collected: 06/22/21 13:00
Client ID: PB128-05-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-21	Date Collected:	06/22/21 13:10
Client ID:	DUP-8	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.2		%	0.100	NA	1	-	06/23/21 08:59	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,17-20 QC Batch ID: WG1515779-1 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Solids, Total	68.4	67.2	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515781-1 QC Sample: L2133712-01 Client ID: DUP Sample						
Solids, Total	90.0	91.0	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-01A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-01B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-01E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-02A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-02B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-02E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-03A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-03B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-03E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-04A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-04B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-04E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-05A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-05B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-05C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-05E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-06A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-06B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-06E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-07A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-07B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-07E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-08A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-08B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-08E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-09A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-09B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-09E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-10A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-10B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-10E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-11A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-11B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-11E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-12A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-12B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-12E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-13A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-13B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-13E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-14A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-14B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-14E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-15A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-15B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-15E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-16A	Vial MeOH preserved	B	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2133823-16B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)
L2133823-16C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-16E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2133823-17A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-17B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-17E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-18A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-18B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-18E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-19A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-19B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-19E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-20A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-20B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-20E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-21A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-21B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-21E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-22A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-22C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-23A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-24A	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)
L2133823-24B	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	Lab Number:	L2133823
Project Number:	200.00135.005.03	Report Date:	07/19/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33823-01	PB40-01-5501	6/22	0800	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1S
-02	PB40-02-5501	↓	0820	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB40-03-5501	↓	0830	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB40-04-5501	↓	0850	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB40-07-5501	↓	0900	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB40-08-5501	↓	0915	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB40-09-5501	↓	0930	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB40-10-5501	↓	0945	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB40-11-5501	↓	0955	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-10	PB40-12-5501	↓	1005	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/22 1555	[signature]	6/22/21 15[illegible]
	1300	[signature]	6-22 1300
[signature]	6-21 2030	[signature]	6/22 2200
2023 0200		[signature]	6/23/21 0230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(NJ) (rev. 5-JAN-12)

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 2 OF 3

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

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Client: Ransom Consulting, LLC

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Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33823 -11	PB40-13-5501	6/22	1015	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB40-14-5501	6/22	1030			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB40-15-5501		1040			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB40-16-5501		1050			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB128-01-5501		1210			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	PB-129-01-5501		1215			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	PB-128-02-5501		1225			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-18	PB-128-03-5501		1235			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-19	PB-128-04-5501		1245			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-20	PB-128-05-5501		1300			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
	Container Type					-	-	-	-	-	-	-	-	-	-	-	-		
	Preservative					-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/22 1555	[signature]	6/22/21 1555
[signature] 1800		[signature]	6-22 1800
[signature]	6-22-21 2030	[signature]	6/22 2030
7 6/23 [signature]		[signature]	6/23/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2,4)		Sample Specific Comments	TOTAL # BOTTLES
33823-21	Dup-8	6/22	1310	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	FB-210622-1	↓	1200	W	↓	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-23	FB-210622-2	↓	~~1200~~ 1310	W	↓	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-24	TB	↓		W	↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		

	Container Type	Preservative
	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 1800	6/22 1555	[signature]	6/22/21 15
[signature]	6-22-21	[signature]	6-22-1800
7 4/23 [illegible]		[signature]	6/23/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround-time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HNJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

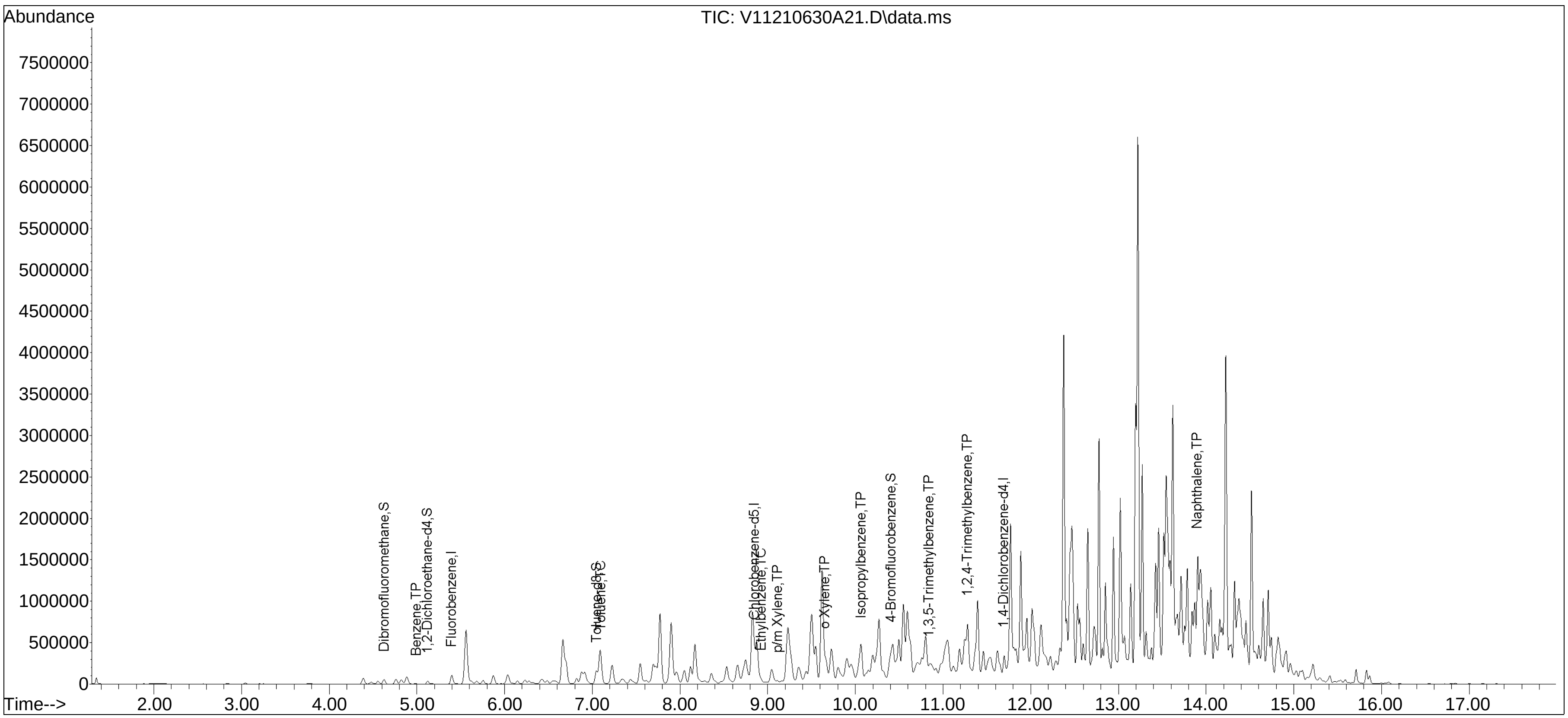
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A21.D
Acq On : 30 Jun 2021 01:48 pm
Operator : VOA111:AJK
Sample : L2133823-01,31H,5.73,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 30 16:06:27 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

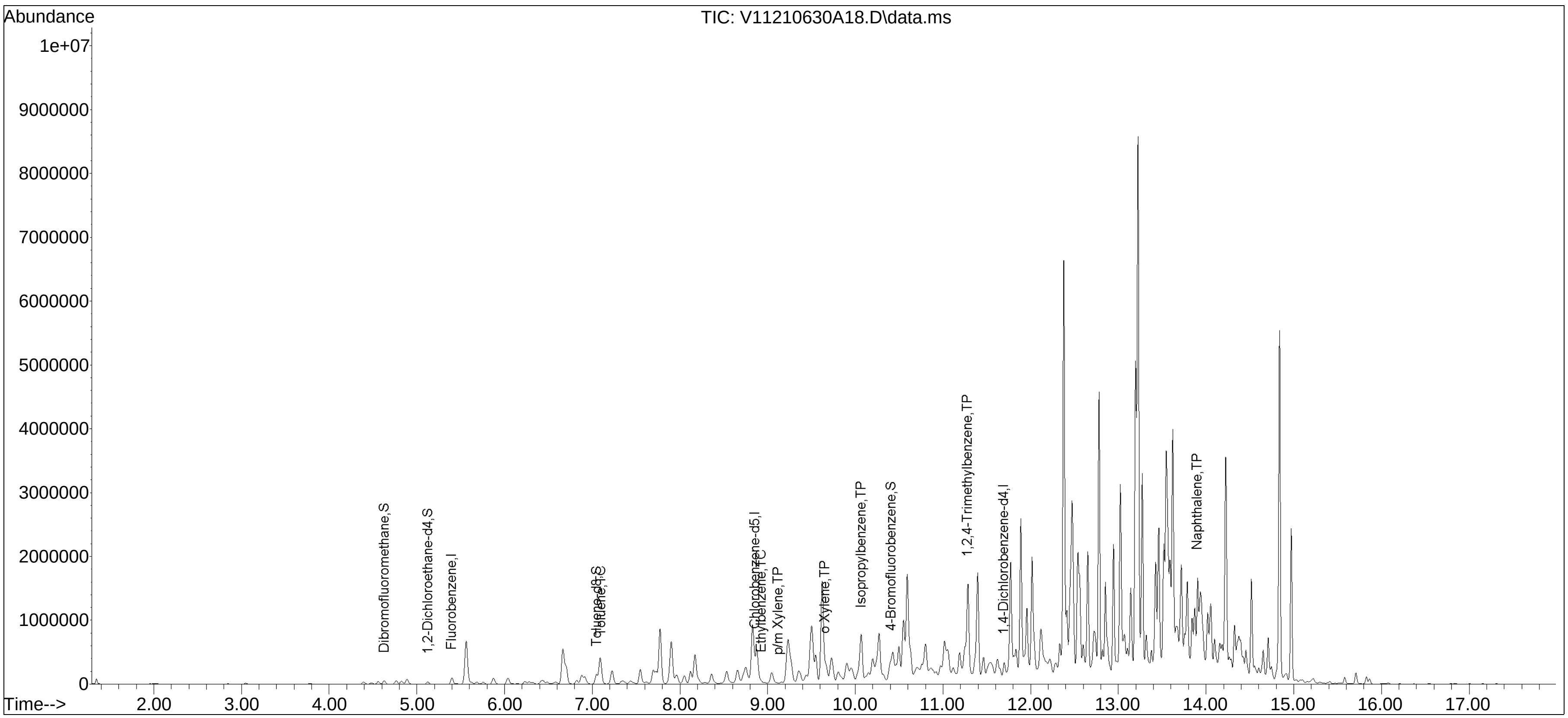


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A18.D
Acq On : 30 Jun 2021 12:31 pm
Operator : VOA111:AJK
Sample : L2133823-02D,31H,6.13,5,0.050,,A
Misc : WG1519110,ICAL18049
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 30 16:04:23 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

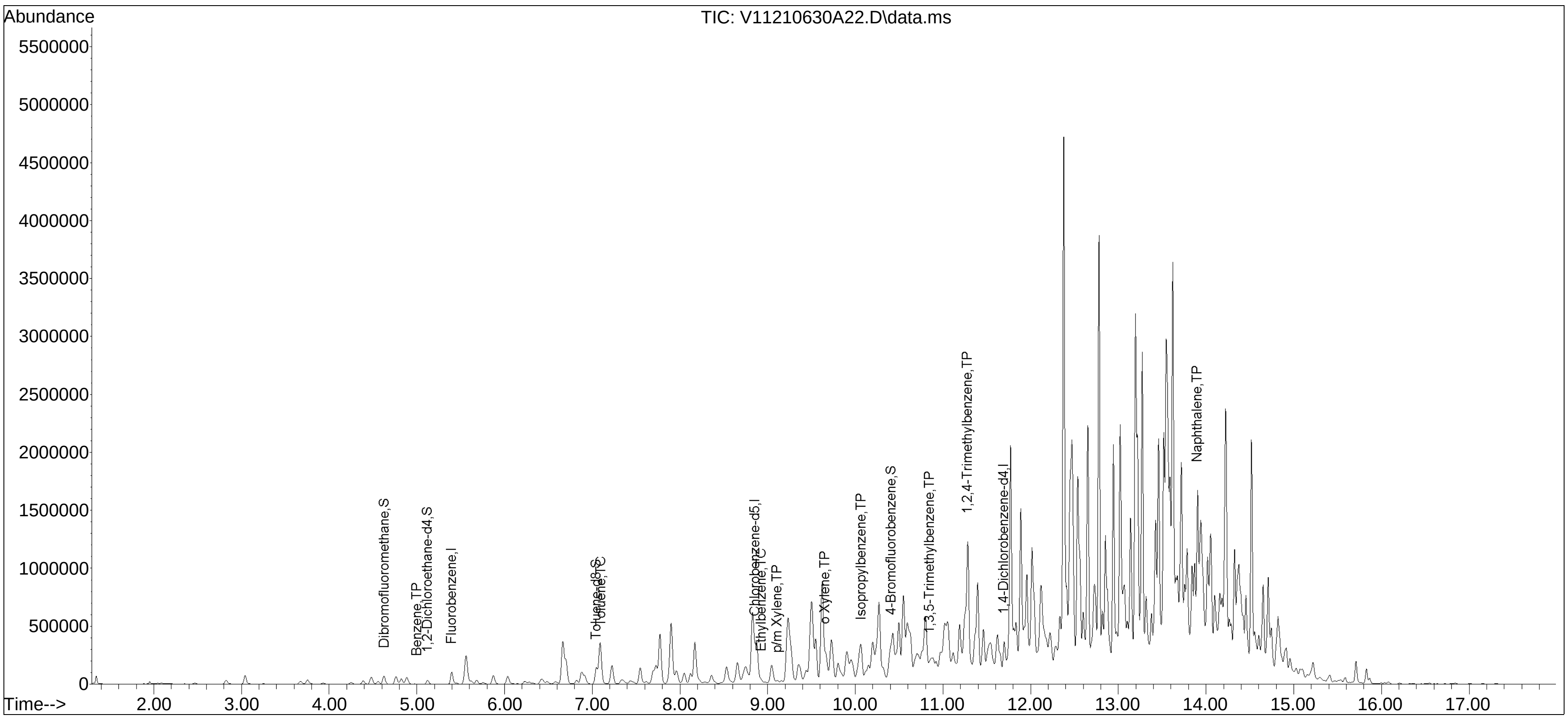


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A22.D
Acq On : 30 Jun 2021 02:14 pm
Operator : VOA111:AJK
Sample : L2133823-03,31H,3.12,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 30 15:58:34 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

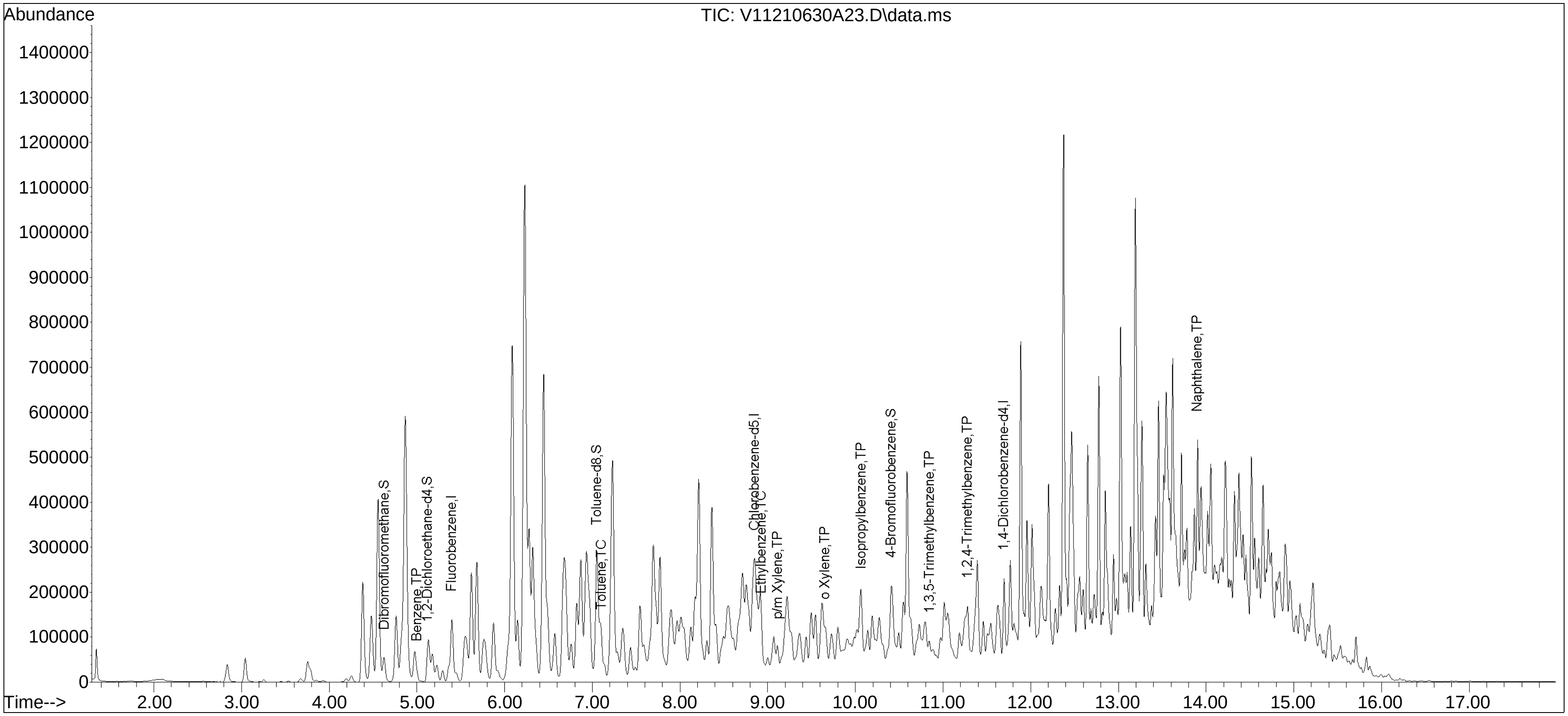


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A23.D
Acq On : 30 Jun 2021 02:39 pm
Operator : VOA111:AJK
Sample : L2133823-04,31H,6.10,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 30 16:07:06 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report   (QT Reviewed)

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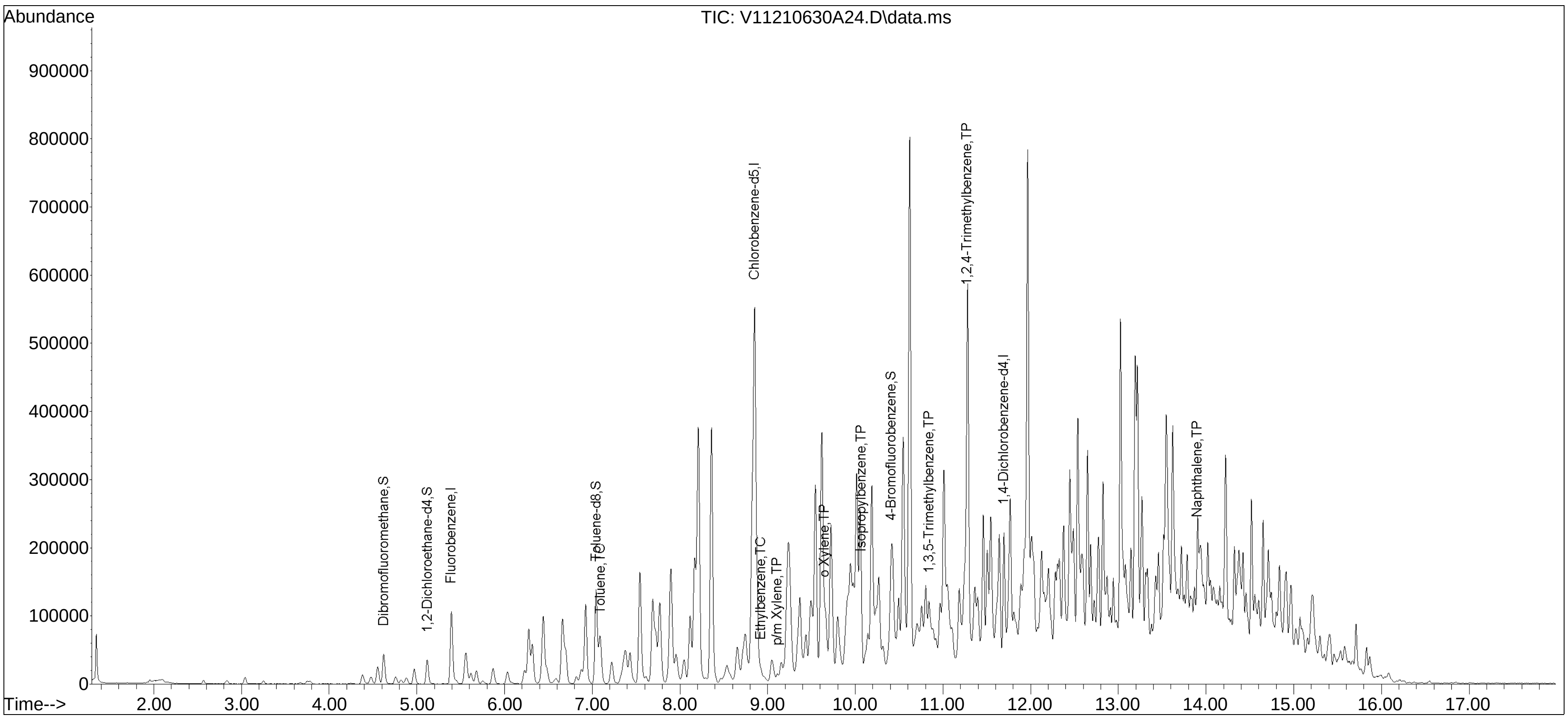
Data File : V11210630A24.D
Acq On   : 30 Jun 2021 04:09 pm
Operator : VOA111:AJK
Sample   : L2133823-05,31H,6.88,5,0.100,,A
Misc   : WG1519110,ICAL18049
ALS Vial : 24   Sample Multiplier: 1

Quant Time: Jun 30 17:07:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

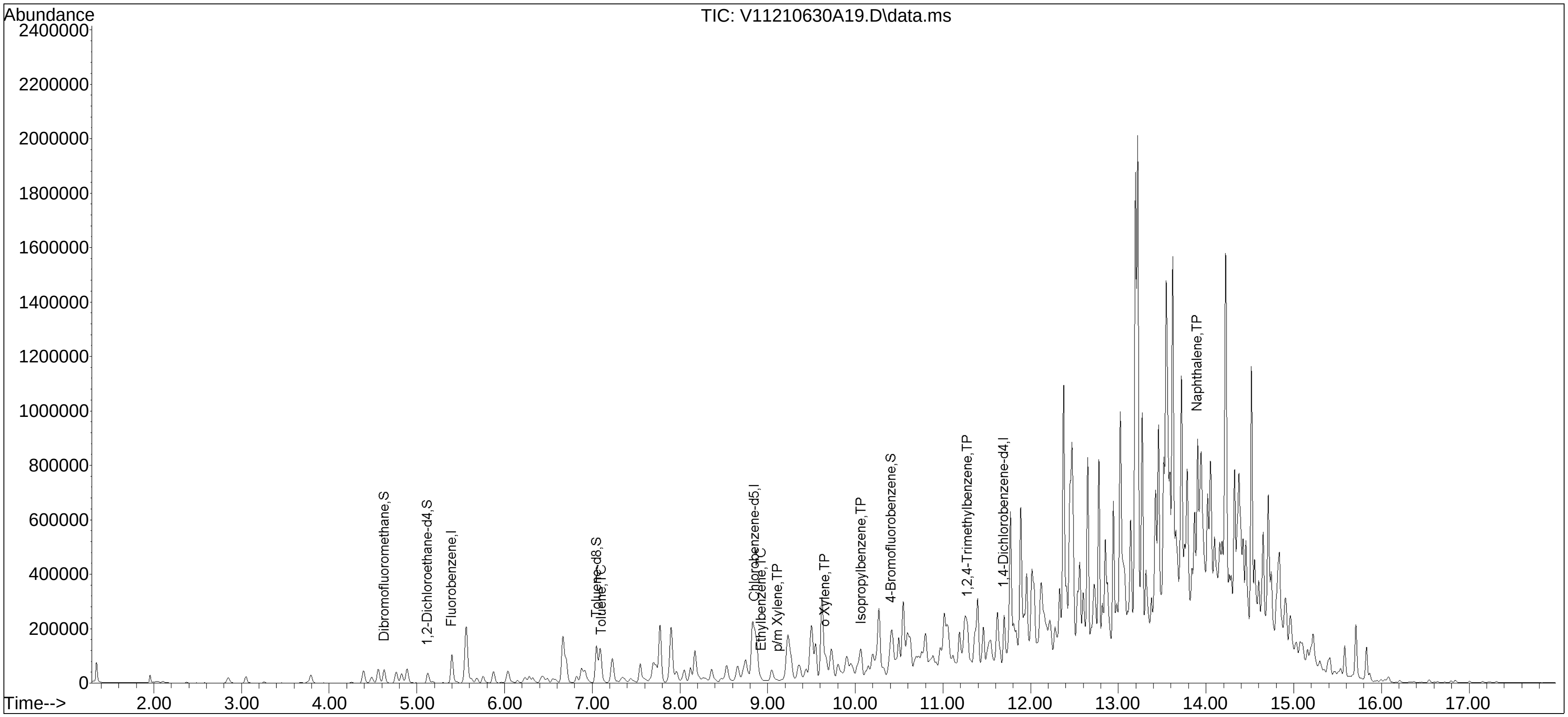


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A19.D
Acq On   : 30 Jun 2021 12:57 pm
Operator : VOA111:AJK
Sample   : L2133823-06D,31H,5.29,5,0.050,,A
Misc   : WG1519110,ICAL18049
ALS Vial : 19   Sample Multiplier: 1

Quant Time: Jun 30 16:04:58 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

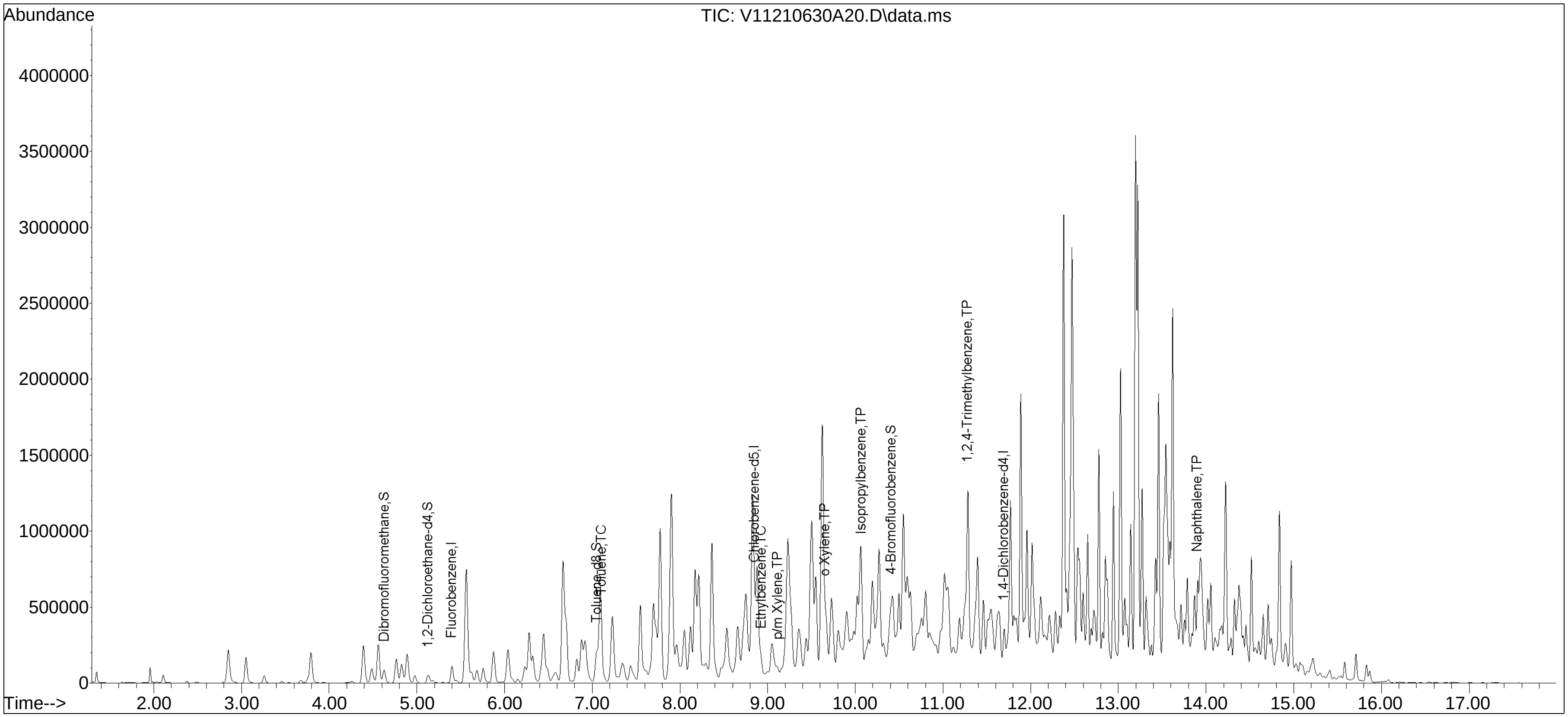


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A20.D
Acq On : 30 Jun 2021 01:23 pm
Operator : VOA111:AJK
Sample : L2133823-08D,31H,6.14,5,0.050,,A
Misc : WG1519110,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 30 16:06:01 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report (QT Reviewed)

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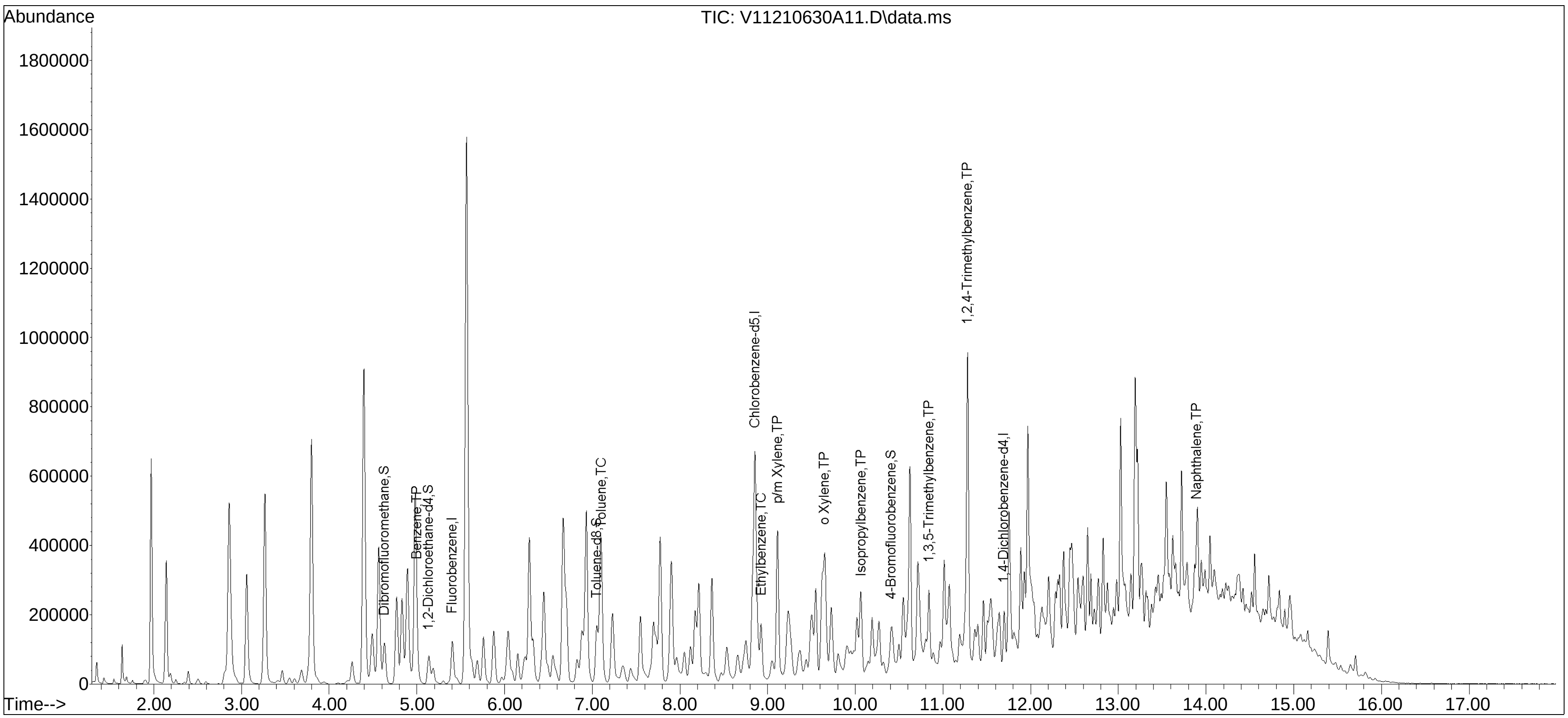
Data File : V11210630A11.D
Acq On : 30 Jun 2021 09:32 am
Operator : VOA111:MV
Sample : L2133823-09,31,5.47,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 30 11:02:22 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report   (QT Reviewed)

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Acq On    : 30 Jun 2021  04:36 pm
Operator  : VOA111:AJK
Sample    : L2133823-10,31H,5.72,5,0.100,,A
Misc      : WG1519110,ICAL18049
ALS Vial  : 25   Sample Multiplier: 1

Quant Time: Jun 30 17:08:25 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
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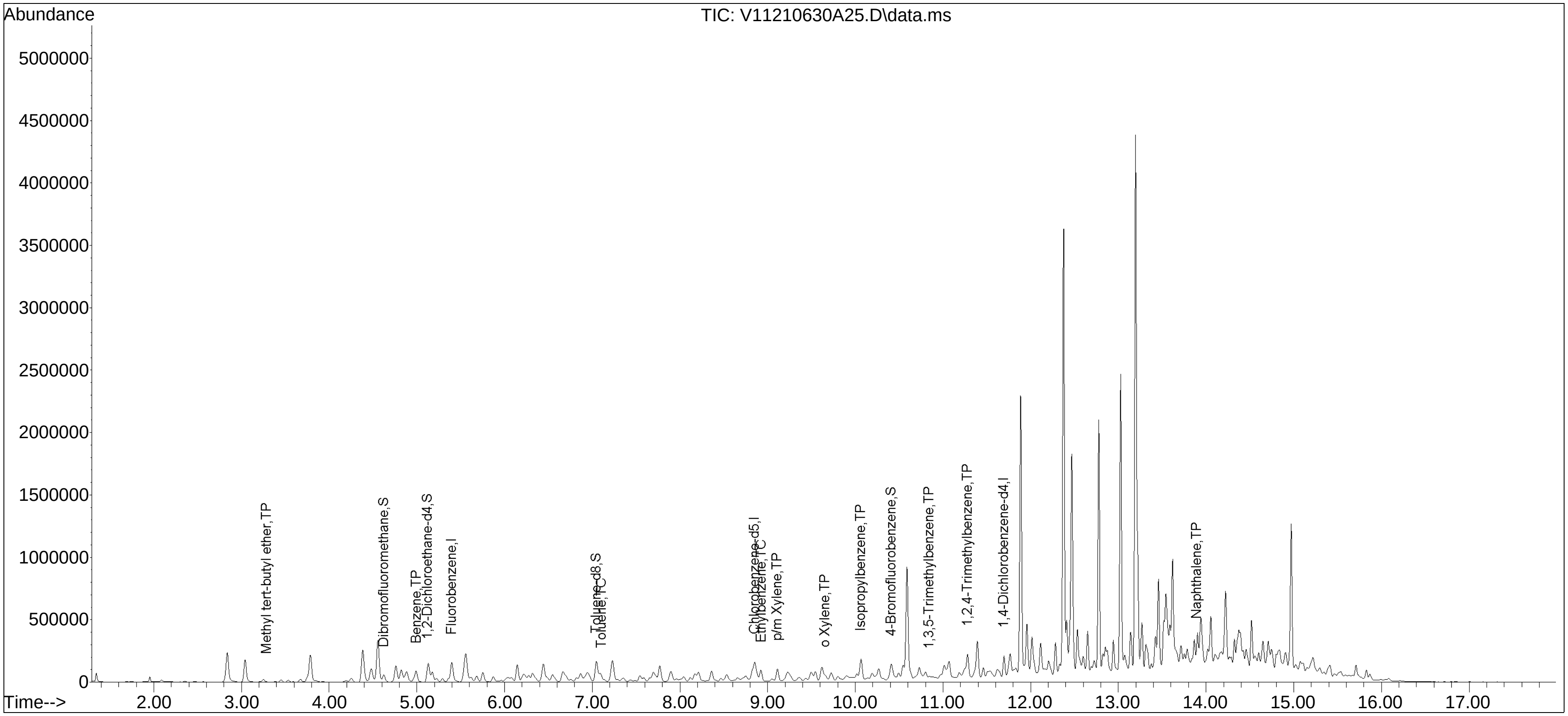
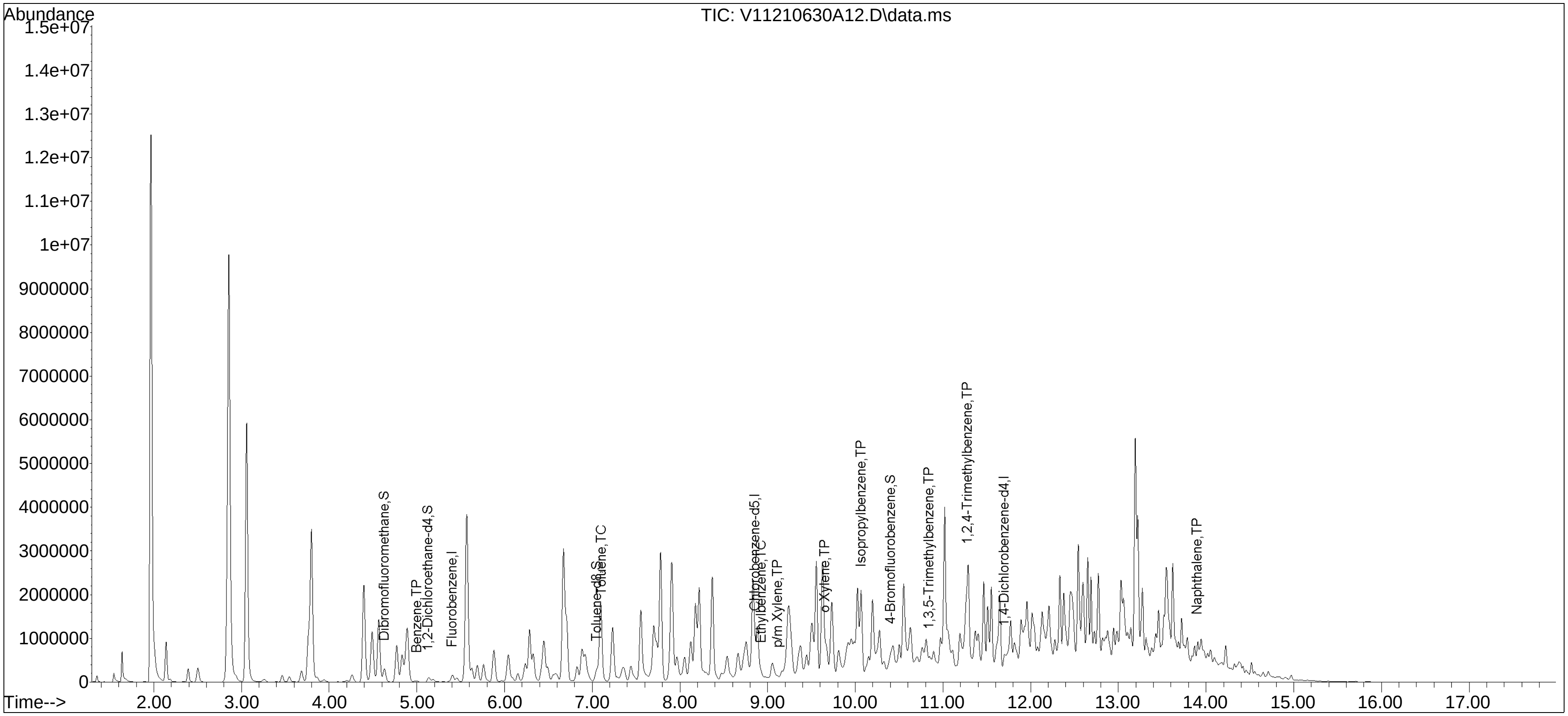


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A12.D
Acq On   : 30 Jun 2021 09:57 am
Operator : VOA111:AJK
Sample   : L2133823-11,31,4.59,5,,B
Misc   : WG1518909,ICAL18049
ALS Vial : 12   Sample Multiplier: 1

Quant Time: Jun 30 16:00:55 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

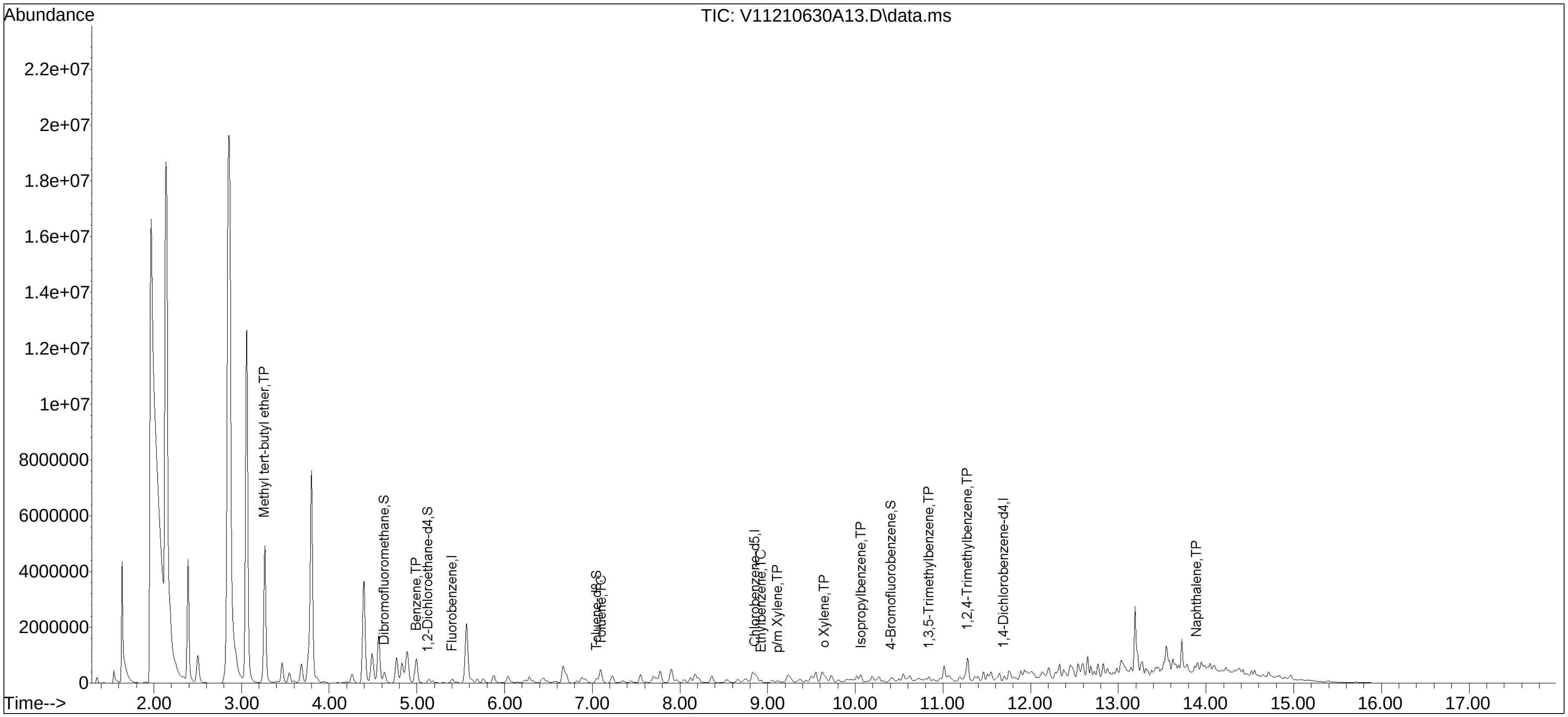


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A13.D
Acq On : 30 Jun 2021 10:22 am
Operator : VOA111:AJK
Sample : L2133823-12,31,5.82,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 30 16:01:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

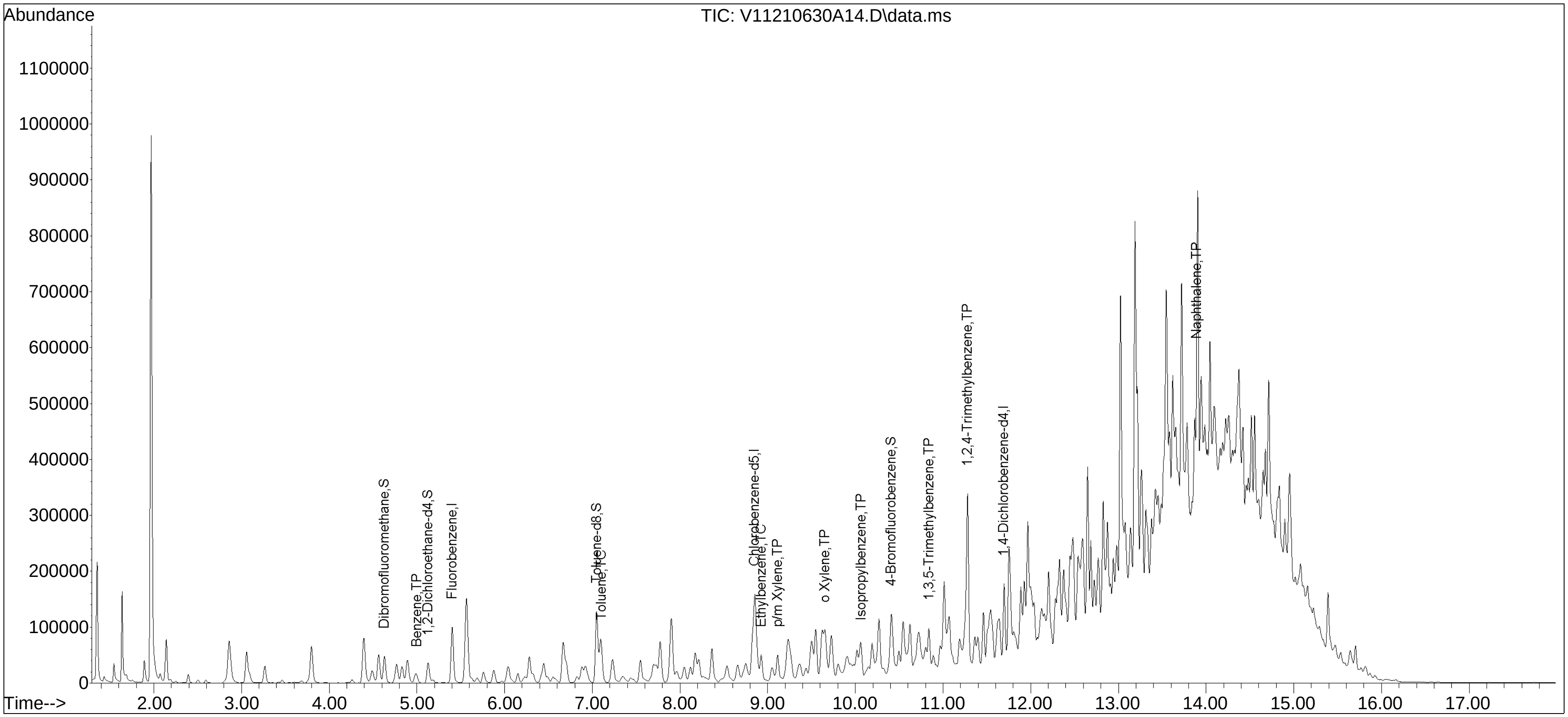


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A14.D
Acq On : 30 Jun 2021 10:47 am
Operator : VOA111:AJK
Sample : L2133823-13,31,5.42,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 30 15:57:56 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



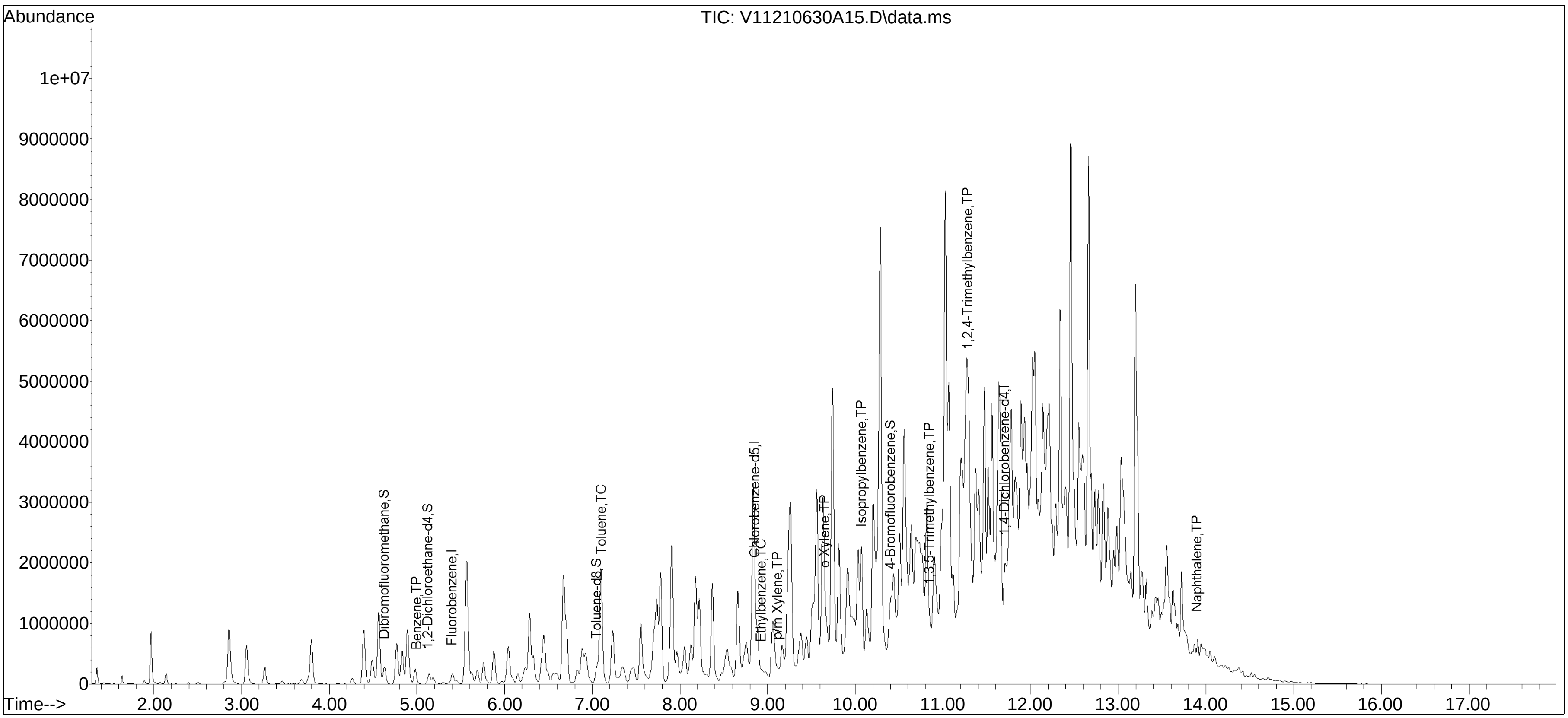
Serial_No:07192115:44

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A15.D
Acq On : 30 Jun 2021 11:12 am
Operator : VOA111:AJK
Sample : L2133823-14,31,6.07,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 30 16:02:15 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210701A\
Data File : V23210701A12.D
Acq On : 01 Jul 2021 08:55 am
Operator : VOA123:JC
Sample : L2133823-17,31,4.48,5,,B
Misc : WG1519390,ICAL18108
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 01 11:16:05 2021
Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

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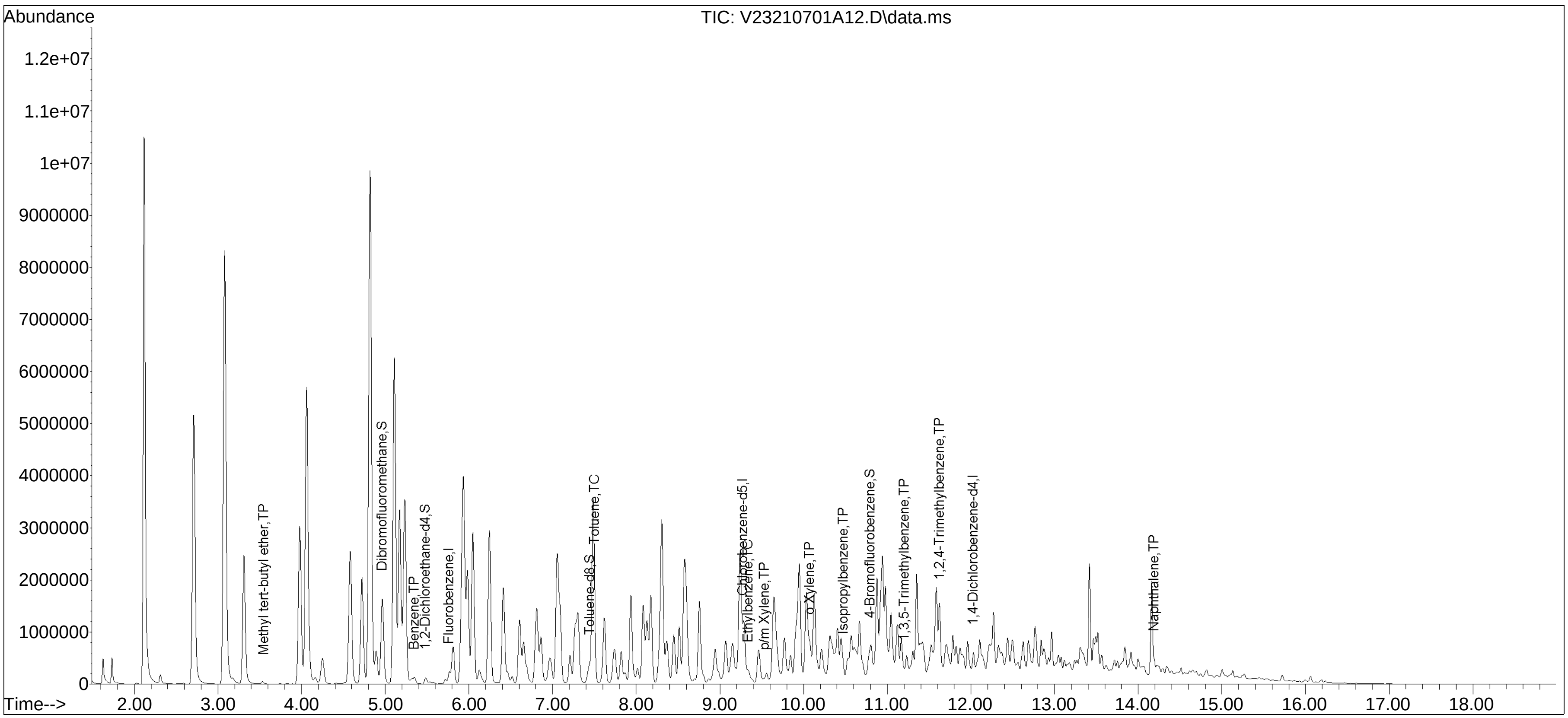

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA123\2021\210630N\
Data File : V23210630N23.D
Acq On    : 01 Jul 2021  01:29 am
Operator  : VOA123:JC
Sample    : L2133823-19,31H,3.86,5,0.100,,A
Misc      : WG1519270,ICAL18048
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jul 01 06:17:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210630N\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30N\V23210630N01.D•
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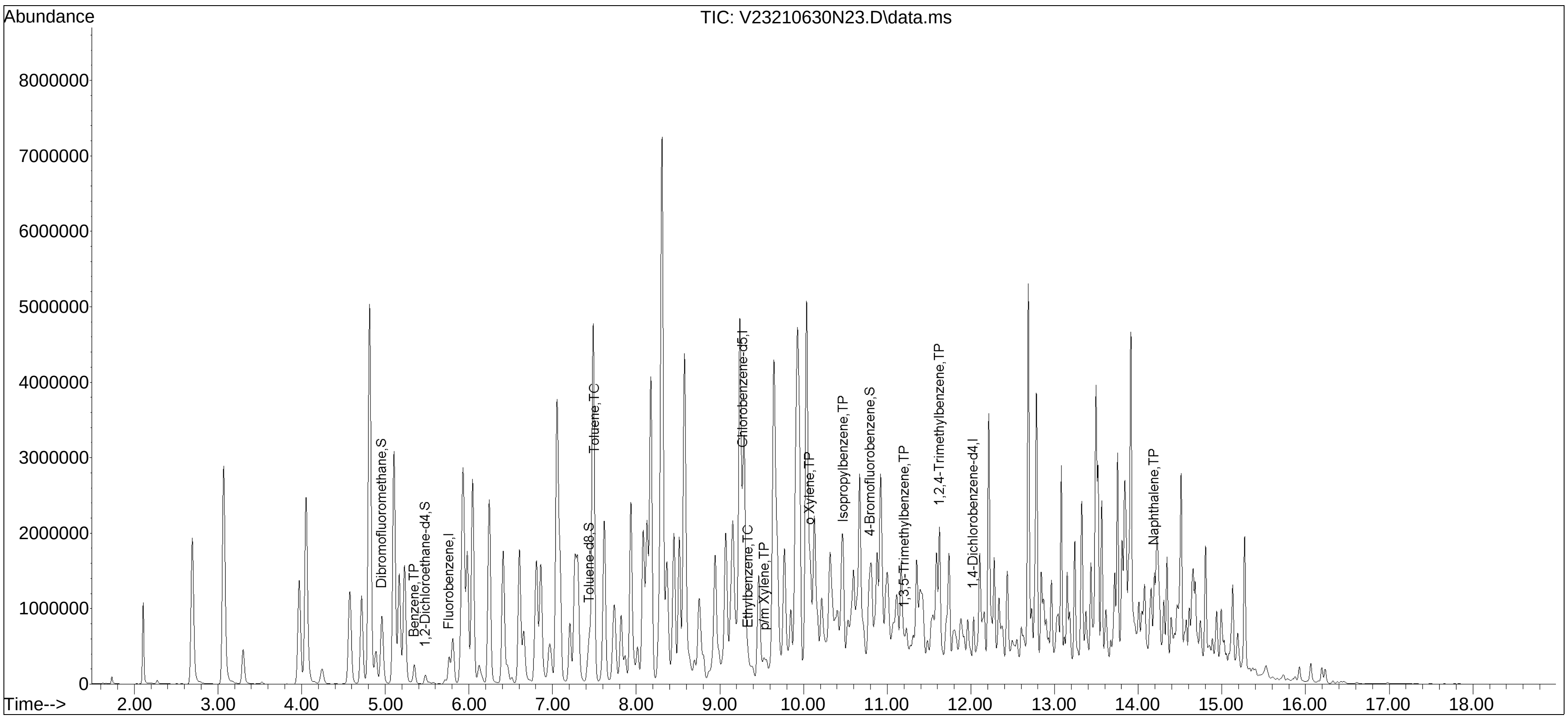
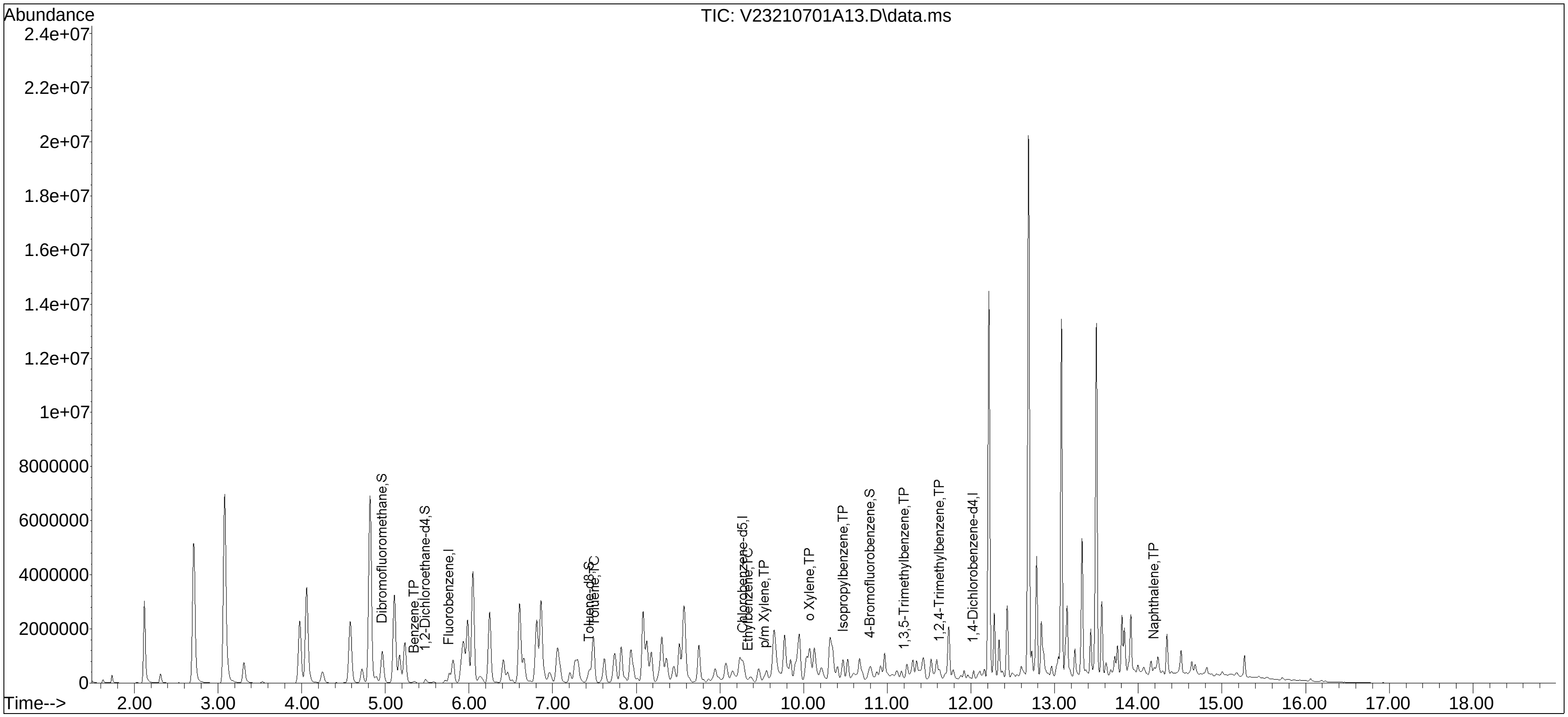


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210701A\
Data File : V23210701A13.D
Acq On   : 01 Jul 2021 09:20 am
Operator : VOA123:JC
Sample   : L2133823-20,31,3.07,5,,B
Misc   : WG1519390,ICAL18108
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Jul 01 11:25:24 2021
Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list01A\V23210701A01.D•



ANALYTICAL REPORT

Lab Number:	L2134200
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/28/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134200-01	PB128-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 07:50	06/23/21
L2134200-02	PB128-13-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:10	06/23/21
L2134200-03	PB128-16-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:20	06/23/21
L2134200-04	PB129-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:00	06/23/21
L2134200-05	PB129-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:15	06/23/21
L2134200-06	PB129-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:25	06/23/21
L2134200-07	PB129-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:30	06/23/21
L2134200-08	PB129-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:40	06/23/21
L2134200-09	PB129-14-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:00	06/23/21
L2134200-10	PB129-15-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:10	06/23/21
L2134200-11	PB129-17-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:25	06/23/21
L2134200-12	PB84-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:10	06/23/21
L2134200-13	PB84-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:25	06/23/21
L2134200-14	PB84-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:30	06/23/21
L2134200-15	PB84-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:45	06/23/21
L2134200-16	PB84-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:25	06/23/21
L2134200-17	PB84-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:40	06/23/21
L2134200-18	PB84-07-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:45	06/23/21
L2134200-19	PB84-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:55	06/23/21
L2134200-20	FB-210623-1	WATER	PHILADELPHIA, PA	06/23/21 12:00	06/23/21
L2134200-21	FB-210623-2	WATER	PHILADELPHIA, PA	06/23/21 14:00	06/23/21
L2134200-22	TB	WATER	PHILADELPHIA, PA	06/23/21 00:00	06/23/21
L2134200-23	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:50	06/23/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-04 and -23.

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-05, -08, -09, -10 and -11.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2134200-01 and -05D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-04: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2134200-04: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (30%) and the surrogate recovery for 4-bromofluorobenzene (184%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2134200-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-06 and -07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2134200-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (197%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-14D and -18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2134200-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-15D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-16 and -17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2134200-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (227%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-18D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

PAHs

L2134200-04D, -05D, and -23D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2134200-05D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 07/28/21

ALPHA ANALYTICAL

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01
Client ID: PB128-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 07:50
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:07
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00033	1
Benzene	ND		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	0.00097	J	mg/kg	0.0032	0.00091	1
o-Xylene	0.00077	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0017	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.00060	J	mg/kg	0.0032	0.00054	1
Naphthalene	0.0019	J	mg/kg	0.0065	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02
Client ID: PB128-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 08:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:33
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00018	1
Benzene	0.00041	J	mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	0.00049	J	mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.00048	J	mg/kg	0.00087	0.00012	1
p/m-Xylene	0.0017		mg/kg	0.0017	0.00049	1
o-Xylene	0.0026		mg/kg	0.00087	0.00025	1
Xylenes, Total	0.0043		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	0.0025		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	0.0022		mg/kg	0.0017	0.00029	1
Naphthalene	ND		mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03
Client ID: PB128-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 08:20
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:00
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00028	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	0.00060	J	mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	0.00034	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.00034	J	mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	ND		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-04	Date Collected:	06/23/21 09:00
Client ID:	PB129-02-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:31
Analyst: MV
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	1
Benzene	0.60		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	0.14		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	0.075	J	mg/kg	0.11	0.015	1
p/m-Xylene	0.20	J	mg/kg	0.22	0.061	1
o-Xylene	0.060	J	mg/kg	0.11	0.032	1
Xylenes, Total	0.26	J	mg/kg	0.11	0.032	1
Isopropylbenzene	0.042	J	mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.082	J	mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	0.16	J	mg/kg	0.22	0.036	1
Naphthalene	0.24	J	mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-04	Date Collected:	06/23/21 09:00
Client ID:	PB129-02-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 09:49
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	0.25		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0036		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	0.00038	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0037		mg/kg	0.0030	0.00084	1
o-Xylene	0.0025		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.0062		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.0048		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0053		mg/kg	0.0030	0.00050	1
Naphthalene	0.0028	J	mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	**184**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05
Client ID: PB129-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:57
Analyst: MV
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.19	0.019	1
Benzene	0.96		mg/kg	0.048	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.096	0.025	1
Toluene	0.45		mg/kg	0.096	0.052	1
1,2-Dibromoethane	ND		mg/kg	0.048	0.028	1
Ethylbenzene	3.6		mg/kg	0.096	0.014	1
p/m-Xylene	2.3		mg/kg	0.19	0.054	1
o-Xylene	3.8		mg/kg	0.096	0.028	1
Xylenes, Total	6.1		mg/kg	0.096	0.028	1
Isopropylbenzene	7.1		mg/kg	0.096	0.010	1
1,3,5-Trimethylbenzene	21.		mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	46.	E	mg/kg	0.19	0.032	1
Naphthalene	13.		mg/kg	0.38	0.062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05 D	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 10:15
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	44.		mg/kg	0.38	0.064	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06
Client ID: PB129-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:26
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.0084		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.00036	J	mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0018		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0018		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.0032		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.61	E	mg/kg	0.0018	0.00030	1
Naphthalene	0.090		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-06	Date Collected:	06/23/21 09:25
Client ID:	PB129-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/01/21 20:49
Analyst:	JC
Percent Solids:	95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	ND		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	ND		mg/kg	0.046	0.0066	1
p/m-Xylene	ND		mg/kg	0.093	0.026	1
o-Xylene	ND		mg/kg	0.046	0.014	1
Xylenes, Total	ND		mg/kg	0.046	0.014	1
Isopropylbenzene	ND		mg/kg	0.046	0.0051	1
1,3,5-Trimethylbenzene	0.11		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.093	0.016	1
Naphthalene	0.10	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200
Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
Client ID: PB129-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:53
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.42	E	mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.75	E	mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	0.041		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.045		mg/kg	0.0022	0.00062	1
o-Xylene	0.081		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.13		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0054		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.067		mg/kg	0.0022	0.00037	1
Naphthalene	0.010		mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-07	Date Collected:	06/23/21 09:30
Client ID:	PB129-05-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 21:15
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	0.32		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	0.45		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.039	J	mg/kg	0.046	0.0065	1
p/m-Xylene	0.072	J	mg/kg	0.093	0.026	1
o-Xylene	0.066		mg/kg	0.046	0.013	1
Xylenes, Total	0.14	J	mg/kg	0.046	0.013	1
Isopropylbenzene	0.0094	J	mg/kg	0.046	0.0050	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.093	0.015	1
Naphthalene	0.033	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08 D2	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 10:41
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.4	0.24	25
Benzene	ND		mg/kg	0.59	0.20	25
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	25
Toluene	360	E	mg/kg	1.2	0.64	25
1,2-Dibromoethane	ND		mg/kg	0.59	0.35	25
Ethylbenzene	230		mg/kg	1.2	0.17	25
p/m-Xylene	1800	E	mg/kg	2.4	0.66	25
o-Xylene	450		mg/kg	1.2	0.34	25
Isopropylbenzene	14.		mg/kg	1.2	0.13	25
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	25
1,2,4-Trimethylbenzene	640	E	mg/kg	2.4	0.40	25
Naphthalene	42.		mg/kg	4.8	0.77	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08 D	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 00:46
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	250		mg/kg	4.8	2.6	100
p/m-Xylene	910		mg/kg	9.5	2.7	100
Xylenes, Total	1400		mg/kg	1.2	0.34	100
1,2,4-Trimethylbenzene	390		mg/kg	9.5	1.6	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-09	Date Collected:	06/23/21 10:00
Client ID:	PB129-14-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 01:12
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0094	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.047	0.012	1
Toluene	ND		mg/kg	0.047	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.042	J	mg/kg	0.047	0.0066	1
p/m-Xylene	0.15		mg/kg	0.093	0.026	1
o-Xylene	0.016	J	mg/kg	0.047	0.014	1
Xylenes, Total	0.17	J	mg/kg	0.047	0.014	1
Isopropylbenzene	0.36		mg/kg	0.047	0.0051	1
1,3,5-Trimethylbenzene	3.0		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.093	0.016	1
Naphthalene	1.2		mg/kg	0.19	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-10	Date Collected:	06/23/21 10:10
Client ID:	PB129-15-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 12:19
Analyst: JC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0043	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11
Client ID: PB129-17-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 10:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 12:46
Analyst: KJD
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0047	0.00077	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-12 D
Client ID: PB84-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 13:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 01:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	ND		mg/kg	0.064	0.021	2
Toluene	ND		mg/kg	0.13	0.070	2
Ethylbenzene	ND		mg/kg	0.13	0.018	2
Isopropylbenzene	3.5		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.49		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	23.		mg/kg	0.26	0.043	2
Naphthalene	1.0		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**168**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-13	Date Collected:	06/23/21 13:25
Client ID:	PB84-02-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:04
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.027		mg/kg	0.027	0.0091	1
Toluene	0.041	J	mg/kg	0.055	0.030	1
Ethylbenzene	0.042	J	mg/kg	0.055	0.0077	1
Isopropylbenzene	2.5		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.11	0.018	1
Naphthalene	0.81		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**197**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-14 D
Client ID: PB84-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:30
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2
Benzene	ND		mg/kg	0.070	0.023	2
Toluene	ND		mg/kg	0.14	0.076	2
Ethylbenzene	ND		mg/kg	0.14	0.020	2
Isopropylbenzene	1.9		mg/kg	0.14	0.015	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.28	0.027	2
1,2,4-Trimethylbenzene	0.79		mg/kg	0.28	0.047	2
Naphthalene	0.55	J	mg/kg	0.56	0.091	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15 D2
Client ID: PB84-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:07
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.52	0.052	5
Benzene	2.1		mg/kg	0.13	0.043	5
Toluene	3.0		mg/kg	0.26	0.14	5
Ethylbenzene	15.		mg/kg	0.26	0.037	5
Isopropylbenzene	5.1		mg/kg	0.26	0.028	5
1,3,5-Trimethylbenzene	29.		mg/kg	0.52	0.050	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.52	0.087	5
Naphthalene	74.		mg/kg	1.0	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-15 D	Date Collected:	06/23/21 13:45
Client ID:	PB84-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:56
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	110		mg/kg	1.0	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-16
Client ID: PB84-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 14:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 03:22
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	0.011	J	mg/kg	0.072	0.010	1
Isopropylbenzene	0.63		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.039	J	mg/kg	0.14	0.024	1
Naphthalene	0.40		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-17	Date Collected:	06/23/21 14:40
Client ID:	PB84-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 03:48
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.099	0.0099	1
Benzene	0.047		mg/kg	0.025	0.0082	1
Toluene	ND		mg/kg	0.049	0.027	1
Ethylbenzene	0.014	J	mg/kg	0.049	0.0070	1
Isopropylbenzene	1.3		mg/kg	0.049	0.0054	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.099	0.0095	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.099	0.016	1
Naphthalene	0.26		mg/kg	0.20	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	**227**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-18 D
Client ID: PB84-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 04:14
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.065	5
Benzene	ND		mg/kg	0.16	0.054	5
Toluene	ND		mg/kg	0.32	0.18	5
Ethylbenzene	0.69		mg/kg	0.32	0.045	5
Isopropylbenzene	4.9		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.64	0.062	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.64	0.11	5
Naphthalene	1.2	J	mg/kg	1.3	0.21	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-19
Date Collected: 06/23/21 14:55
Client ID: PB84-08-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 13:12
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00050	1
Ethylbenzene	0.00019	J	mg/kg	0.00091	0.00013	1
Isopropylbenzene	0.027		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.028		mg/kg	0.0018	0.00030	1
Naphthalene	0.049		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-20	Date Collected:	06/23/21 12:00
Client ID:	FB-210623-1	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:23		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-20	Date Collected:	06/23/21 12:00
Client ID:	FB-210623-1	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-21	Date Collected:	06/23/21 14:00
Client ID:	FB-210623-2	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:29		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-21	Date Collected:	06/23/21 14:00
Client ID:	FB-210623-2	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:34
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-22	Date Collected:	06/23/21 00:00
Client ID:	TB	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:36		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-22
Client ID: TB
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 00:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 15:15
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23 D2	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:33
Analyst: JC
Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.79	0.080	2.5
Benzene	0.17	J	mg/kg	0.20	0.066	2.5
1,2-Dichloroethane	ND		mg/kg	0.40	0.10	2.5
Toluene	0.33	J	mg/kg	0.40	0.22	2.5
1,2-Dibromoethane	ND		mg/kg	0.20	0.12	2.5
Ethylbenzene	ND		mg/kg	0.40	0.056	2.5
p/m-Xylene	440	E	mg/kg	0.79	0.22	2.5
o-Xylene	5.7		mg/kg	0.40	0.12	2.5
Isopropylbenzene	0.54		mg/kg	0.40	0.043	2.5
1,3,5-Trimethylbenzene	1.4		mg/kg	0.79	0.076	2.5
1,2,4-Trimethylbenzene	5.4		mg/kg	0.79	0.13	2.5
Naphthalene	1.1	J	mg/kg	1.6	0.26	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23 D	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 04:41
Analyst: JC
Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	340		mg/kg	1.6	0.44	5
Xylenes, Total	340		mg/kg	0.40	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 20-22 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,08,15,23 Batch: WG1519723-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-09,12-18,23 Batch: WG1519723-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1519895-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:39
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 20-21 Batch: WG1520399-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 20-22 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-3 WG1519440-4								
Methyl tert butyl ether	85		88		66-130	3		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	90		89		70-130	1		30
Toluene	87		85		70-130	2		30
1,2-Dibromoethane	98		97		70-130	1		30
Ethylbenzene	89		88		70-130	1		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	90		89		70-130	1		30
Isopropylbenzene	94		89		70-130	5		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	90		86		70-130	5		30
Naphthalene	94		92		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-09,12-18,23 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	90		90		70-130	0		30
1,2-Dibromoethane	101		99		70-130	2		30
Ethylbenzene	92		93		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	91		91		70-130	0		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,08,15,23 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 20-21 Batch: WG1520399-3 WG1520399-4								
Methyl tert butyl ether	97		97		63-130	0		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	95		93		70-130	2		20
Ethylbenzene	96		94		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	97		96		70-130	1		20
1,3,5-Trimethylbenzene	96		96		64-130	0		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		110		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	105		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-04 D	Date Collected:	06/23/21 09:00
Client ID:	PB129-02-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/07/21 13:59		
Analyst:	SZ		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	770	J	ug/kg	2100	260	10
Benzo(a)anthracene	400	J	ug/kg	1200	240	10
Benzo(a)pyrene	ND		ug/kg	1700	510	10
Benzo(b)fluoranthene	ND		ug/kg	1200	350	10
Chrysene	480	J	ug/kg	1200	220	10
Anthracene	ND		ug/kg	1200	410	10
Benzo(ghi)perylene	1200	J	ug/kg	1700	250	10
Fluorene	ND		ug/kg	2100	200	10
Phenanthrene	600	J	ug/kg	1200	250	10
Pyrene	780	J	ug/kg	1200	210	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	29		23-120
2-Fluorobiphenyl	**25**	Q	30-120
4-Terphenyl-d14	31		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05 D	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/07/21 14:23		
Analyst:	SZ		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7200		ug/kg	5500	670	10
Benzo(a)anthracene	4700		ug/kg	3300	620	10
Benzo(a)pyrene	2900	J	ug/kg	4400	1300	10
Benzo(b)fluoranthene	4400		ug/kg	3300	920	10
Chrysene	9000		ug/kg	3300	570	10
Anthracene	2700	J	ug/kg	3300	1100	10
Benzo(ghi)perylene	1800	J	ug/kg	4400	640	10
Fluorene	2400	J	ug/kg	5500	530	10
Phenanthrene	12000		ug/kg	3300	670	10
Pyrene	9800		ug/kg	3300	540	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	46		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06 Date Collected: 06/23/21 09:25
Client ID: PB129-04-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil Extraction Method: EPA 3546
Analytical Method: 1,8270D Extraction Date: 07/02/21 19:59
Analytical Date: 07/04/21 17:20
Analyst: WR
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	370		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	19.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	22	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200
Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-07	Date Collected:	06/23/21 09:30
Client ID:	PB129-05-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 17:43		
Analyst:	WR		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	57		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 18:07		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10000	E	ug/kg	170	21.	1
Benzo(a)anthracene	22	J	ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	19	J	ug/kg	100	18.	1
Anthracene	39	J	ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	120	J	ug/kg	170	17.	1
Phenanthrene	270		ug/kg	100	21.	1
Pyrene	93	J	ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	54		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08 D	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/07/21 14:47		
Analyst:	SZ		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9400		ug/kg	870	110	5

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-09	Date Collected:	06/23/21 10:00
Client ID:	PB129-14-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 18:30		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1400		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	19	J	ug/kg	180	17.	1
Phenanthrene	25	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
Client ID: PB129-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/04/21 18:54
Analyst: WR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	22.	1
Benzo(a)anthracene	ND		ug/kg	110	20.	1
Benzo(a)pyrene	ND		ug/kg	140	44.	1
Benzo(b)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	19.	1
Anthracene	ND		ug/kg	110	35.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	110	22.	1
Pyrene	ND		ug/kg	110	18.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-11	Date Collected:	06/23/21 10:25
Client ID:	PB129-17-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 19:17		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	64		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-20	Date Collected:	06/23/21 12:00
Client ID:	FB-210623-1	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/30/21 13:07
Analytical Date:	07/01/21 18:31		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	98		15-120
4-Terphenyl-d14	114		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-21	Date Collected:	06/23/21 14:00
Client ID:	FB-210623-2	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/30/21 13:07
Analytical Date:	07/01/21 18:51		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	106		15-120
4-Terphenyl-d14	127		41-149

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200

Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23 D
Client ID: PB129-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:50
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/07/21 15:10
Analyst: SZ
Percent Solids: 59%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 20:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	500	J	ug/kg	1400	170	5
Benzo(a)anthracene	2600		ug/kg	840	160	5
Benzo(a)pyrene	4200		ug/kg	1100	340	5
Benzo(b)fluoranthene	4600		ug/kg	840	240	5
Chrysene	2900		ug/kg	840	140	5
Anthracene	420	J	ug/kg	840	270	5
Benzo(ghi)perylene	3500		ug/kg	1100	160	5
Fluorene	340	J	ug/kg	1400	140	5
Phenanthrene	1000		ug/kg	840	170	5
Pyrene	2700		ug/kg	840	140	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	48		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	07/01/21 18:11	Extraction Date:	06/30/21 13:07
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 20-21 Batch: WG1518888-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		21-120
Phenol-d6	68		10-120
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	110		15-120
2,4,6-Tribromophenol	**130**	Q	10-120
4-Terphenyl-d14	128		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	07/04/21 12:54	Extraction Date:	07/02/21 19:59
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 04-11,23 Batch: WG1519998-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	99	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	99	28.
Chrysene	ND		ug/kg	99	17.
Anthracene	ND		ug/kg	99	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	99	20.
Pyrene	ND		ug/kg	99	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	70		25-120
Phenol-d6	70		10-120
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	76		10-136
4-Terphenyl-d14	78		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 20-21 Batch: WG1518888-2 WG1518888-3								
Naphthalene	85		94		40-140	10		40
Fluorene	92		103		40-140	11		40
Phenanthrene	86		95		40-140	10		40
Anthracene	93		104		40-140	11		40
Pyrene	92		100		26-127	8		40
Benzo(a)anthracene	87		99		40-140	13		40
Chrysene	92		101		40-140	9		40
Benzo(b)fluoranthene	97		100		40-140	3		40
Benzo(a)pyrene	83		105		40-140	23		40
Benzo(ghi)perylene	92		103		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	83		95		21-120
Phenol-d6	68		78		10-120
Nitrobenzene-d5	112		**122**	Q	23-120
2-Fluorobiphenyl	103		113		15-120
2,4,6-Tribromophenol	**169**	Q	**187**	Q	10-120
4-Terphenyl-d14	121		130		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-11,23 Batch: WG1519998-2 WG1519998-3								
Naphthalene	51		48		40-140	6		50
Benzo(a)anthracene	56		52		40-140	7		50
Benzo(a)pyrene	54		53		40-140	2		50
Benzo(b)fluoranthene	56		54		40-140	4		50
Chrysene	54		52		40-140	4		50
Anthracene	56		54		40-140	4		50
Benzo(ghi)perylene	54		53		40-140	2		50
Fluorene	56		52		40-140	7		50
Phenanthrene	56		54		40-140	4		50
Pyrene	57		54		35-142	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	56		53		25-120
Phenol-d6	56		53		10-120
Nitrobenzene-d5	55		52		23-120
2-Fluorobiphenyl	50		48		30-120
2,4,6-Tribromophenol	55		53		10-136
4-Terphenyl-d14	54		52		18-120

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-01	Date Collected:	06/23/21 07:50
Client ID:	PB128-08-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	73%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	844		mg/kg	2.66	0.142	1	06/30/21 12:17	07/13/21 21:15	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02 Date Collected: 06/23/21 08:10
Client ID: PB128-13-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.88		mg/kg	2.08	0.112	1	06/30/21 12:17	07/13/21 21:19	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03
Date Collected: 06/23/21 08:20
Client ID: PB128-16-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	182		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:24	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
Date Collected: 06/23/21 09:00
Client ID: PB129-02-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	175		mg/kg	2.49	0.133	1	06/30/21 12:17	07/13/21 21:38	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	119		mg/kg	2.34	0.125	1	06/30/21 12:17	07/13/21 21:42	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06 Date Collected: 06/23/21 09:25
Client ID: PB129-04-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.92		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:46	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-07	Date Collected:	06/23/21 09:30
Client ID:	PB129-05-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.81		mg/kg	2.06	0.110	1	06/30/21 12:17	07/13/21 21:51	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.44		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 21:55	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-09	Date Collected:	06/23/21 10:00
Client ID:	PB129-14-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.74		mg/kg	2.02	0.108	1	06/30/21 12:17	07/13/21 22:00	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10 Date Collected: 06/23/21 10:10
Client ID: PB129-15-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.84		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 22:05	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11 Date Collected: 06/23/21 10:25
Client ID: PB129-17-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.1		mg/kg	2.11	0.113	1	06/30/21 12:17	07/13/21 22:09	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-20	Date Collected:	06/23/21 12:00
Client ID:	FB-210623-1	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 20:02	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200

Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21 | Date Collected: 06/23/21 14:00

Client ID: FB-210623-2 | Date Received: 06/23/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 20:53	EPA 3005A	1,6020B	CD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	59%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3920		mg/kg	6.81	0.365	2	06/30/21 12:17	07/13/21 22:14	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 20-21 Batch: WG1517707-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 17:50	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-11,23 Batch: WG1518458-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/30/21 12:17	07/13/21 11:18	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 Batch: WG1517707-2								
Lead, Total	98		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 Batch: WG1518458-2 SRM Lot Number: D109-540								
Lead, Total	105		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1517707-3 QC Sample: L2134745-01 Client ID: MS Sample												
Lead, Total	ND	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-3 WG1518458-4 QC Sample: L2134209-04 Client ID: MS Sample												
Lead, Total	283	47.9	256	**0**	Q	308	**53**	Q	75-125	18		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1517707-4 QC Sample: L2134745-01 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Serial Dilution Analysis

Batch Quality Control

Lab Number: L2134200

Report Date: 07/28/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-6 QC Sample: L2134209-04 Client ID: DUP Sample						
Lead, Total	283	316	mg/kg	12		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01
Date Collected: 06/23/21 07:50
Client ID: PB128-08-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-02	Date Collected:	06/23/21 08:10
Client ID:	PB128-13-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-03
Client ID: PB128-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 08:20
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
Date Collected: 06/23/21 09:00
Client ID: PB129-02-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05
Date Collected: 06/23/21 09:15
Client ID: PB129-03-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06 Date Collected: 06/23/21 09:25
Client ID: PB129-04-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
Client ID: PB129-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08
Client ID: PB129-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
Date Collected: 06/23/21 10:00
Client ID: PB129-14-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
Client ID: PB129-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11
Client ID: PB129-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.4		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-12 Date Collected: 06/23/21 13:10
Client ID: PB84-01-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-13
Client ID: PB84-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 13:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-14
Date Collected: 06/23/21 13:30
Client ID: PB84-03-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15
Client ID: PB84-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-16	Date Collected:	06/23/21 14:25
Client ID:	PB84-05-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-17
Client ID: PB84-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:40
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-18
Client ID: PB84-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-19	Date Collected:	06/23/21 14:55
Client ID:	PB84-08-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200
Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23
Client ID: PB129-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 10:50
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58.6		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-19,23 QC Batch ID: WG1516505-1 QC Sample: L2134200-01 Client ID: PB128-08-SS01						
Solids, Total	72.7	74.1	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-01A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-01B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-01E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-02A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-02B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-02E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-03A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-03B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-03E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-04B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-04E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-05A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-05B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-05E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-05F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-06A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-06B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-06E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-06F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-07A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-07B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-07E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-07F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-08A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-08B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-08E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-08F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-09B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-09E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-09F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-10B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-10E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-10F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-11B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-11E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-11F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-12B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-13B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-14B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-15A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-15B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-15C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-15D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-16B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-17A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-17B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-18A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-18B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-19A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-19B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-20A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-21A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-21D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-22A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22C	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-22D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-23A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-23B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-23E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-23F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration
☐ Done
☒ Not Needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34200-01	PB128-08-SS01	6/23	0750	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB128-13-SS01		0810	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB128-16-SS01		0820	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB129-02-SS01		0900	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-05	PB129-03-SS01		0915	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB129-04-SS01		0925	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB129-05-SS01		0930	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB129-06-SS01		0940	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB129-14-SS01		1000	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB129-15-SS01		1010	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/23 1402	[signature]	6/23/21
	1800	[signature]	6/23/21
[signature] AAL	6-23-21		6/23 22:00
[signature]	6/24	[signature]	6/24/21 01:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Serial_No:07282116:55

ALPHA ANALYTICAL

CHAIN OF COUSTODY

PAGE 2 OF 3

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration
☐ Done
☒ Not Needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34200-11	PB129-17-SS01	6/23	1025	S	JS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-12	~~PB129~~ PB84-01-SS01		1310			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-13	PB84-02-SS01		1325			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-14	PB84-03-SS01		1330			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-15	PB84-04-SS01		1345			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-16	PB84-05-SS01		1425			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-17	PB84-06-SS01		1440			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-18	PB84-07-SS01		1445			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-19	PB84-08-SS01		1455			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-20	FB-210623-1		1200	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/23 1402	[signature]	6/23/21 14[illegible]
[signature]	1800	[signature]	6/23 1800
[signature]	6/23/21	[signature]	6/23/21
[signature] 6/24 [illegible]		[signature]	6/24/21 01:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Serial_No:07282116:55

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
34200-21	FB-210623-2	6/23	1400	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-22	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-23	PB129-01-5501	6/23	1050	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
Container Type						-	-	-	-	-	-	-	-	-	-	-	-		
Preservative						-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/23 1402	[signature]	6/23/21 14
[signature]	1800	[signature]	6/23 1800
[signature]	2030	[signature]	6/23 2230
[signature]		[signature]	6/24/21 01:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

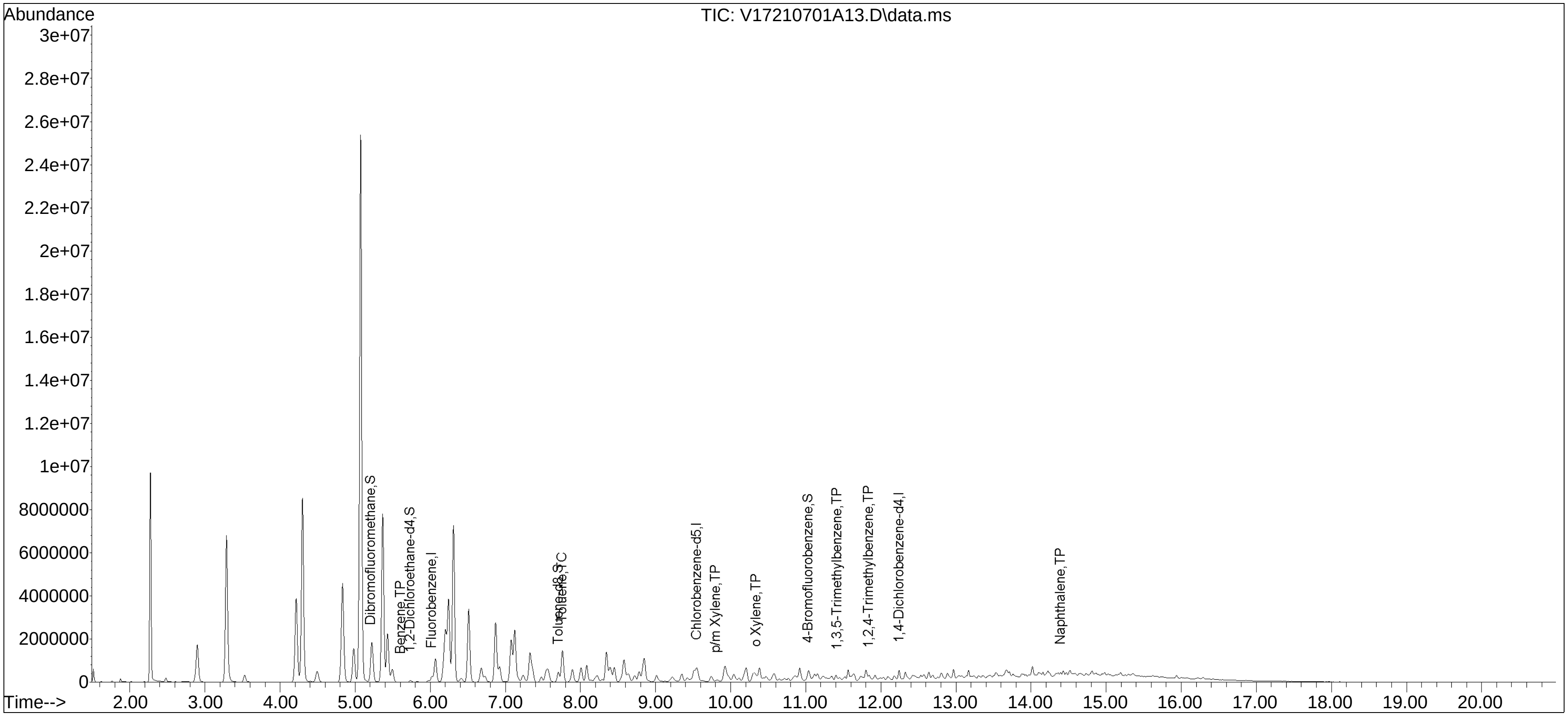
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701A\
Data File : V17210701A13.D
Acq On : 01 Jul 2021 10:07 am
Operator : VOA117:JC
Sample : L2134200-01,31,4.22,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 12:43:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•

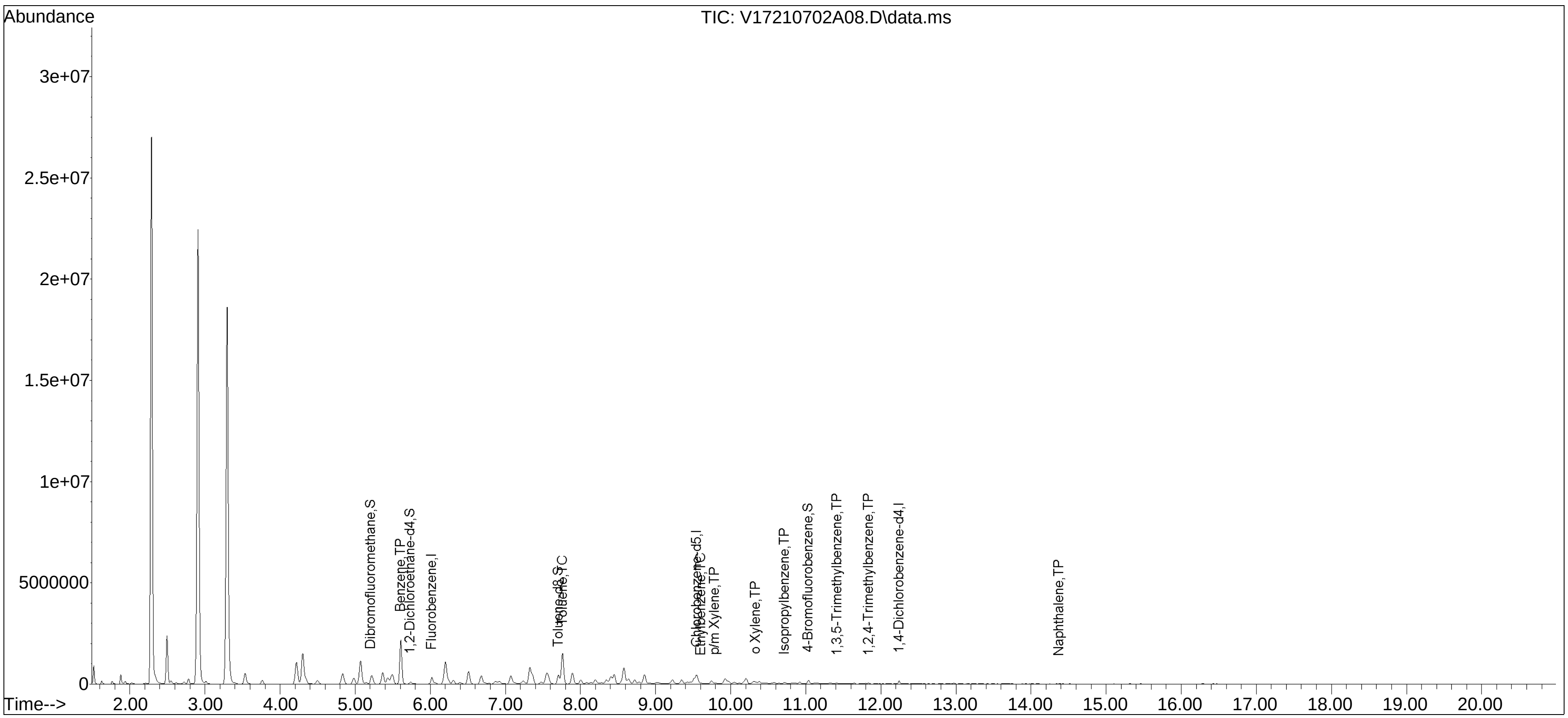


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A08.D
Acq On : 02 Jul 2021 09:49 am
Operator : VOA117:JC
Sample : L2134200-04,31,4.30,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Jul 02 12:32:14 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

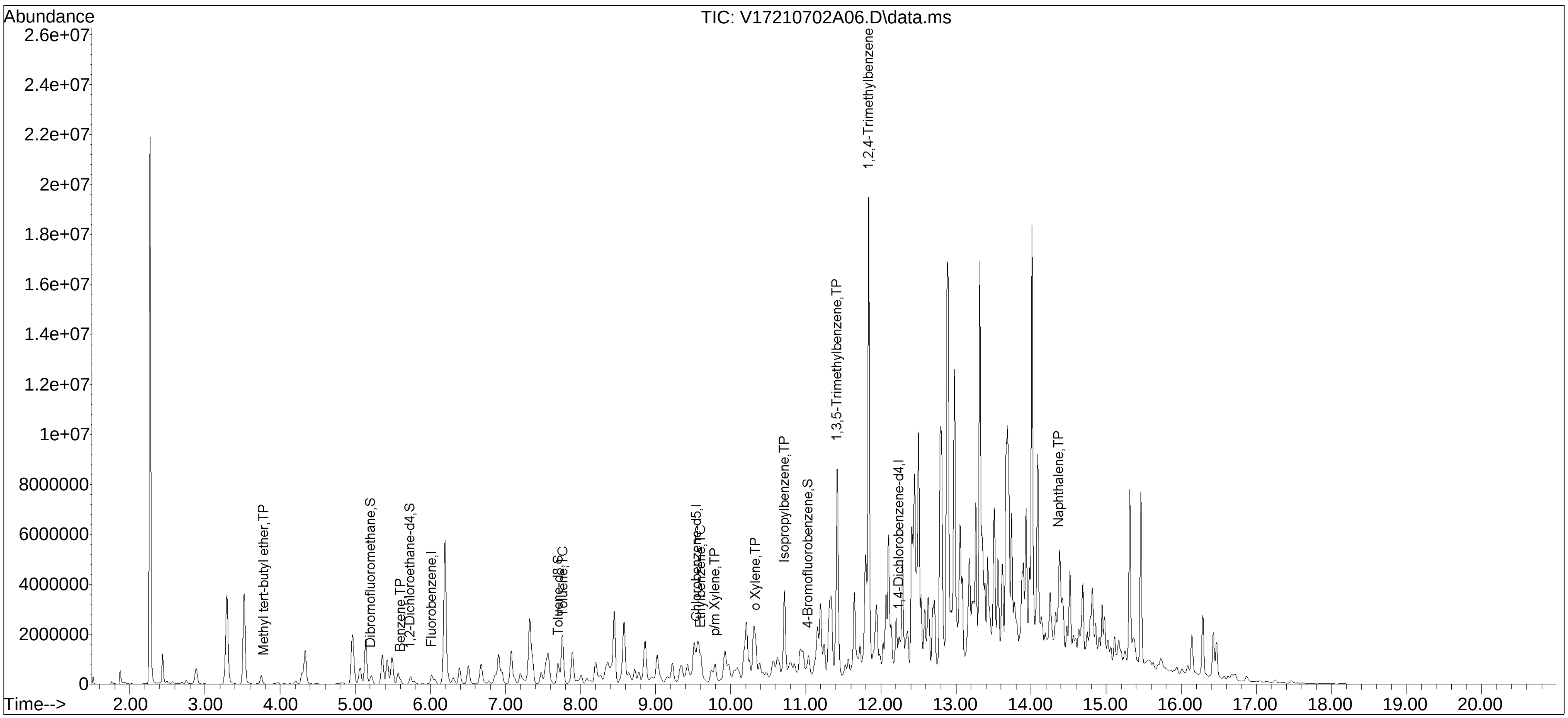


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A06.D
Acq On : 02 Jul 2021 08:57 am
Operator : VOA117:MV
Sample : L2134200-05,31H,3.33,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 02 09:28:16 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

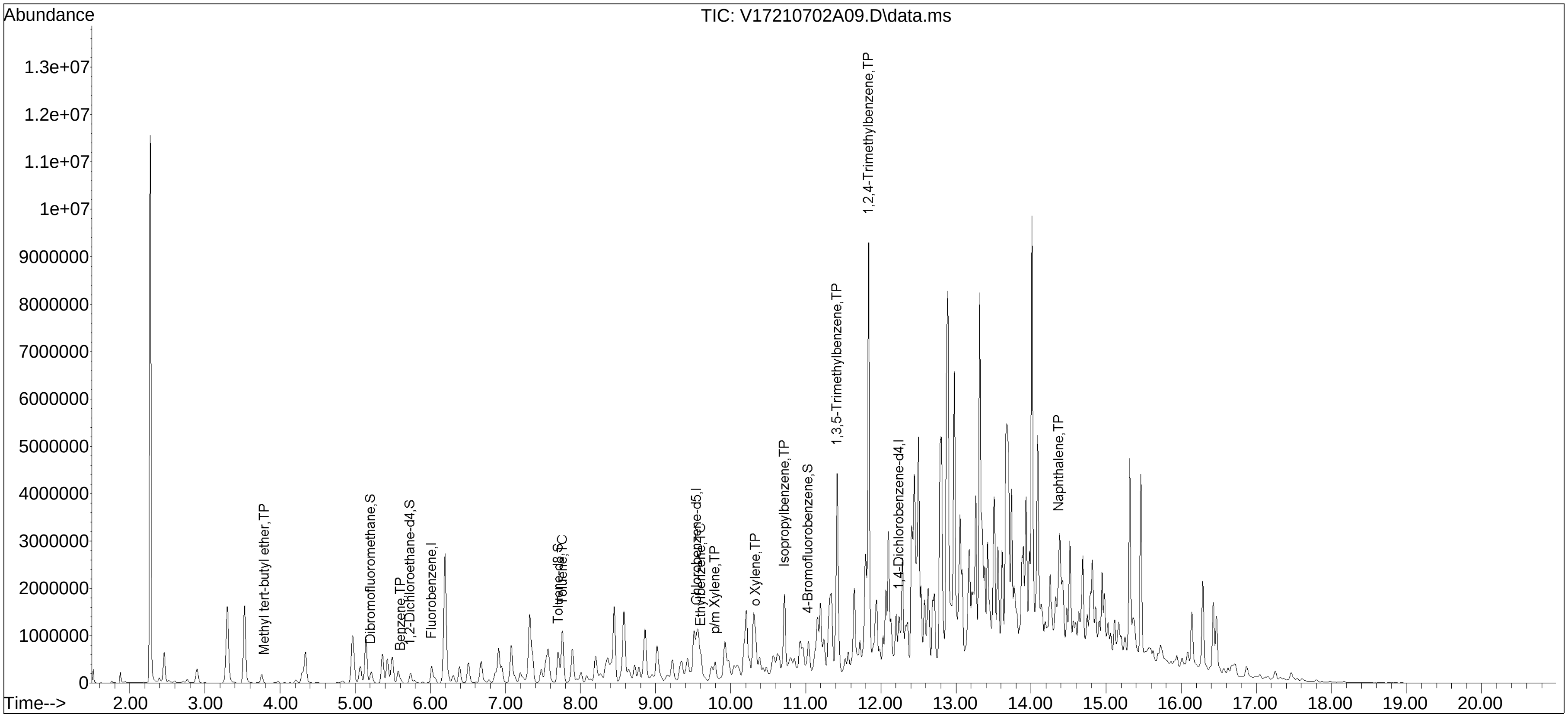


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A09.D
Acq On : 02 Jul 2021 10:15 am
Operator : VOA117:JC
Sample : L2134200-05D,31H,3.33,5,0.050,,A
Misc : WG1519723,ICAL18099
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 02 13:07:05 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P17.D
Acq On    : 02 Jul 2021  01:38 am
Operator  : VOA117:JC
Sample    : L2134200-12D,31H,5.72,5,0.050,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jul 02 06:53:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•
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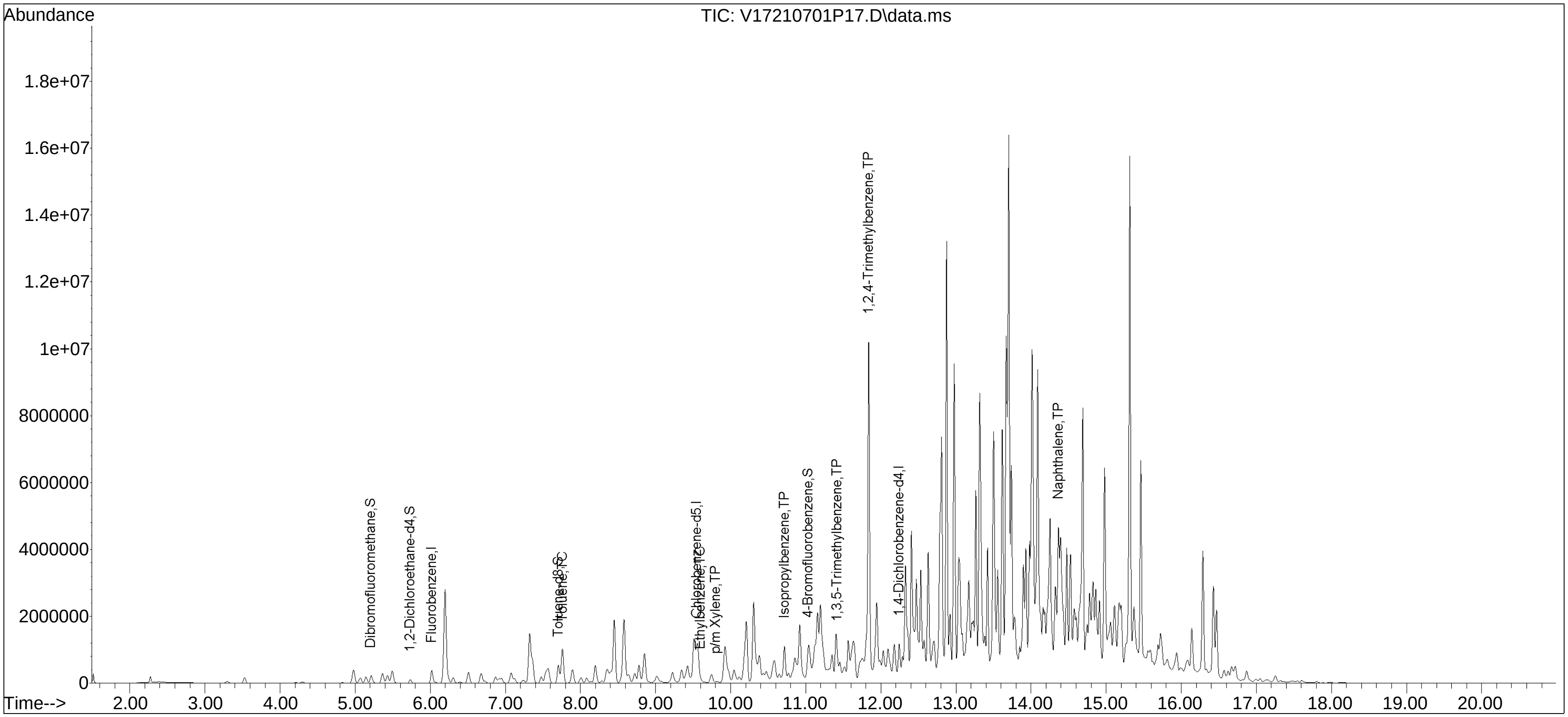
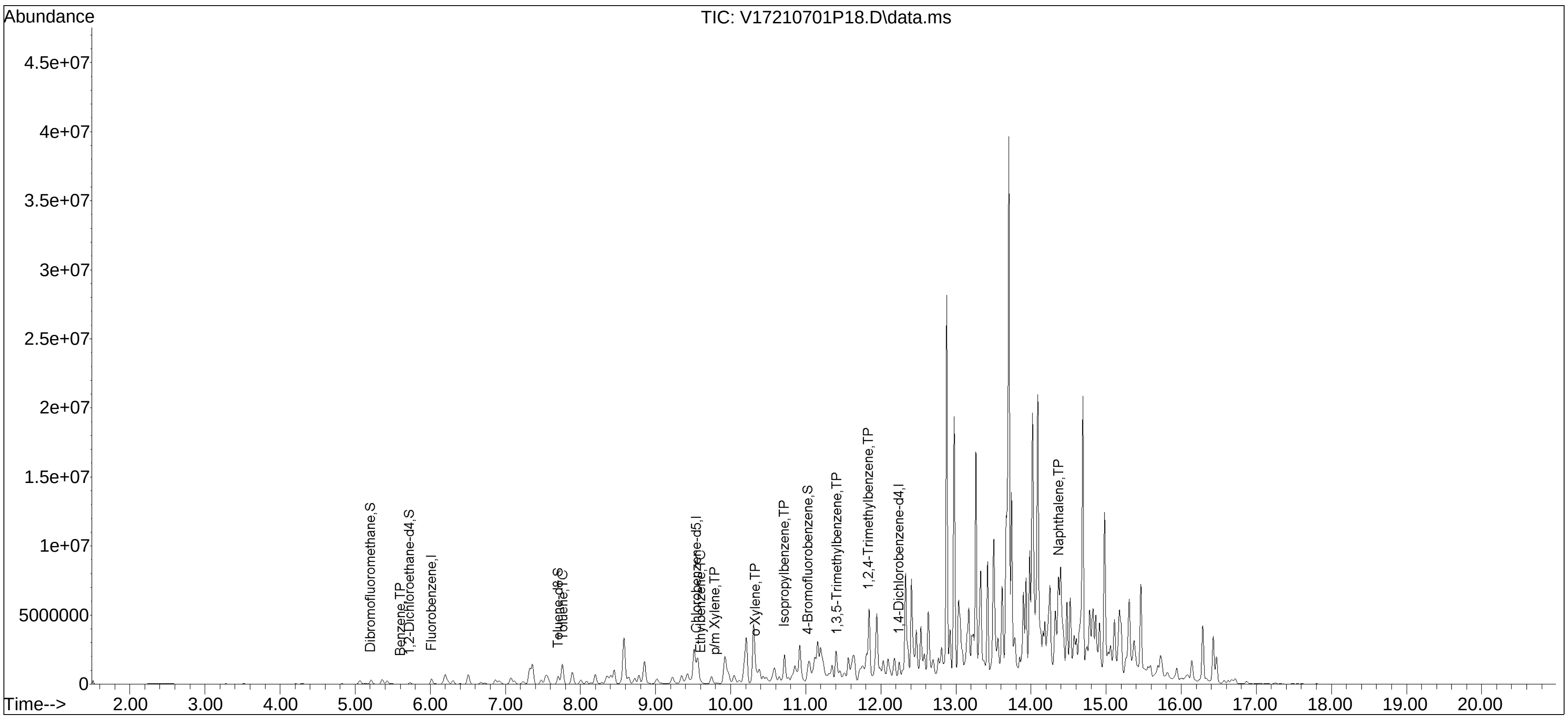


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P18.D
Acq On : 02 Jul 2021 02:04 am
Operator : VOA117:JC
Sample : L2134200-13,31H,6.92,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 02 07:04:06 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•



Quantitation Report (QT Reviewed)

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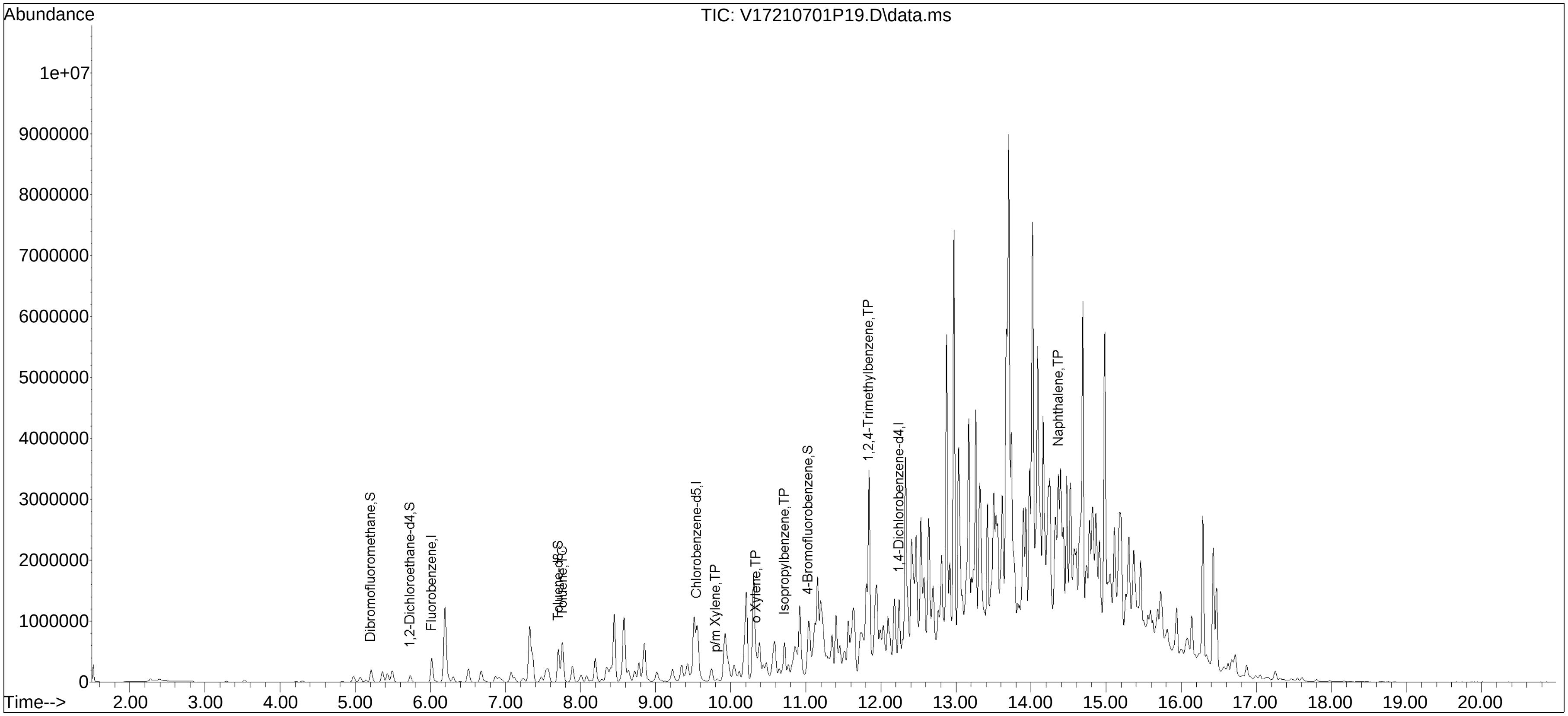
Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P19.D
Acq On    : 02 Jul 2021  02:30 am
Operator  : VOA117:JC
Sample    : L2134200-14D,31H,5.58,5,0.050,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 19   Sample Multiplier: 1

Quant Time: Jul 02 06:53:16 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•
```



Quantitation Report (QT Reviewed)

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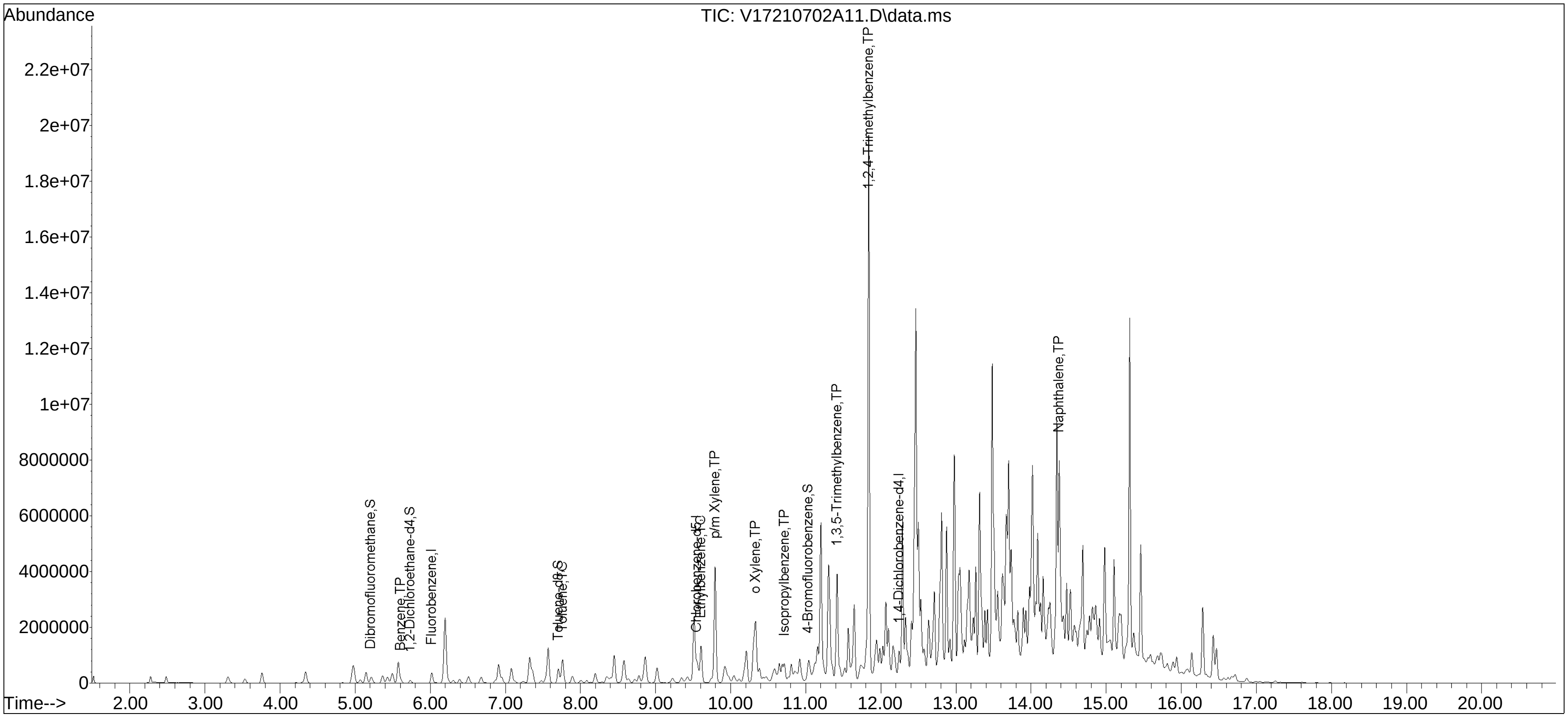
Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A11.D
Acq On    : 02 Jul 2021  11:07 am
Operator  : VOA117:JC
Sample    : L2134200-15D2,31H,7.06,5,0.020,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Jul 02 12:15:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
```

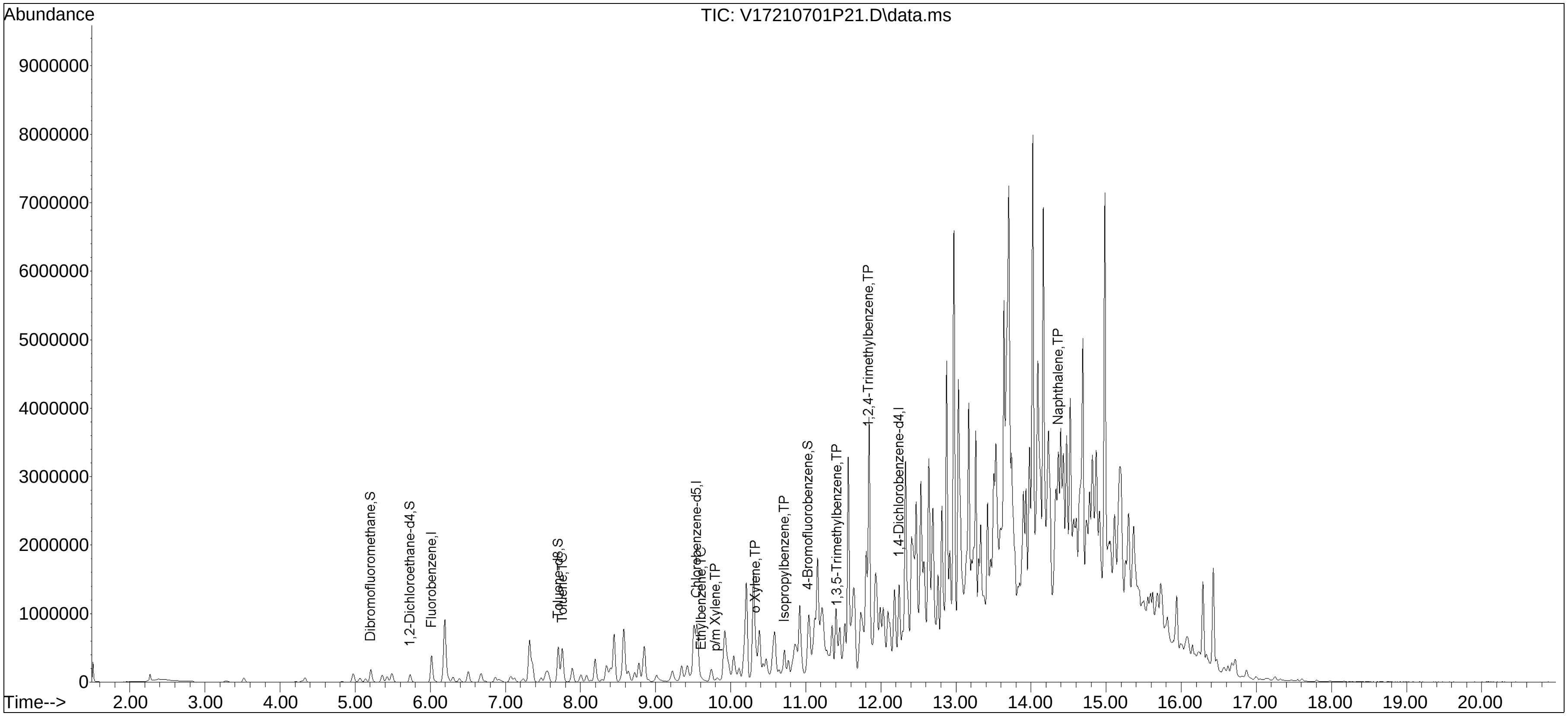


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P21.D
Acq On : 02 Jul 2021 03:22 am
Operator : VOA117:JC
Sample : L2134200-16,31H,5.06,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 07:06:11 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

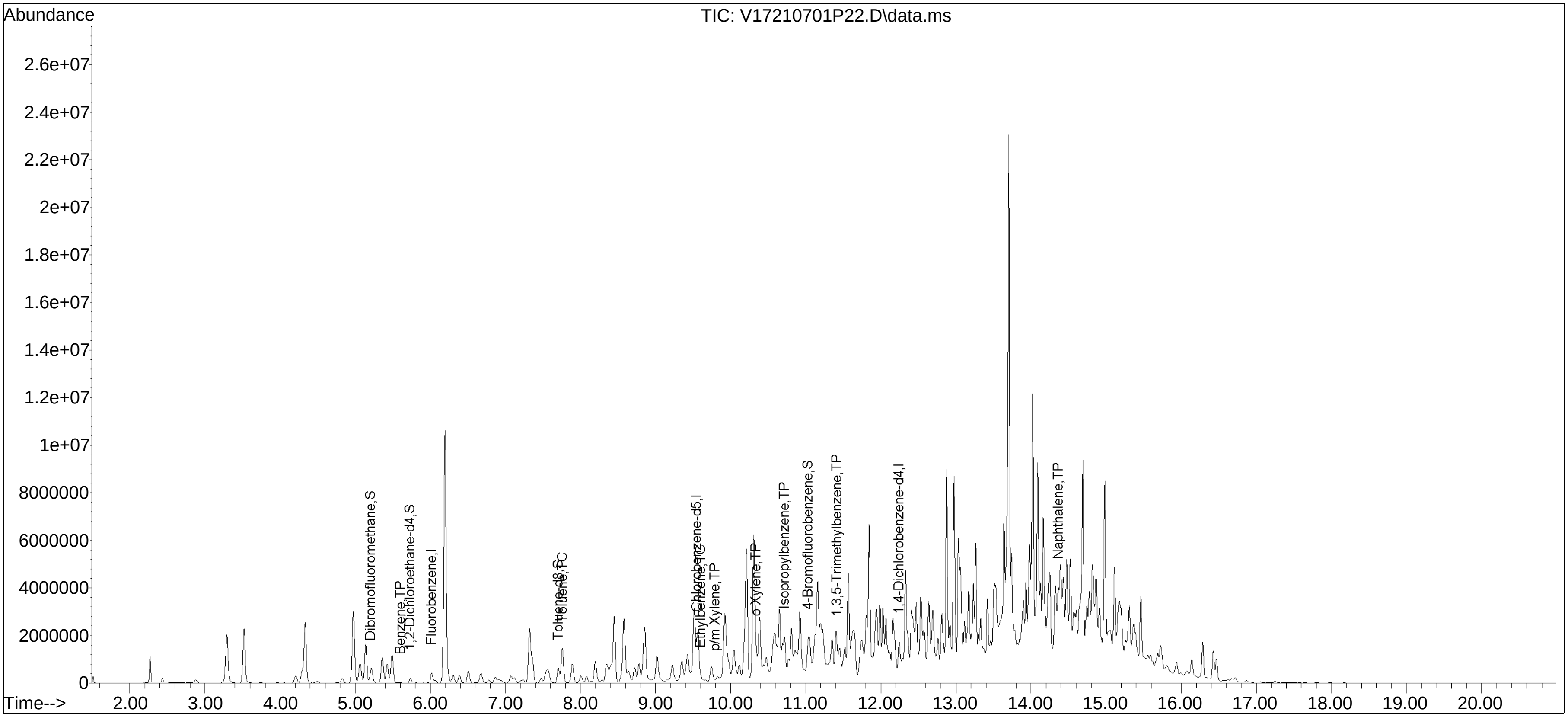


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P22.D
Acq On : 02 Jul 2021 03:48 am
Operator : VOA117:JC
Sample : L2134200-17,31H,7.74,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 07:06:39 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P23.D
Acq On    : 02 Jul 2021  04:14 am
Operator  : VOA117:JC
Sample    : L2134200-18D,31H,6.06,5,0.020,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jul 02 07:07:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•
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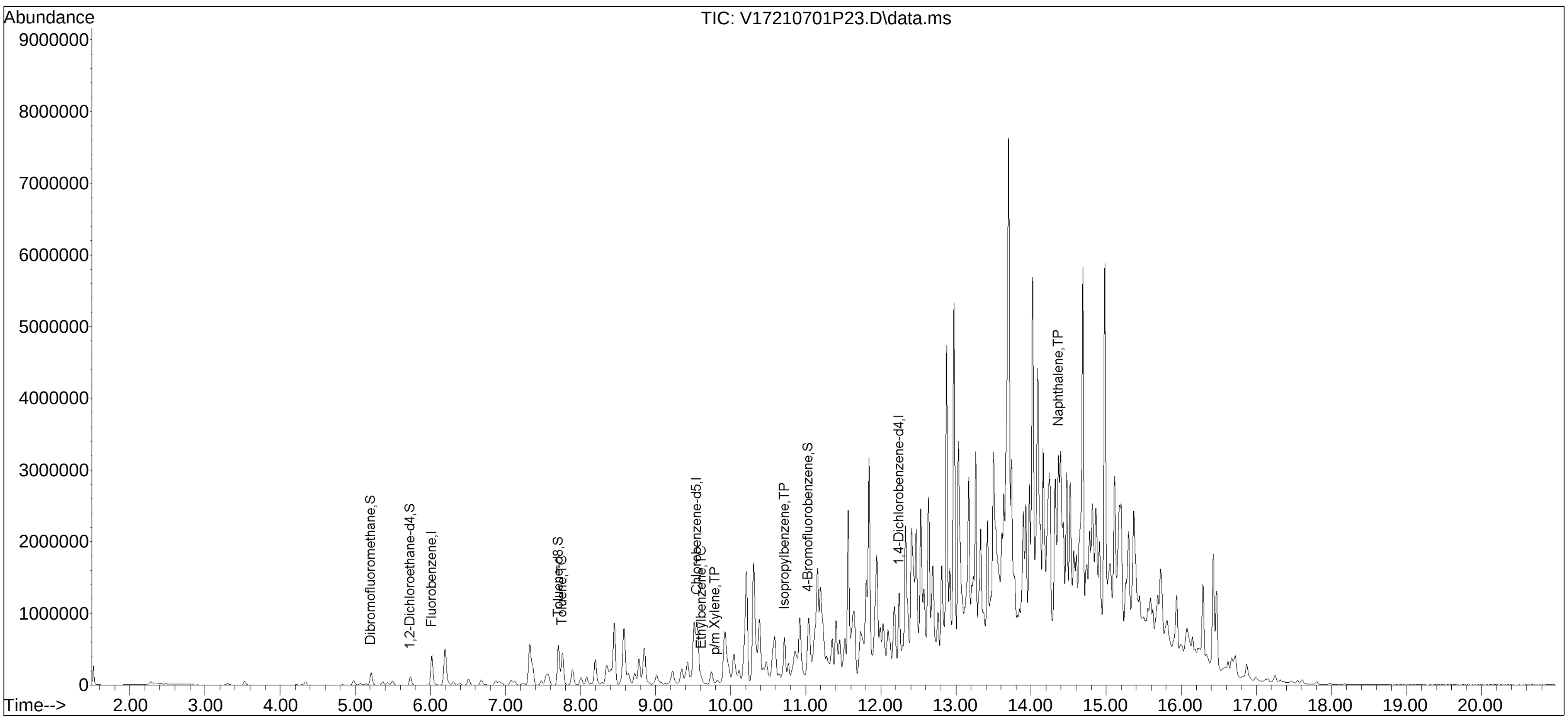
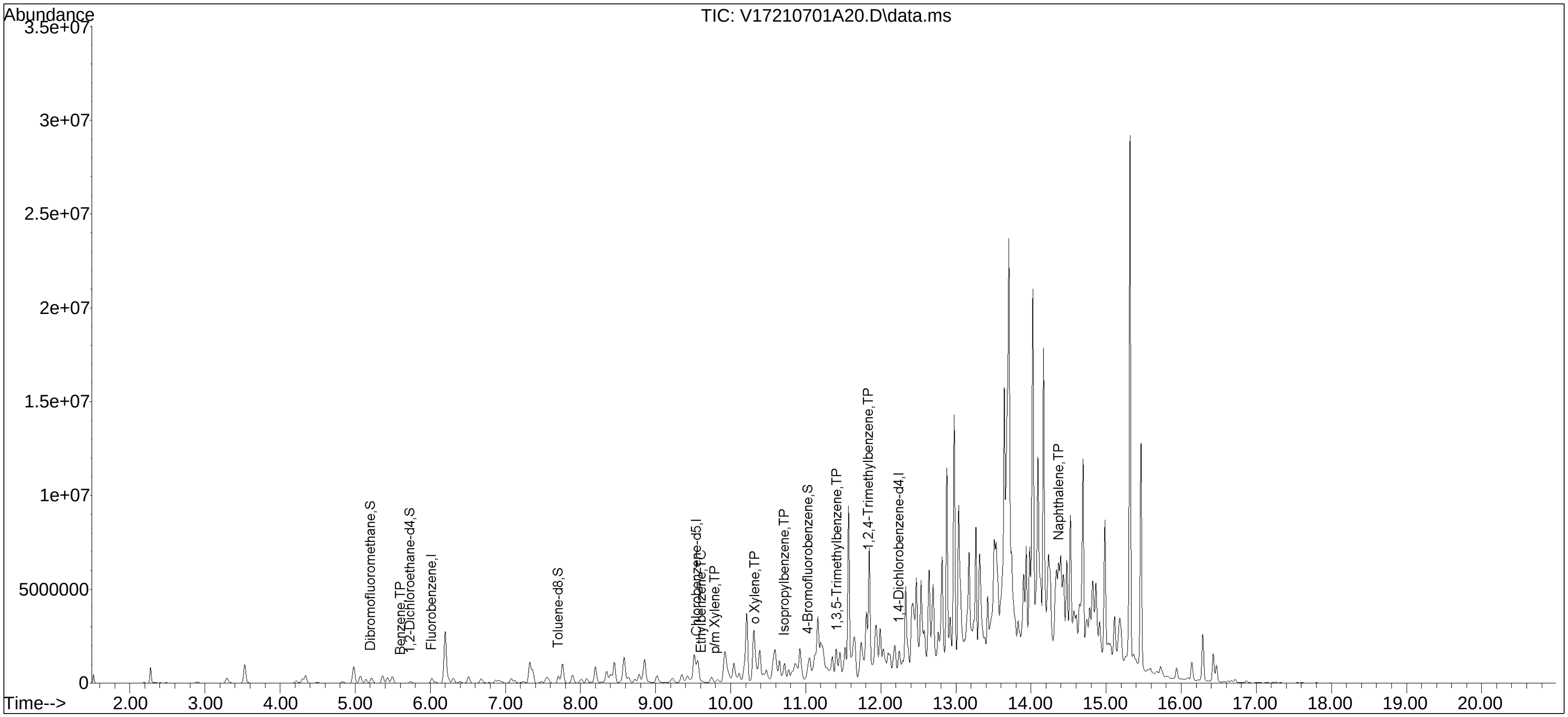


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701A\
Data File : V17210701A20.D
Acq On : 01 Jul 2021 01:12 pm
Operator : VOA117:KJD
Sample : L2134200-19,31,6.68,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 01 13:40:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•



ANALYTICAL REPORT

Lab Number:	L2134501
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/07/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-01	PB84-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:00	06/24/21
L2134501-02	PB84-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:20	06/24/21
L2134501-03	PB84-18-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:25	06/24/21
L2134501-04	PB84-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:35	06/24/21
L2134501-05	PB84-19-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:50	06/24/21
L2134501-06	PB84-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:00	06/24/21
L2134501-07	PB84-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:05	06/24/21
L2134501-08	PB42-01-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:00	06/24/21
L2134501-09	PB42-02-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:10	06/24/21
L2134501-10	PB42-03-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:25	06/24/21
L2134501-11	PB42-04-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:35	06/24/21
L2134501-12	PB42-05-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:40	06/24/21
L2134501-13	PB42-06-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:50	06/24/21
L2134501-14	PB42-07-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:00	06/24/21
L2134501-15	PB42-08-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:10	06/24/21
L2134501-16	PB42-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:30	06/24/21
L2134501-17	PB42-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:40	06/24/21
L2134501-18	PB42-11-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:45	06/24/21
L2134501-19	PB42-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:00	06/24/21
L2134501-20	PB42-13-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:15	06/24/21
L2134501-21	PB42-14-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:25	06/24/21
L2134501-22	PB42-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:40	06/24/21
L2134501-23	PB42-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 14:00	06/24/21
L2134501-24	FB-210624-1	WATER	PHILADELPHIA, PA	06/24/21 12:00	06/24/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-25	FB-210624-2	WATER	PHILADELPHIA, PA	06/24/21 14:10	06/24/21
L2134501-26	TB	WATER	PHILADELPHIA, PA	06/24/21 00:00	06/24/21
L2134501-27	DUP-9	SOIL	PHILADELPHIA, PA	06/24/21 08:05	06/24/21
L2134501-28	DUP-10	SOIL	PHILADELPHIA, PA	06/24/21 13:30	06/24/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

July 07, 2021: The Volatile Organics analyte list has been amended on L2134501-02 through -23, -27, and -28.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The following samples have surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2134501-01D2: 4-bromofluorobenzene (134%)
L2134501-04: 4-bromofluorobenzene (149%)
L2134501-05: 4-bromofluorobenzene (132%)
L2134501-08: 4-bromofluorobenzene (262%)
L2134501-09: 4-bromofluorobenzene (236%)
L2134501-10: 4-bromofluorobenzene (156%)
L2134501-11D: 4-bromofluorobenzene (184%)
L2134501-12: 4-bromofluorobenzene (246%)
L2134501-13: 4-bromofluorobenzene (303%)
L2134501-14D: 4-bromofluorobenzene (158%)
L2134501-15D: 4-bromofluorobenzene (205%)
L2134501-16: 4-bromofluorobenzene (907%)
L2134501-17: toluene-d8 (145%) and 4-bromofluorobenzene (197%)
L2134501-18: 4-bromofluorobenzene (299%)
L2134501-20D: toluene-d8 (143%) and 4-bromofluorobenzene (181%)
L2134501-21: 1,2-dichloroethane-d4 (157%), toluene-d8 (149%), and 4-bromofluorobenzene (578%)

Case Narrative (continued)

L2134501-22: 4-bromofluorobenzene (309%)

L2134501-23: 4-bromofluorobenzene (280%)

L2134501-27D: 4-bromofluorobenzene (148%)

L2134501-27D2: 4-bromofluorobenzene (134%)

L2134501-04: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2134501-07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2134501-07: The internal standard (IS) response for chlorobenzene-d5 (325%) and the surrogate recoveries for toluene-d8 (43%) and 4-bromofluorobenzene (3503%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report.

L2134501-09, -10, -12, -17, -18, and -22: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2134501-11D, -14D, -15D, and -20D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2134501-16 and -21: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

Microextractables

The WG1517669-2 LCS recovery for 1,2,3-trichloropropane (124%), associated with L2134501-24 through -26, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 07/07/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501

Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01 D2
Client ID: PB84-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:59
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.62	0.062	5
Benzene	ND		mg/kg	0.15	0.051	5
Toluene	ND		mg/kg	0.31	0.17	5
Ethylbenzene	0.42		mg/kg	0.31	0.043	5
Isopropylbenzene	0.61		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.62	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.62	0.10	5
Naphthalene	13.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-01 D	Date Collected:	06/24/21 08:00
Client ID:	PB84-09-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 22:35
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	120		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-02
Client ID: PB84-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:20
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 21:42
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-03
Client ID: PB84-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 22:08
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00061	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-04	Date Collected:	06/24/21 08:35
Client ID:	PB84-16-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 23:01
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
Toluene	ND		mg/kg	0.070	0.038	1
Ethylbenzene	0.060	J	mg/kg	0.070	0.0099	1
Isopropylbenzene	0.024	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.14	0.023	1
Naphthalene	0.62		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-04	Date Collected:	06/24/21 08:35
Client ID:	PB84-16-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 12:25
Analyst: LAC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	0.00033	J	mg/kg	0.00096	0.00014	1
Isopropylbenzene	0.00039	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.050		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0019	0.00032	1
Naphthalene	0.0067		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05 Date Collected: 06/24/21 08:50
Client ID: PB84-19-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 12:51
Analyst: LAC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0025		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00034	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-06	Date Collected:	06/24/21 09:00
Client ID:	PB84-15-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 23:53
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.010	1
Toluene	ND		mg/kg	0.064	0.035	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
Isopropylbenzene	0.13		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.1		mg/kg	0.13	0.021	1
Naphthalene	4.2		mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
Client ID: PB84-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 09:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 00:19
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.13		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.020	1
Naphthalene	0.23	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
Client ID: PB84-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:17
Analyst: LAC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0012	J	mg/kg	0.0018	0.00018	1
Benzene	0.00016	J	mg/kg	0.00044	0.00015	1
Toluene	0.00050	J	mg/kg	0.00088	0.00048	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
Isopropylbenzene	0.32	E	mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1
Naphthalene	0.0014	J	mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	**43**	Q	70-130
4-Bromofluorobenzene	**3500**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-08	Date Collected:	06/24/21 10:00
Client ID:	PB42-01-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:43
Analyst: LAC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.0010		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	0.00032	J	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.042		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00086	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0082		mg/kg	0.0023	0.00038	1
Naphthalene	0.0085		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**262**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-09	Date Collected:	06/24/21 10:10
Client ID:	PB42-02-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:19
Analyst: KJD
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	ND		mg/kg	0.037	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	ND		mg/kg	0.075	0.010	1
Isopropylbenzene	2.1		mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.15	0.025	1
Naphthalene	0.75		mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**236**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-10
Client ID: PB42-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:45
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0085	1
Isopropylbenzene	0.65		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.048	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.12	0.020	1
Naphthalene	0.26		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-11 D
Client ID: PB42-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:35
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:01
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.84	0.084	5
Benzene	ND		mg/kg	0.21	0.070	5
Toluene	ND		mg/kg	0.42	0.23	5
Ethylbenzene	0.12	J	mg/kg	0.42	0.059	5
Isopropylbenzene	10.		mg/kg	0.42	0.046	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.84	0.081	5
1,2,4-Trimethylbenzene	0.55	J	mg/kg	0.84	0.14	5
Naphthalene	ND		mg/kg	1.7	0.27	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**184**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-12
Client ID: PB42-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:40
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:11
Analyst: KJD
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	0.047	J	mg/kg	0.065	0.036	1
Ethylbenzene	ND		mg/kg	0.065	0.0092	1
Isopropylbenzene	1.0		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.13	0.022	1
Naphthalene	0.18	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**246**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-13	Date Collected:	06/24/21 10:50
Client ID:	PB42-06-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:09
Analyst: LAC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00026	J	mg/kg	0.0021	0.00021	1
Benzene	0.00033	J	mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.066		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.00089	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.012		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	**303**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14 D
Client ID: PB42-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:27
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.029	2
Benzene	ND		mg/kg	0.072	0.024	2
Toluene	ND		mg/kg	0.14	0.079	2
Ethylbenzene	0.067	J	mg/kg	0.14	0.020	2
Isopropylbenzene	0.59		mg/kg	0.14	0.016	2
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.29	0.028	2
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.29	0.048	2
Naphthalene	0.52	J	mg/kg	0.58	0.094	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**158**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15 D | Date Collected: 06/24/21 11:10
Client ID: PB42-08-SS01 | Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:53
Analyst: KJD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	2
Benzene	0.028	J	mg/kg	0.056	0.019	2
Toluene	0.072	J	mg/kg	0.11	0.061	2
Ethylbenzene	1.2		mg/kg	0.11	0.016	2
Isopropylbenzene	3.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	1.3		mg/kg	0.22	0.037	2
Naphthalene	0.88		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**205**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Date Collected: 06/24/21 12:30
Client ID: PB42-09-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:37
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.78		mg/kg	0.037	0.012	1
Toluene	0.078		mg/kg	0.073	0.040	1
Ethylbenzene	0.21		mg/kg	0.073	0.010	1
Isopropylbenzene	0.52		mg/kg	0.073	0.0080	1
1,3,5-Trimethylbenzene	0.24		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.7		mg/kg	0.15	0.024	1
Naphthalene	0.74		mg/kg	0.29	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16 Date Collected: 06/24/21 12:30
Client ID: PB42-09-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/05/21 22:41
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.14		mg/kg	0.00053	0.00018	1
Toluene	0.0050		mg/kg	0.0010	0.00057	1
Ethylbenzene	0.017		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.30		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.045		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	1.7	E	mg/kg	0.0021	0.00035	1
Naphthalene	0.033		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**907**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-17	Date Collected:	06/24/21 12:40
Client ID:	PB42-10-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:30
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.030	J	mg/kg	0.034	0.011	1
Toluene	0.064	J	mg/kg	0.068	0.037	1
Ethylbenzene	0.049	J	mg/kg	0.068	0.0097	1
Isopropylbenzene	1.1		mg/kg	0.068	0.0075	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.14	0.023	1
Naphthalene	0.18	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**197**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-18	Date Collected:	06/24/21 12:45
Client ID:	PB42-11-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:55
Analyst: MV
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.23	0.023	1
Benzene	ND		mg/kg	0.057	0.019	1
Toluene	0.068	J	mg/kg	0.11	0.062	1
Ethylbenzene	0.042	J	mg/kg	0.11	0.016	1
Isopropylbenzene	1.8		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.23	0.038	1
Naphthalene	2.1		mg/kg	0.46	0.074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**299**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-19
Date Collected: 06/24/21 13:00
Client ID: PB42-12-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:26
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00032	J	mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-20 D	Date Collected:	06/24/21 13:15
Client ID:	PB42-13-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:05
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	2
Benzene	0.062		mg/kg	0.061	0.020	2
Toluene	ND		mg/kg	0.12	0.066	2
Ethylbenzene	0.069	J	mg/kg	0.12	0.017	2
Isopropylbenzene	2.2		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	0.026	J	mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.098	J	mg/kg	0.24	0.041	2
Naphthalene	0.30	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	**181**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-21	Date Collected:	06/24/21 13:25
Client ID:	PB42-14-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:52
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00053	J	mg/kg	0.0020	0.00020	1
Benzene	0.041		mg/kg	0.00051	0.00017	1
Toluene	0.0089		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.44	E	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.23		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.78	E	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	2.1	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.064		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**157**	Q	70-130
Toluene-d8	**149**	Q	70-130
4-Bromofluorobenzene	**578**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
Client ID: PB42-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:01
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.068		mg/kg	0.038	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	0.22		mg/kg	0.075	0.011	1
Isopropylbenzene	0.073	J	mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	0.20		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.79		mg/kg	0.15	0.025	1
Naphthalene	0.24	J	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-22	Date Collected:	06/24/21 13:40
Client ID:	PB42-15-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:20
Analyst: MV
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.043	0.014	1
Toluene	0.064	J	mg/kg	0.086	0.046	1
Ethylbenzene	ND		mg/kg	0.086	0.012	1
Isopropylbenzene	0.30		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.66		mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**309**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-23
Client ID: PB42-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:23
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00040	J	mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00090	0.00049	1
Ethylbenzene	0.00016	J	mg/kg	0.00090	0.00013	1
Isopropylbenzene	0.012		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0063		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**280**	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-24
Client ID: FB-210624-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-24	Date Collected:	06/24/21 12:00
Client ID:	FB-210624-1	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/04/21 16:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-25	Date Collected:	06/24/21 14:10
Client ID:	FB-210624-2	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:48		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-25
Client ID: FB-210624-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 14:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/04/21 16:29
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-26
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 00:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:55
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-26	Date Collected:	06/24/21 00:00
Client ID:	TB	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	07/06/21 12:23
Analyst:	NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-27 D2	Date Collected:	06/24/21 08:05
Client ID:	DUP-9	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 07/03/21 08:36

Analyst: KJD

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	100		mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-27 D
Client ID: DUP-9
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:40
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	5
Benzene	ND		mg/kg	0.17	0.056	5
Toluene	ND		mg/kg	0.34	0.18	5
Ethylbenzene	0.45		mg/kg	0.34	0.047	5
Isopropylbenzene	0.67		mg/kg	0.34	0.036	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	110	E	mg/kg	0.67	0.11	5
Naphthalene	14.		mg/kg	1.3	0.22	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-28
Client ID: DUP-10
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 13:30
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:46
Analyst: MV
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.34		mg/kg	0.036	0.012	1
Toluene	0.087		mg/kg	0.072	0.039	1
Ethylbenzene	1.0		mg/kg	0.072	0.010	1
Isopropylbenzene	0.45		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.99		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	4.4		mg/kg	0.14	0.024	1
Naphthalene	1.1		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 24-26 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1519723-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04,06-07 Batch: WG1519723-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1519724-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 06:53
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18,20,22,27-28 Batch: WG1519793-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:10
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 21,27 Batch: WG1519793-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-05,07-08,13 Batch: WG1519895-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 09:44
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19,21 Batch: WG1520074-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00049	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09-12,14-16 Batch: WG1520303-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/04/21 10:10
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24-25 Batch: WG1520457-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 10:24
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23 Batch: WG1520495-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	0.00025	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00039	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	109		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1520600-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 10:36
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26 Batch: WG1520891-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 24-26 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04,06-07 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1519724-3 WG1519724-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134501

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 21,27 Batch: WG1519793-13 WG1519793-14								
Methyl tert butyl ether	92		92		66-130	0		30
Benzene	89		87		70-130	2		30
Toluene	91		92		70-130	1		30
Ethylbenzene	99		97		70-130	2		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	106		103		70-130	3		30
1,2,4-Trimethylbenzene	107		103		70-130	4		30
Naphthalene	105		111		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	108		106		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18,20,22,27-28 Batch: WG1519793-8 WG1519793-9								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	87		83		70-130	5		30
Toluene	93		88		70-130	6		30
Ethylbenzene	99		94		70-130	5		30
Isopropylbenzene	109		102		70-130	7		30
1,3,5-Trimethylbenzene	108		102		70-130	6		30
1,2,4-Trimethylbenzene	108		103		70-130	5		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
Toluene-d8	107		107		70-130
4-Bromofluorobenzene	109		108		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-05,07-08,13 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19,21 Batch: WG1520074-3 WG1520074-4								
Methyl tert butyl ether	106		105		66-130	1		30
Benzene	103		103		70-130	0		30
Toluene	96		95		70-130	1		30
Ethylbenzene	99		98		70-130	1		30
Isopropylbenzene	107		109		70-130	2		30
1,3,5-Trimethylbenzene	108		108		70-130	0		30
1,2,4-Trimethylbenzene	111		111		70-130	0		30
Naphthalene	107		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		107		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	106		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09-12,14-16 Batch: WG1520303-3 WG1520303-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24-25 Batch: WG1520457-3 WG1520457-4								
Methyl tert butyl ether	82		89		63-130	8		20
Benzene	89		92		70-130	3		20
Toluene	87		90		70-130	3		20
Ethylbenzene	88		93		70-130	6		20
Isopropylbenzene	90		94		70-130	4		20
1,3,5-Trimethylbenzene	92		94		64-130	2		20
1,2,4-Trimethylbenzene	92		94		70-130	2		20
Naphthalene	73		78		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		111		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	105		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23 Batch: WG1520495-3 WG1520495-4								
Methyl tert butyl ether	108		107		66-130	1		30
Benzene	105		106		70-130	1		30
Toluene	95		98		70-130	3		30
Ethylbenzene	100		104		70-130	4		30
Isopropylbenzene	115		116		70-130	1		30
1,3,5-Trimethylbenzene	117		117		70-130	0		30
1,2,4-Trimethylbenzene	120		120		70-130	0		30
Naphthalene	111		108		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	113		110		70-130
Toluene-d8	94		96		70-130
4-Bromofluorobenzene	114		110		70-130
Dibromofluoromethane	110		111		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 26 Batch: WG1520891-3 WG1520891-4								
Methyl tert butyl ether	87		92		63-130	6		20
Benzene	99		100		70-130	1		20
Toluene	98		100		70-130	2		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	98		100		70-130	2		20
Naphthalene	87		90		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	103		105		70-130
4-Bromofluorobenzene	105		98		70-130
Dibromofluoromethane	100		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01
Client ID: PB84-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501

Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-02 | Date Collected: 06/24/21 08:20

Client ID: PB84-10-SS01 | Date Received: 06/24/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-03
Client ID: PB84-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04 Date Collected: 06/24/21 08:35
Client ID: PB84-16-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05
Client ID: PB84-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:50
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-06
Date Collected: 06/24/21 09:00
Client ID: PB84-15-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
Date Collected: 06/24/21 09:05
Client ID: PB84-12-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-08
Date Collected: 06/24/21 10:00
Client ID: PB42-01-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-09
Client ID: PB42-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-10
Client ID: PB42-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-11
Client ID: PB42-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 10:35
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-12
Date Collected: 06/24/21 10:40
Client ID: PB42-05-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-13 | Date Collected: 06/24/21 10:50
Client ID: PB42-06-SS01 | Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14 Date Collected: 06/24/21 11:00
Client ID: PB42-07-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15
Client ID: PB42-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 11:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Client ID: PB42-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-17	Date Collected:	06/24/21 12:40
Client ID:	PB42-10-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-18
Client ID: PB42-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 12:45
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-19
Client ID: PB42-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 13:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-20
Client ID: PB42-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 13:15
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
Client ID: PB42-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-22
Client ID: PB42-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 13:40
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.0		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-23
Date Collected: 06/24/21 14:00
Client ID: PB42-16-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-27
Client ID: DUP-9
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-28	Date Collected:	06/24/21 13:30
Client ID:	DUP-10	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1516881-1 QC Sample: L2134501-01 Client ID: PB84-09-SS01						
Solids, Total	82.8	82.3	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-23,27-28 QC Batch ID: WG1516883-1 QC Sample: L2134493-01 Client ID: DUP Sample						
Solids, Total	90.6	90.7	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-01A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-01B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-02A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-02B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-03A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-03B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-04A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-04B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-05A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-05B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-06A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-06B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-07A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-07B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-08A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-08B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-09A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-09B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-10A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-10B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-11A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-11B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-12A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-12B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-13A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-13B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-14A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-14B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-15A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-15B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-16A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-16B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-17A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-17B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-18A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-18B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-19A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-19B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-20A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-20B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-21A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-21B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-21C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260H(14),PA-8260HLW(14)
L2134501-21D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-22A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-22B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-22C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-22D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-23A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-23B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-23C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-23D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-24A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-24E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-26A	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26B	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26D	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-26E	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)
L2134501-27A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-27B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-27C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-27D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-28A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-28B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-28C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-28D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

Columns: A = PADEP Shortlist 1-5 (see attached); B = PADEP Shortlist 1 & 2 (see attached); C = PADEP Shortlist 4 (see attached); D = PADEP Shortlist 3-5 (see attached); E = PADEP Shortlist 5 (see attached); F = PADEP Shortlist 6 (see attached); G = pH; H = Benzene; I = Cumene; J = Tetraethylene Glycol; K = VOC portion of PADEP Shortlist; L = (blank)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A	B	C	D	E	F	G	H	I	J	K	L	Sample Specific Comments	TOTAL # BOTTLES
34501 -01	PB84-09-SS01	6/24	0800	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		7
-02	PB84-10-SS01		0810			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-03	PB84-18-SS01		0825			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-04	PB84-16-SS01		0835			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-05	PB84-19-SS01		0850			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-06	PB84-15-SS01		0900			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-07	PB84-12-SS01		0905			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-08	PB42-01-SS01		1000			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-09	PB42-02-SS01		1010			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-10	PB42-03-SS01		1025			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4

	A	B	C	D	E	F	G	H	I	J	K	L
Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
Marcia Pearce	6/24 1532	Marcia Pearce	6/24 15:32
[signature] AAL	6/24/21 1800	[signature] AAL	6/24/21 1800
[signature]	6/24/21	[signature]	6/25/21 02:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

ALPHA ANALYTICAL

PAGE 2 OF 3

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34501 -11	PB42-04-SS01	6/24	1035	S	TS			X											/4
-12	PB42-05-SS01		1040	S				X											4
-13	PB42-06-SS01		1050					X											4
-14	PB42-07-SS01		1100					X											4
-15	PB42-08-SS01		1110					X											A
-16	PB42-09-SS01		1230					X											A
-17	PB42-10-SS01		1240					X											A
-18	PB42-11-SS01		1245					X											A
-19	PB42-12-SS01		1300					X											A
-20	PB42-13-SS01		1315					X											A

Container Type	-	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/24 1530	Marilyn Keane	6/24 15:30
Marilyn Keane	6/24 1800	[illegible] AAL	6/24/21 1800
[illegible] AAC	6/24/21	[illegible] 6/24 2200	
[illegible] 6/25		[illegible]	6/25/21 02:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab:	6/25/21	ALPHA Job #:	L2134501

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

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Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
34501 -21	PB42-14-5501	6/24	1325	S	TS	☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-22	PB42-15-5501		1340	S		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-23	PB42-16-5501		1400	S		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-24	FB-210624-1		1200	W		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-25	FB-210624-2		1410	W		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-26	TB			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	✓	☐		A
-27	DUP-9		0805	S		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-28	DUP-10		1330	S		☐	☐	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/24 1532	Marisa Bernie	6/24 1532
Marisa Bernie	6/24 1800	[signature] AAL	6/24 1800
[signature] AAL	6/24/21	6/25 22	
6/25 ...		[signature]	6/25/21 02:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A13.D
Acq On    : 02 Jul 2021  11:59 am
Operator  : VOA117:JC
Sample    : L2134501-01D2,31H,5.90,5,0.020,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jul 06 09:22:27 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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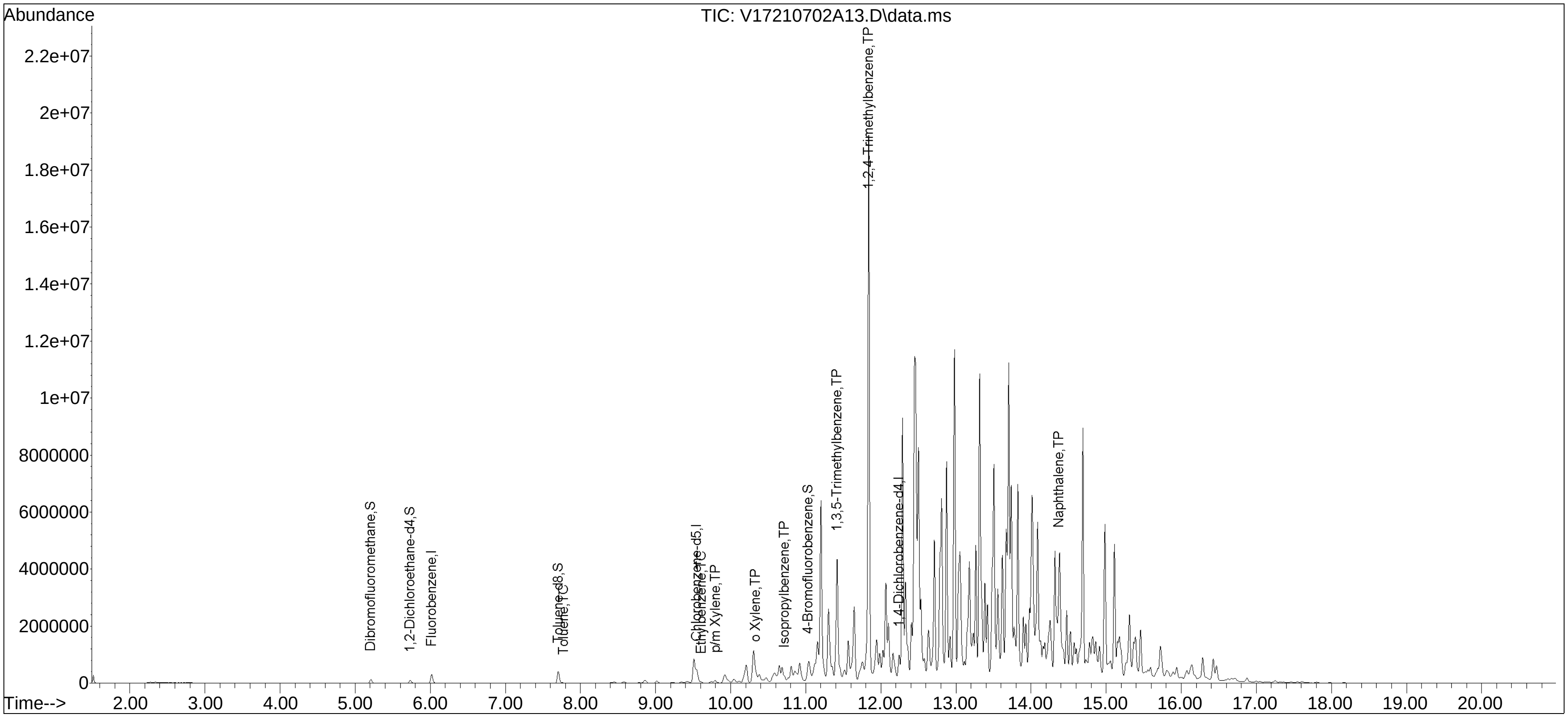
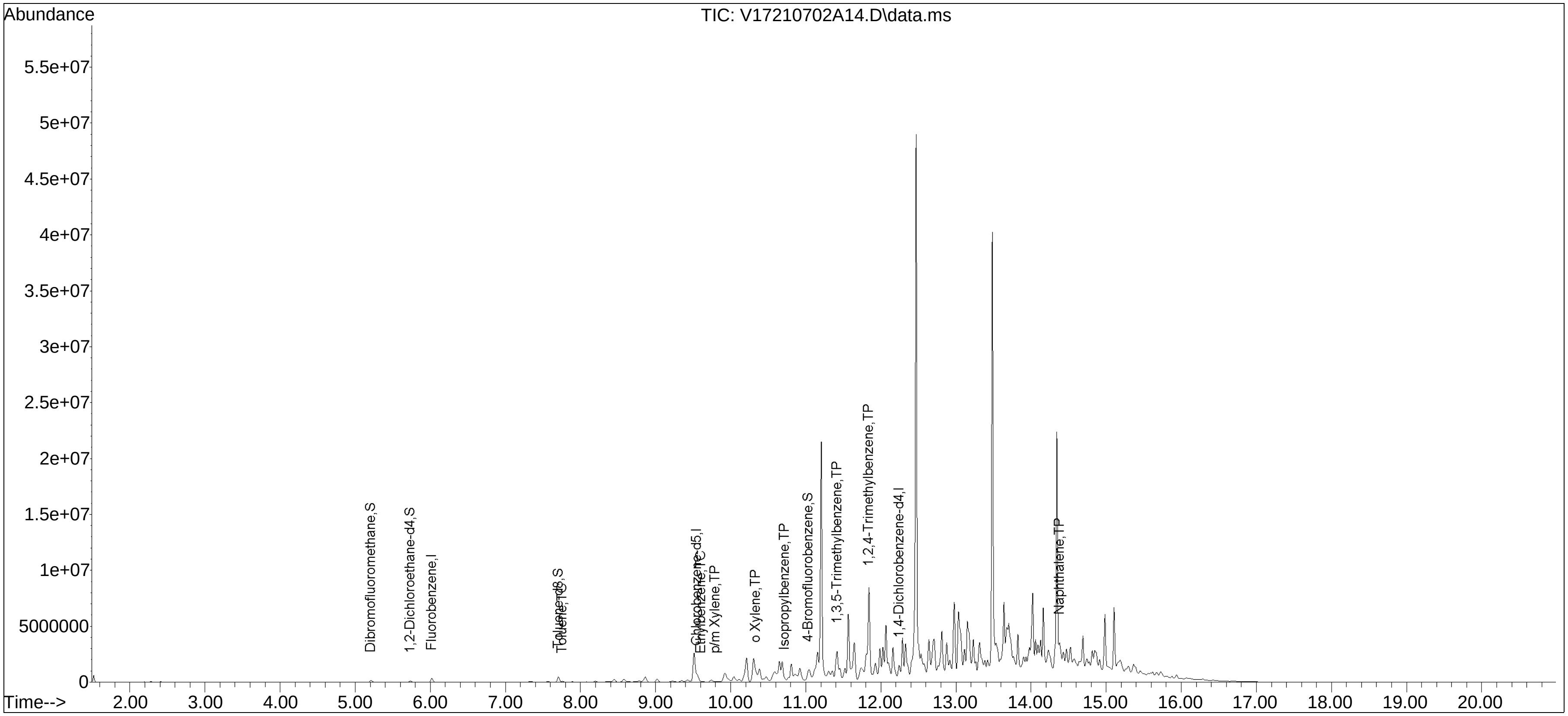


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A14.D
Acq On : 02 Jul 2021 12:25 pm
Operator : VOA117:LAC
Sample : L2134501-04,31,6.41,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 02 14:50:21 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

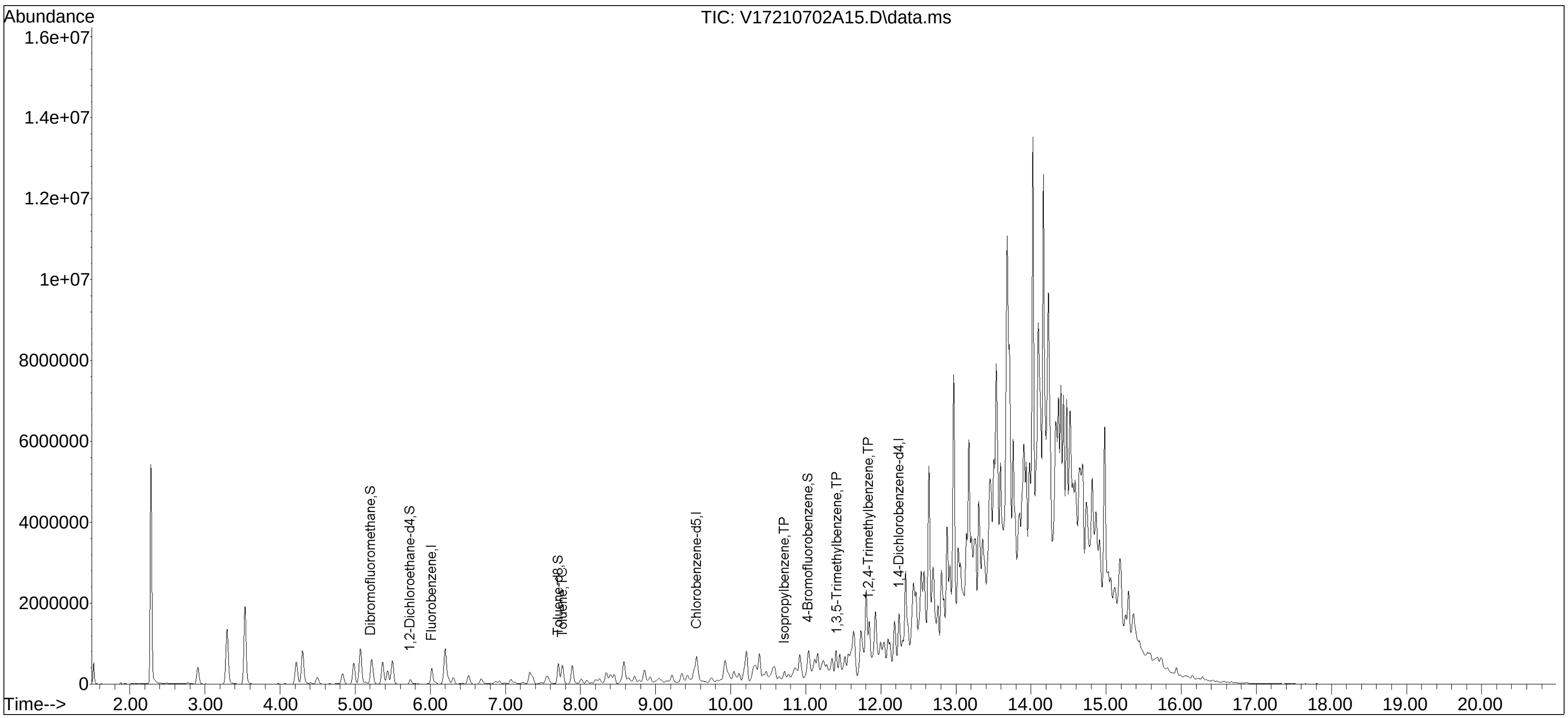


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A15.D
Acq On : 02 Jul 2021 12:51 pm
Operator : VOA117:LAC
Sample : L2134501-05,31,6.10,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jul 02 16:27:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

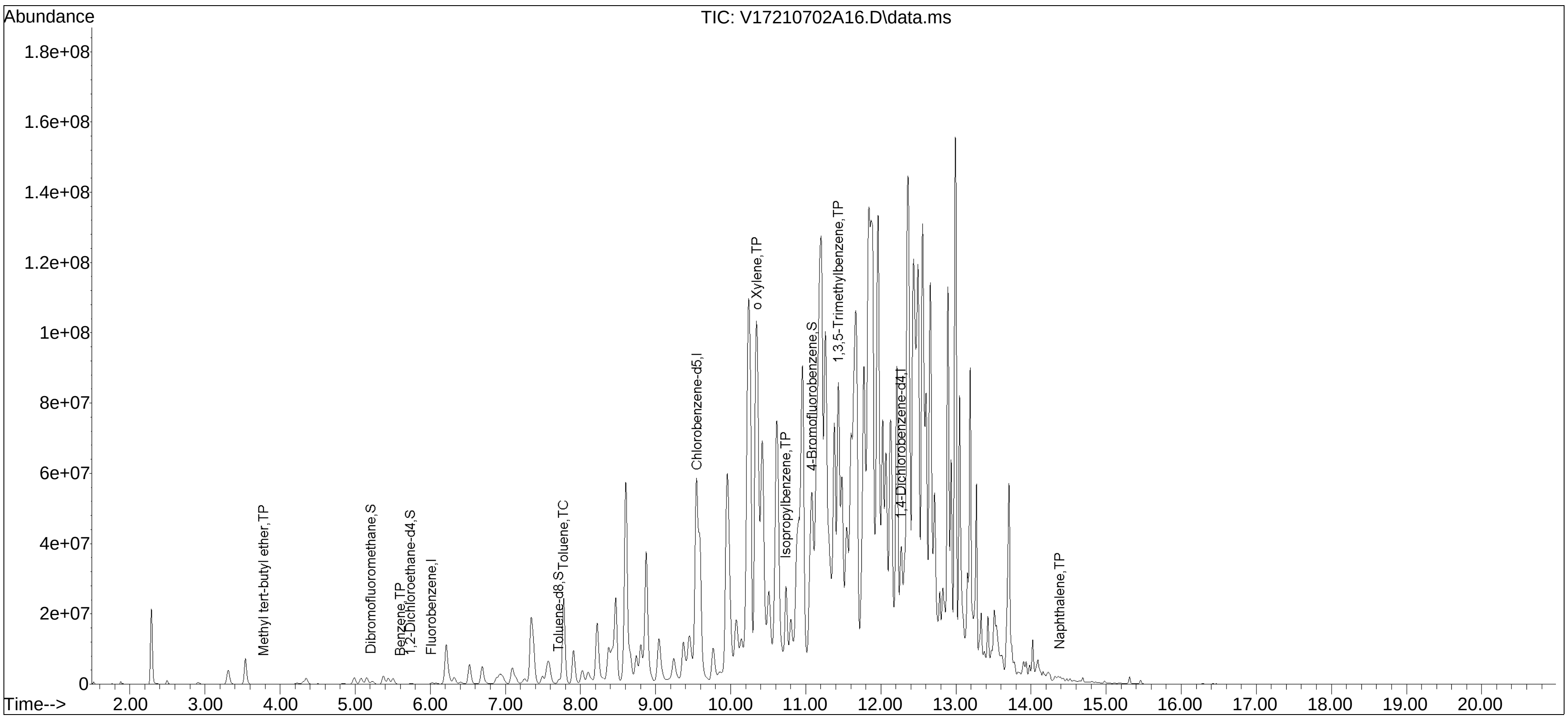


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A16.D
Acq On : 02 Jul 2021 01:17 pm
Operator : VOA117:LAC
Sample : L2134501-07,31,6.88,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 06 09:28:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

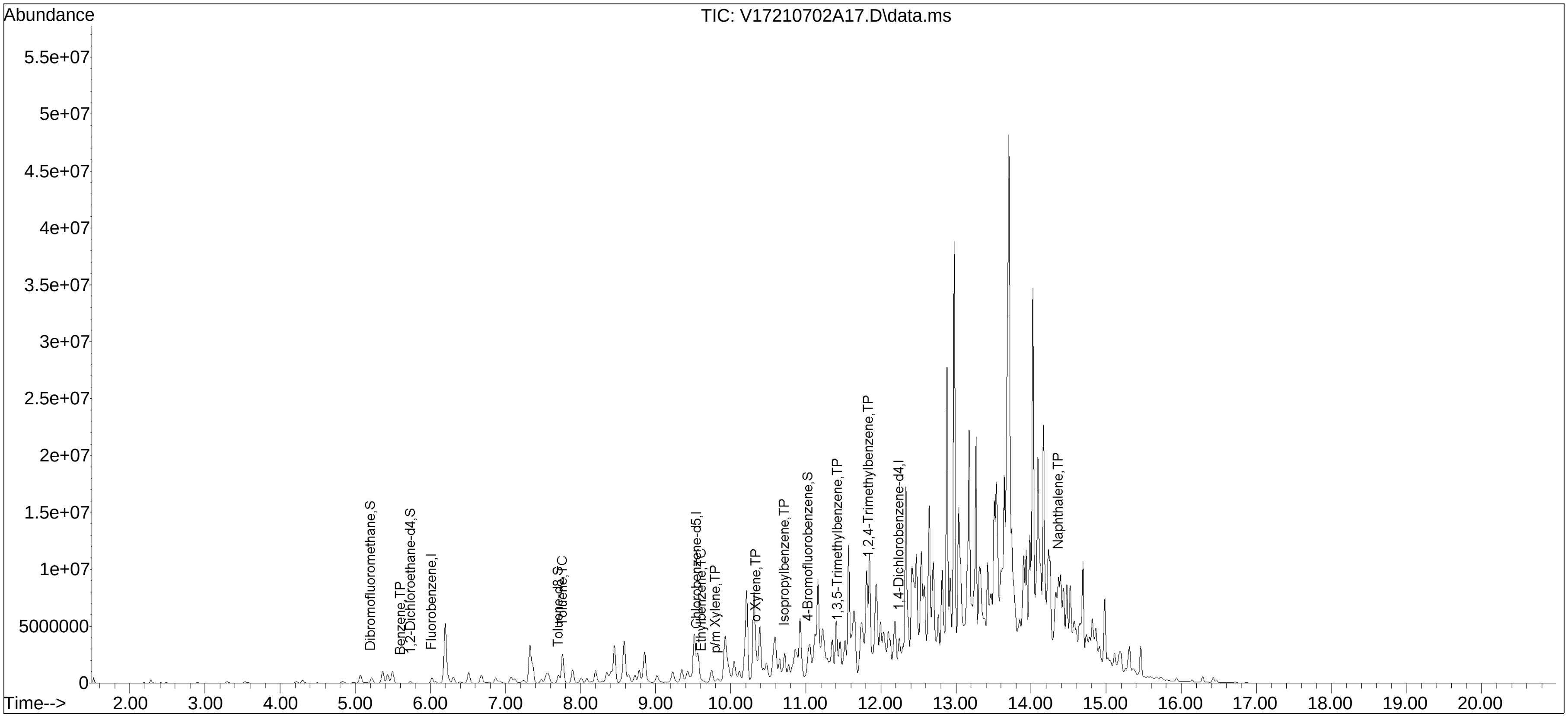


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A17.D
Acq On : 02 Jul 2021 01:43 pm
Operator : VOA117:LAC
Sample : L2134501-08,31,5.61,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 02 15:11:29 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

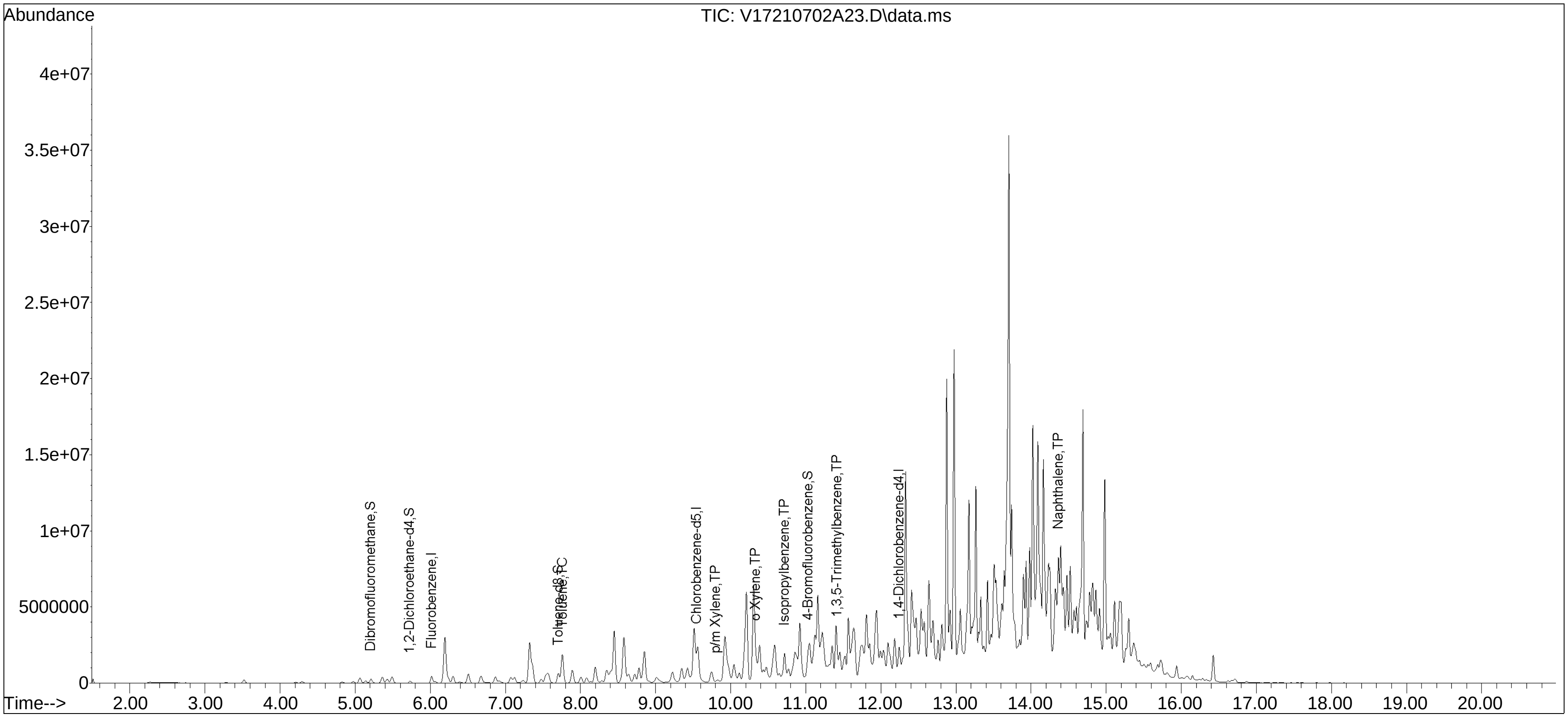


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A23.D
Acq On : 02 Jul 2021 04:19 pm
Operator : VOA117:KJD
Sample : L2134501-09,31H,5.36,5,0.100,,A
Misc : WG1520303,ICAL18099
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 19:54:13 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

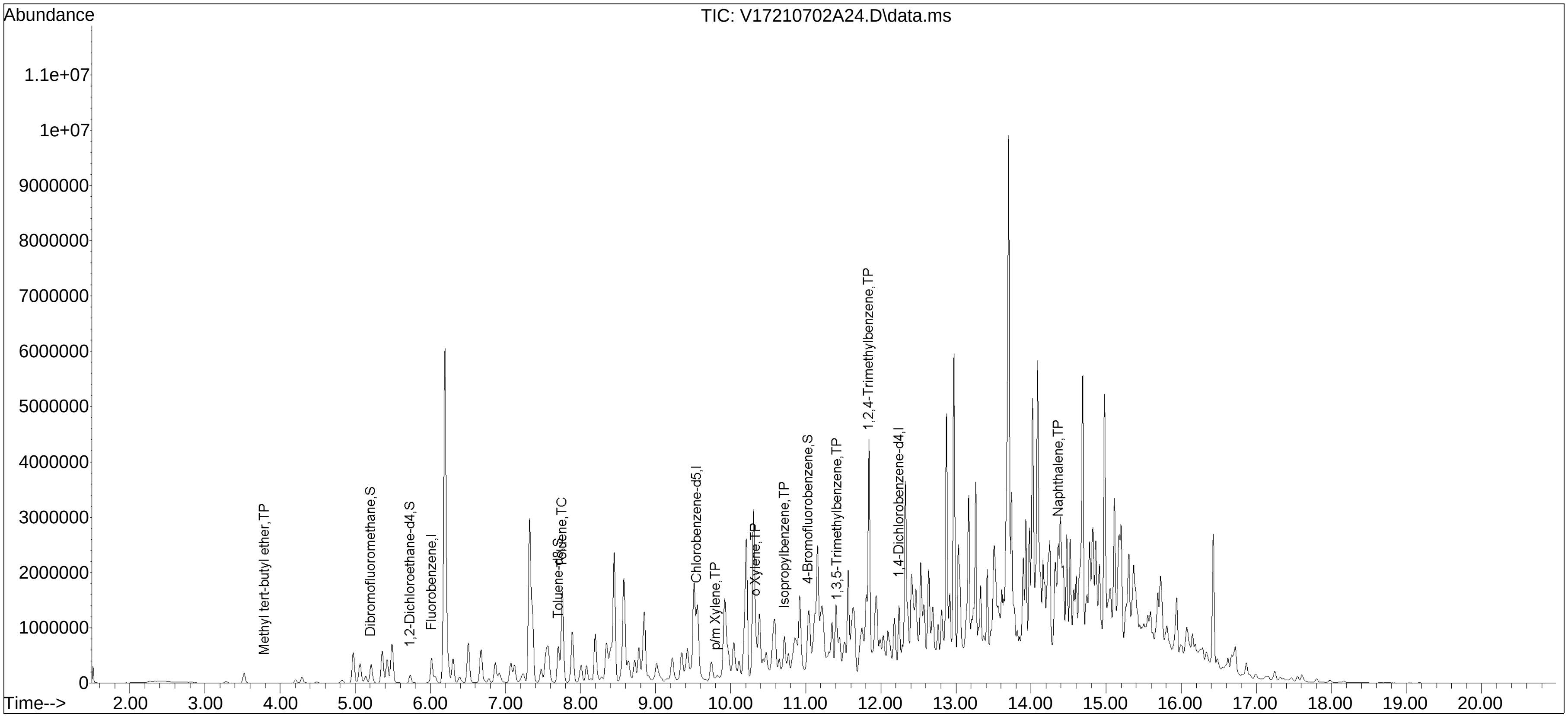


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A24.D
Acq On : 02 Jul 2021 04:45 pm
Operator : VOA117:KJD
Sample : L2134501-10,31H,6.44,5,0.100,A
Misc : WG1520303,ICAL18099
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 02 19:54:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

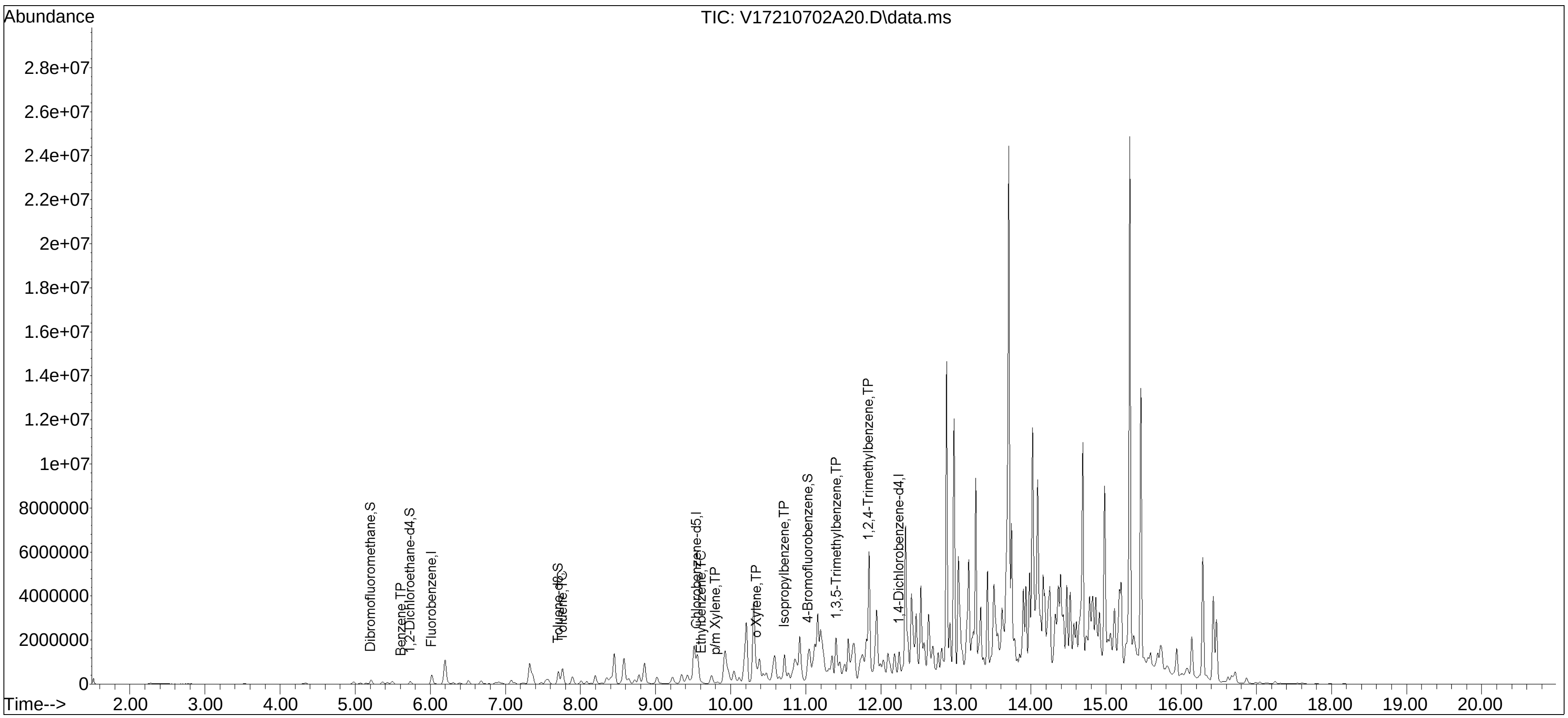


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A20.D
Acq On : 02 Jul 2021 03:01 pm
Operator : VOA117:KJD
Sample : L2134501-11D,31H,4.38,5,0.020,,A
Misc : WG1520303,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 19:46:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A25.D
Acq On    : 02 Jul 2021  05:11 pm
Operator  : VOA117:KJD
Sample    : L2134501-12,31H,6.05,5,0.100,,A
Misc      : WG1520303,ICAL18099
ALS Vial  : 25   Sample Multiplier: 1

Quant Time: Jul 02 19:55:26 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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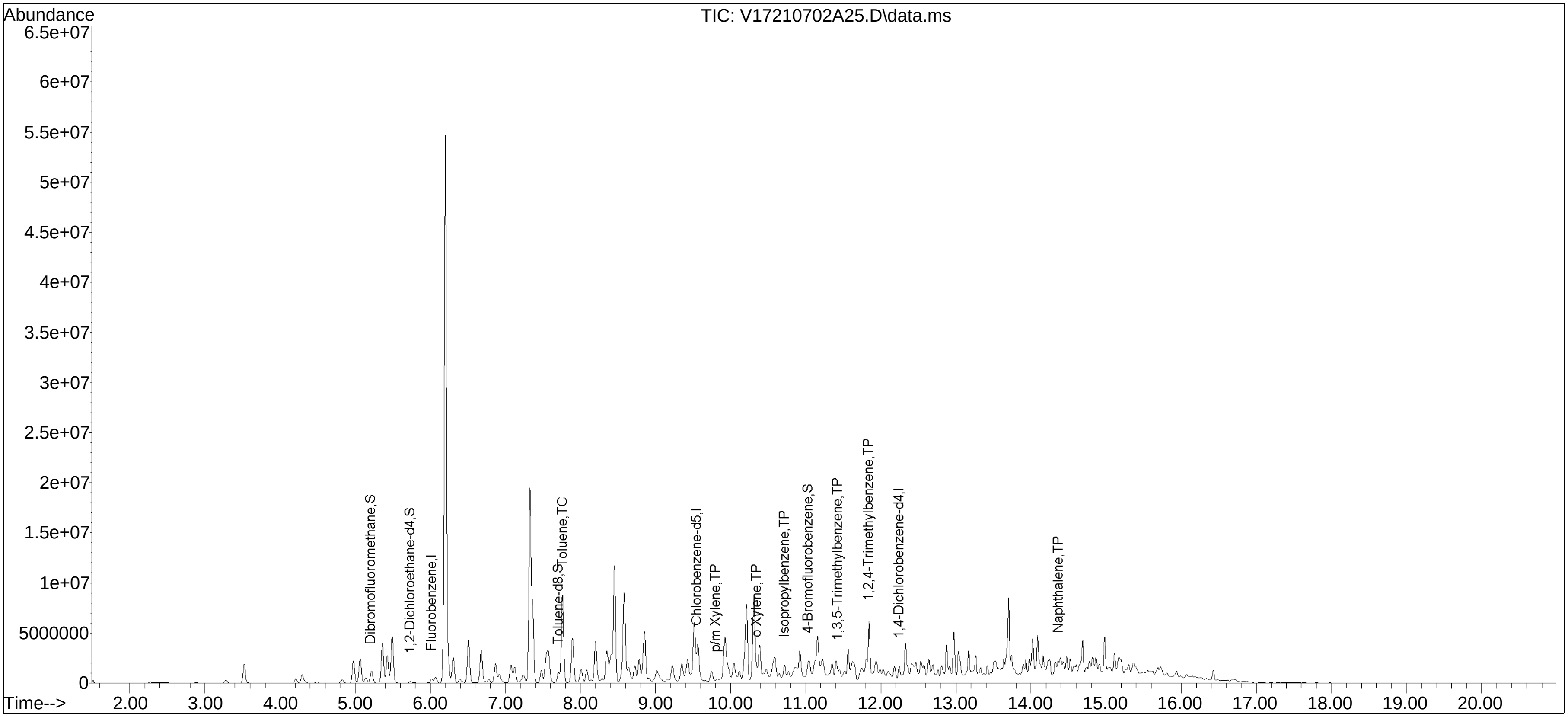

Quantitation Report   (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A18.D
Acq On    : 02 Jul 2021  02:09 pm
Operator  : VOA117:LAC
Sample    : L2134501-13,31,6.04,5,,B
Misc      : WG1519895,ICAL18099
ALS Vial  : 18   Sample Multiplier: 1

Quant Time: Jul 02 16:38:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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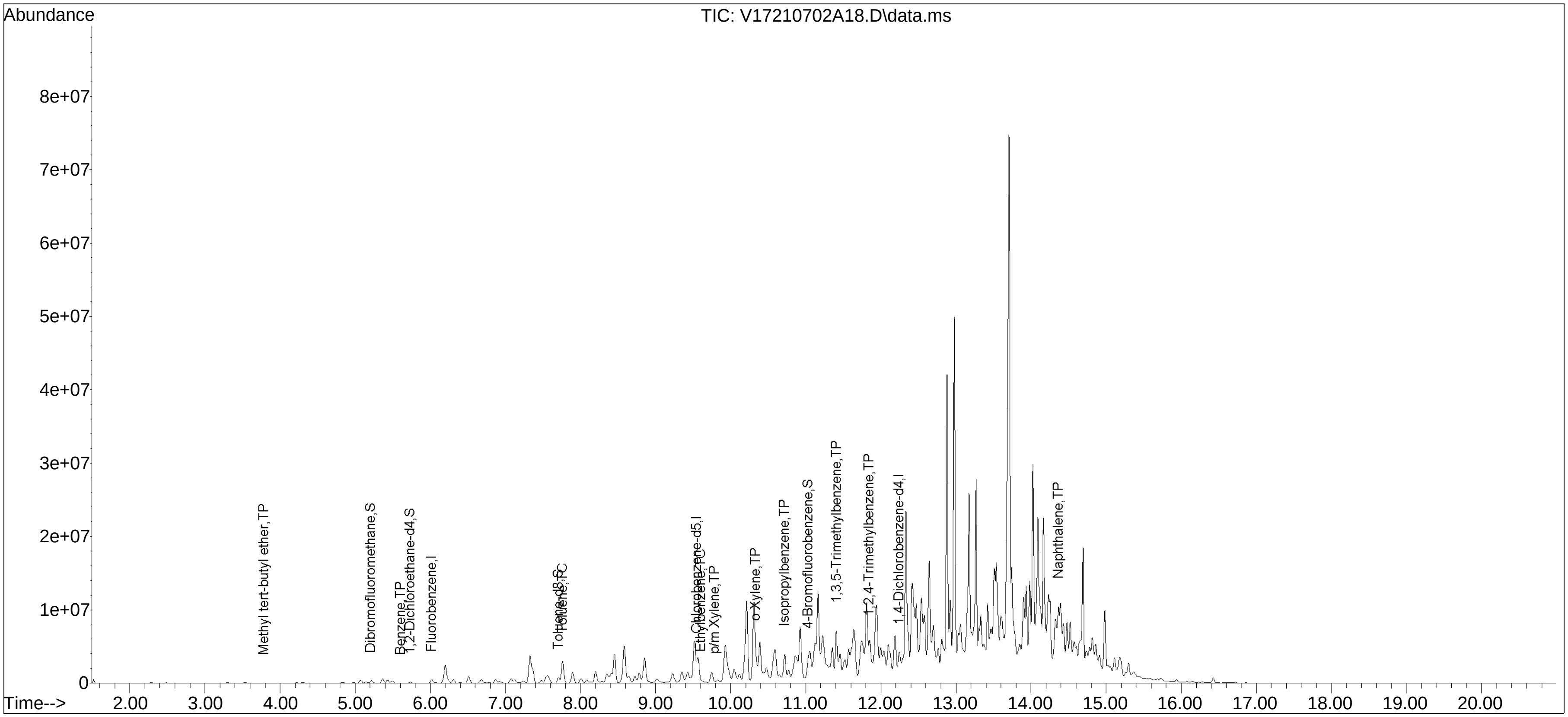

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A21.D
Acq On    : 02 Jul 2021  03:27 pm
Operator  : VOA117:KJD
Sample    : L2134501-14D,31H,5.23,5,0.050,,A
Misc      : WG1520303,ICAL18099
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 02 19:46:15 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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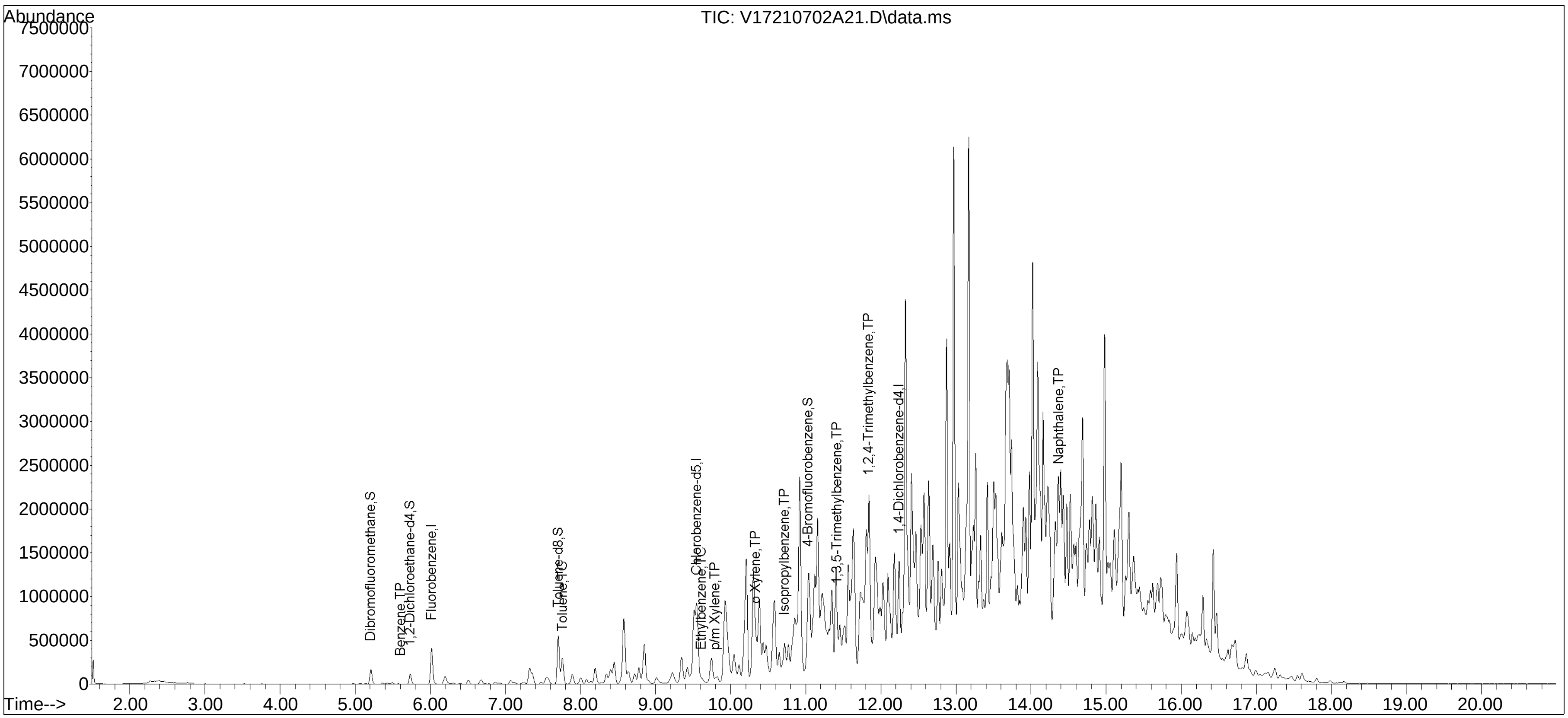
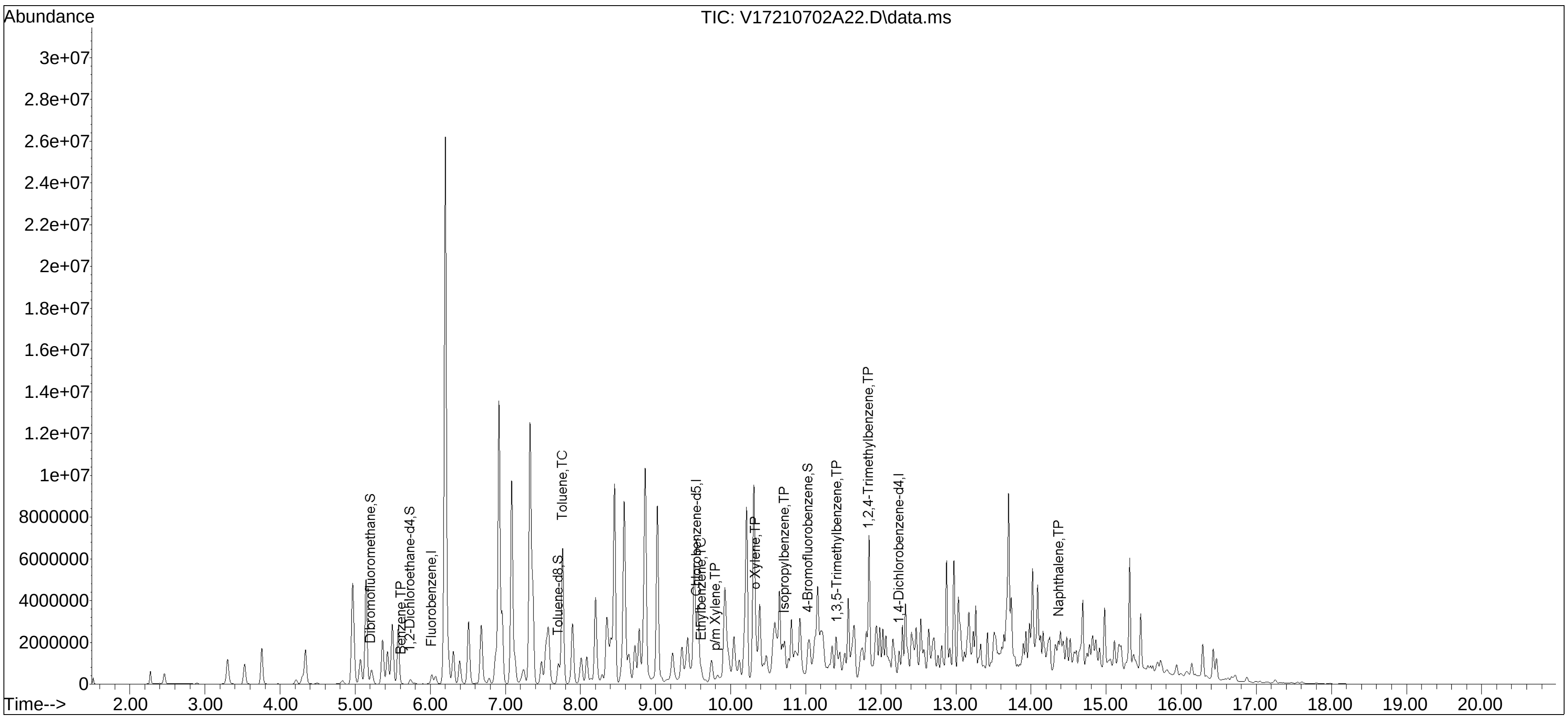


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A22.D
Acq On : 02 Jul 2021 03:53 pm
Operator : VOA117:KJD
Sample : L2134501-15D,31H,6.36,5,0.050,,A
Misc : WG1520303,ICAL18099
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 19:47:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

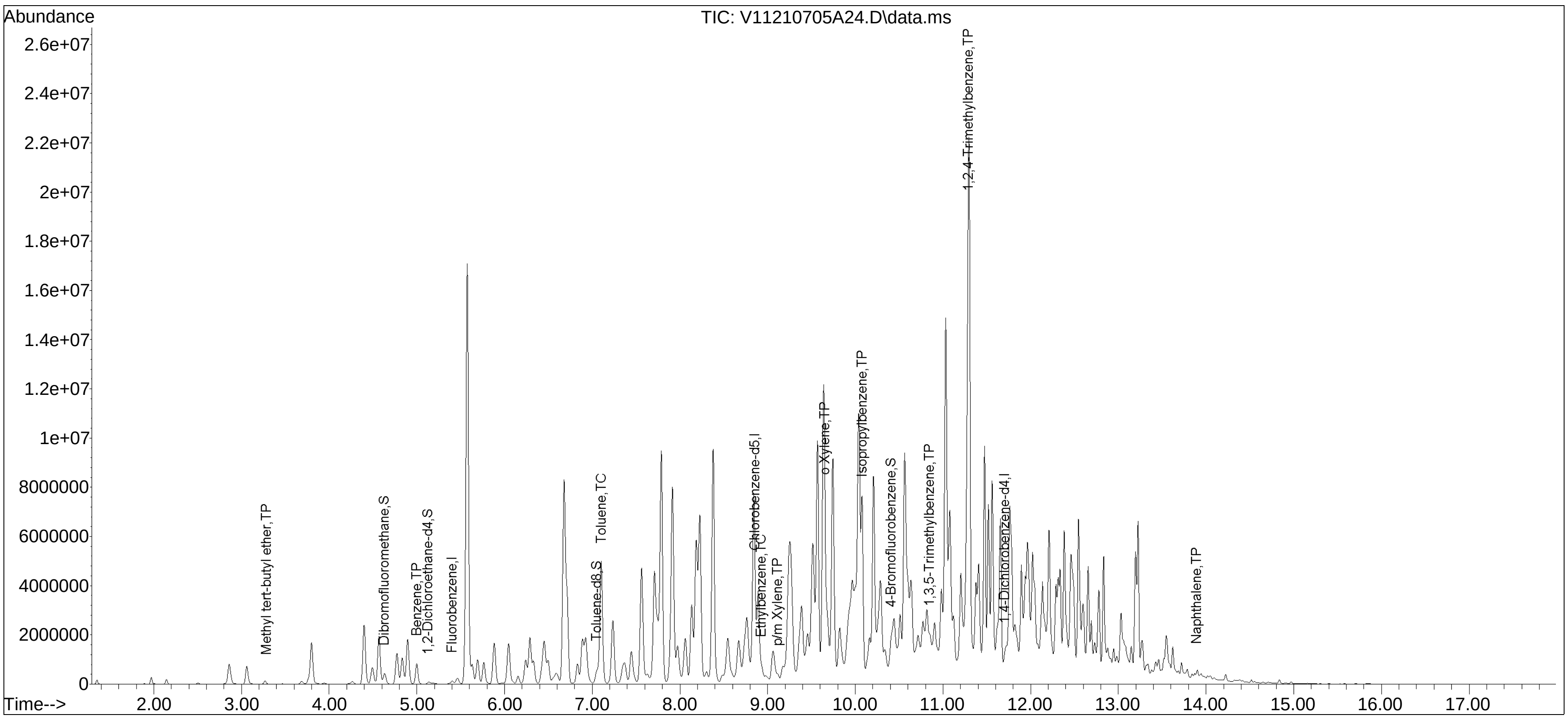


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210705A\
Data File : V11210705A24.D
Acq On : 05 Jul 2021 10:41 pm
Operator : VOA111:MV
Sample : L2134501-16,31,5.86,5,,B
Misc : WG1520600,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 06 07:17:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210705A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list05A\V11210705A01.D•

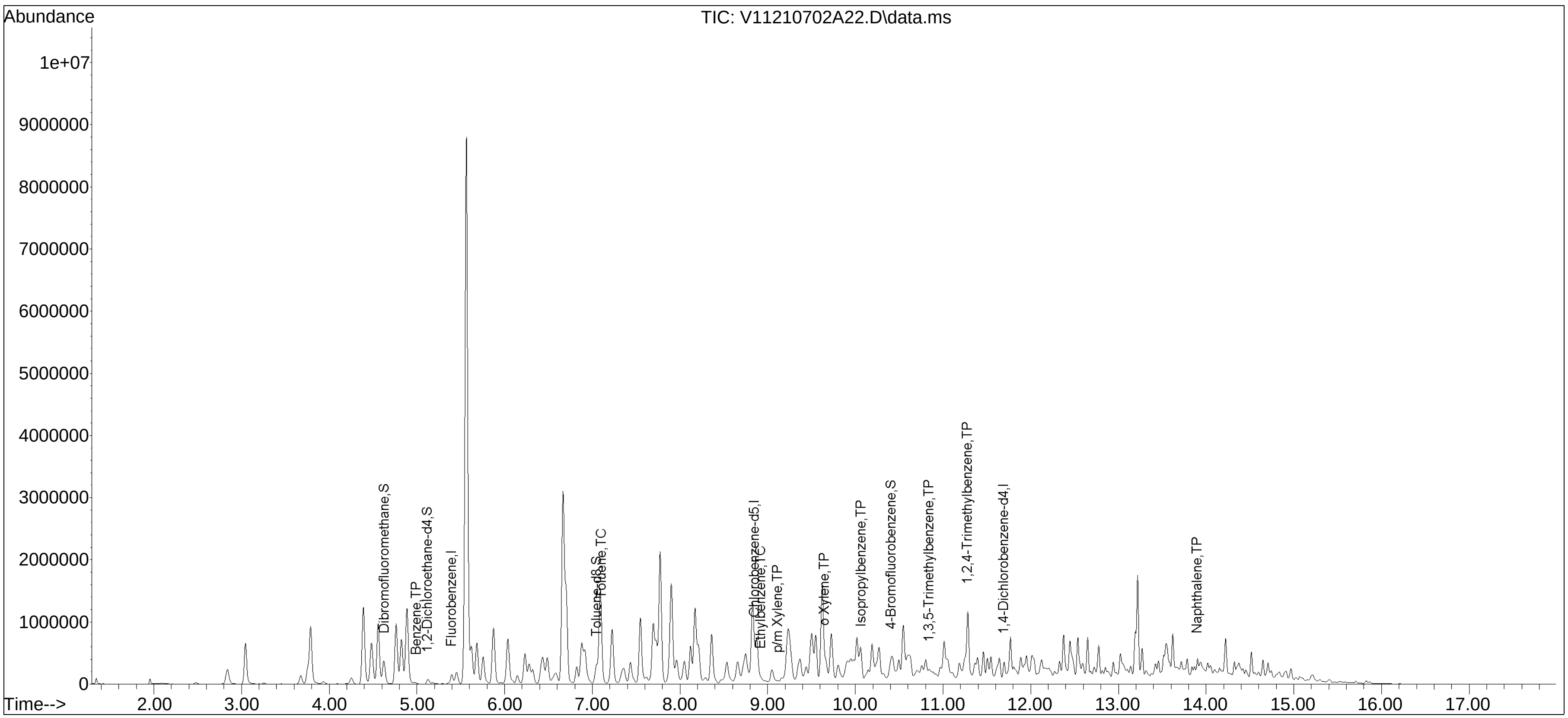


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A22.D
Acq On : 02 Jul 2021 02:30 pm
Operator : VOA111:MV
Sample : L2134501-17,31H,5.35,5,0.100,,A
Misc : WG1519793,ICAL18049
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jul 02 20:21:52 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

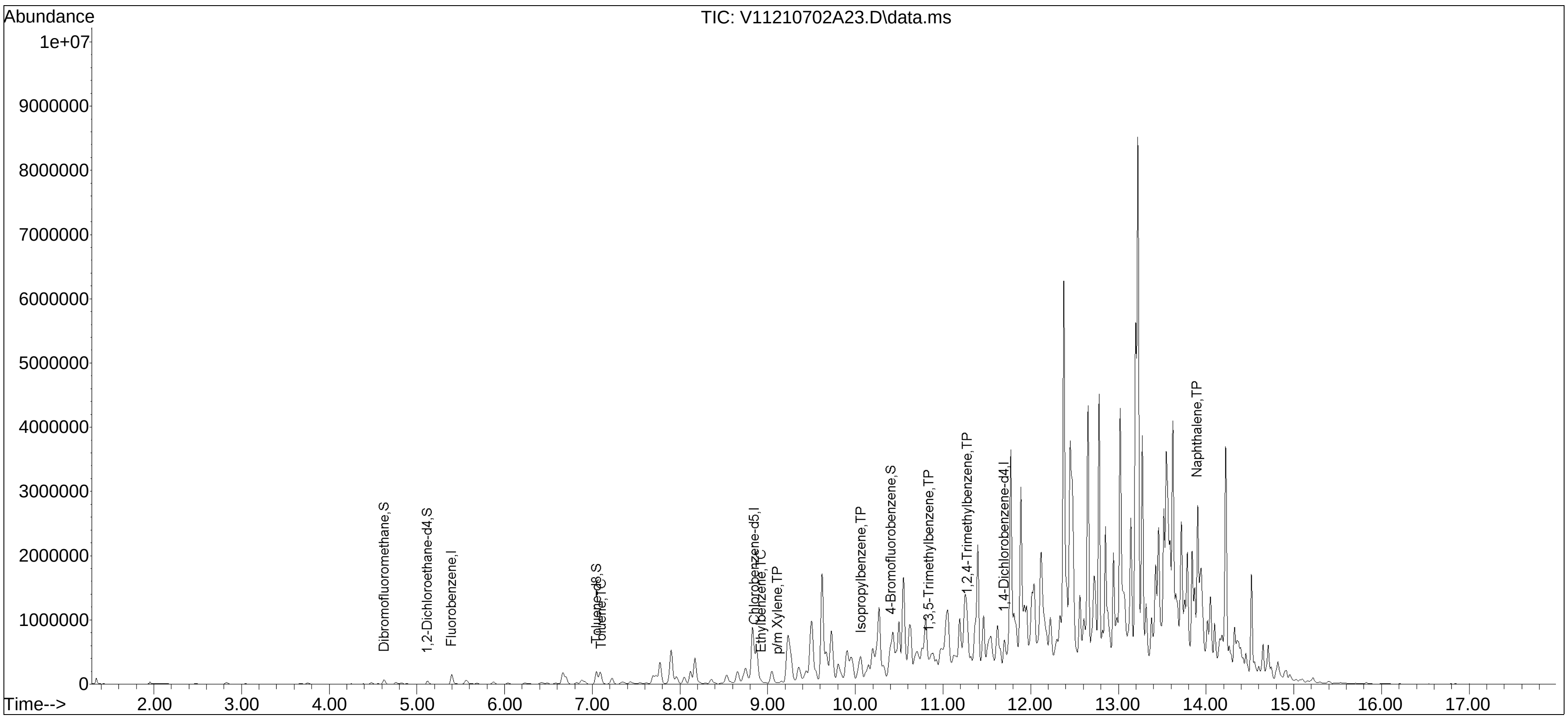


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A23.D
Acq On   : 02 Jul 2021 02:55 pm
Operator : VOA111:MV
Sample   : L2134501-18,31H,3.34,5,0.100,,A
Misc   : WG1519793,ICAL18049
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Jul 02 20:22:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A21.D
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Operator  : VOA111:MV
Sample    : L2134501-20D,31H,6.29,5,0.050,,A
Misc      : WG1519793,ICAL18049
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 02 20:20:05 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
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Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•
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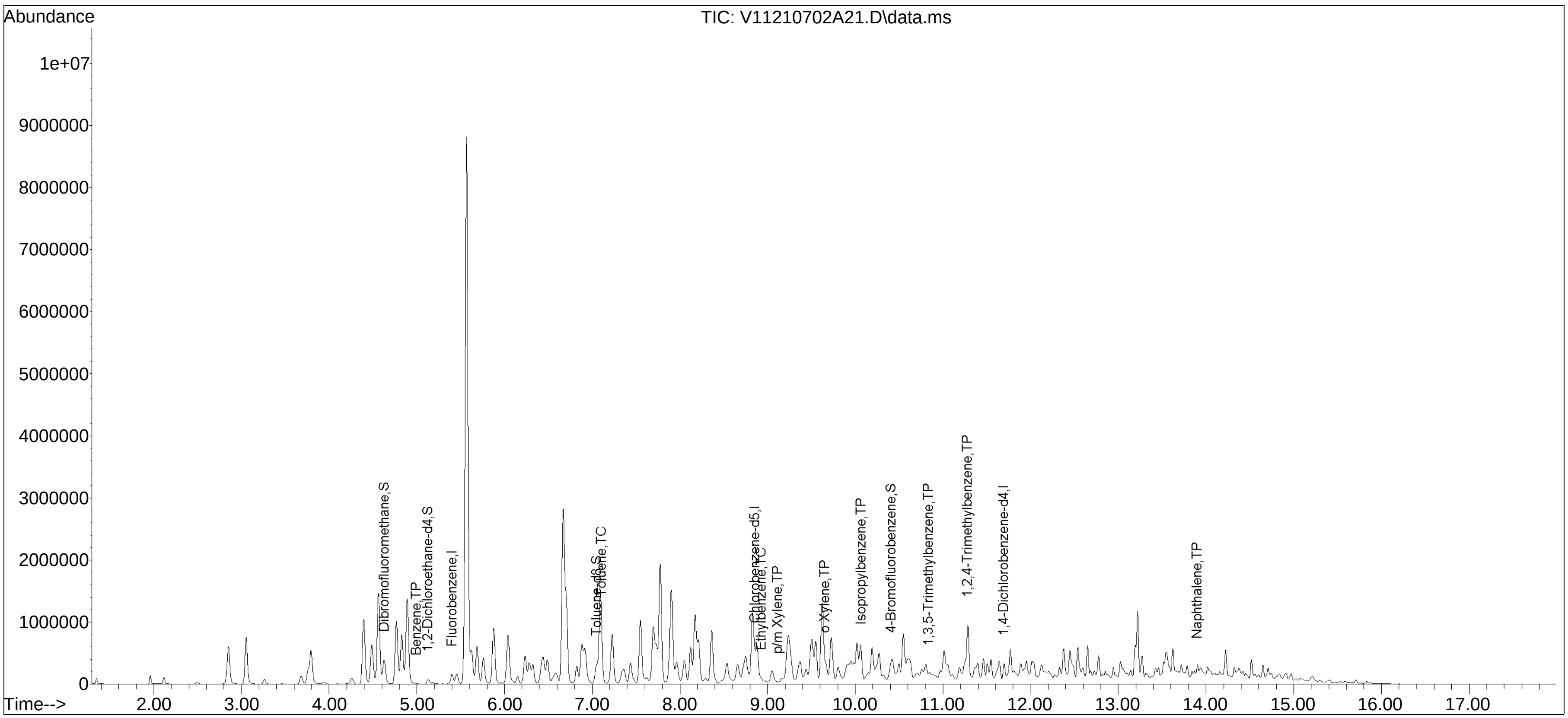

Quantitation Report (QT Reviewed)

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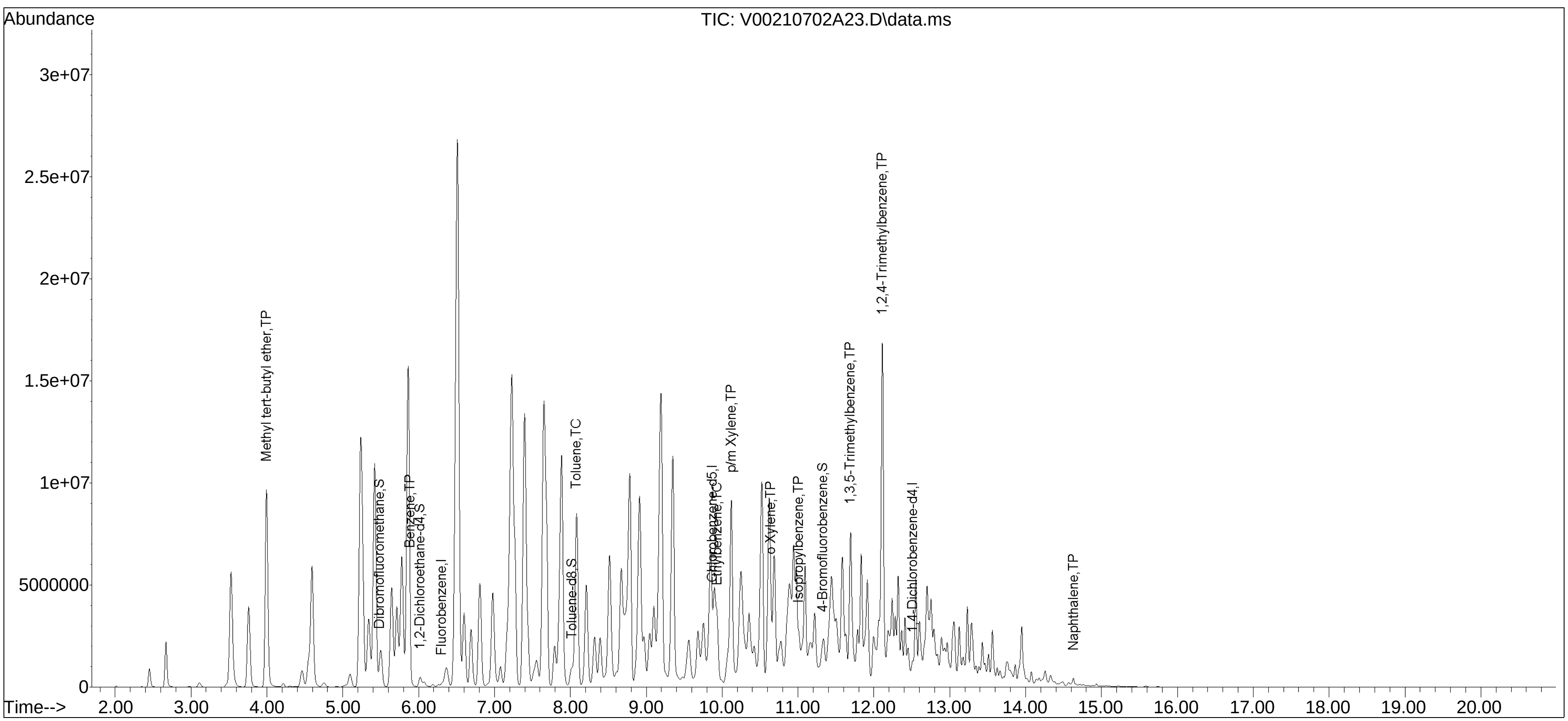
Data File : V00210702A23.D
Acq On : 2 Jul 2021 5:52 pm
Operator : VOA100:MV
Sample : L2134501-21,31,6.17,5,,B
Misc : WG1520074,ICAL18027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 03 05:57:01 2021
Quant Method : I:\VOLATILES\VOA100\2021\210702A\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V00210702A01.D•

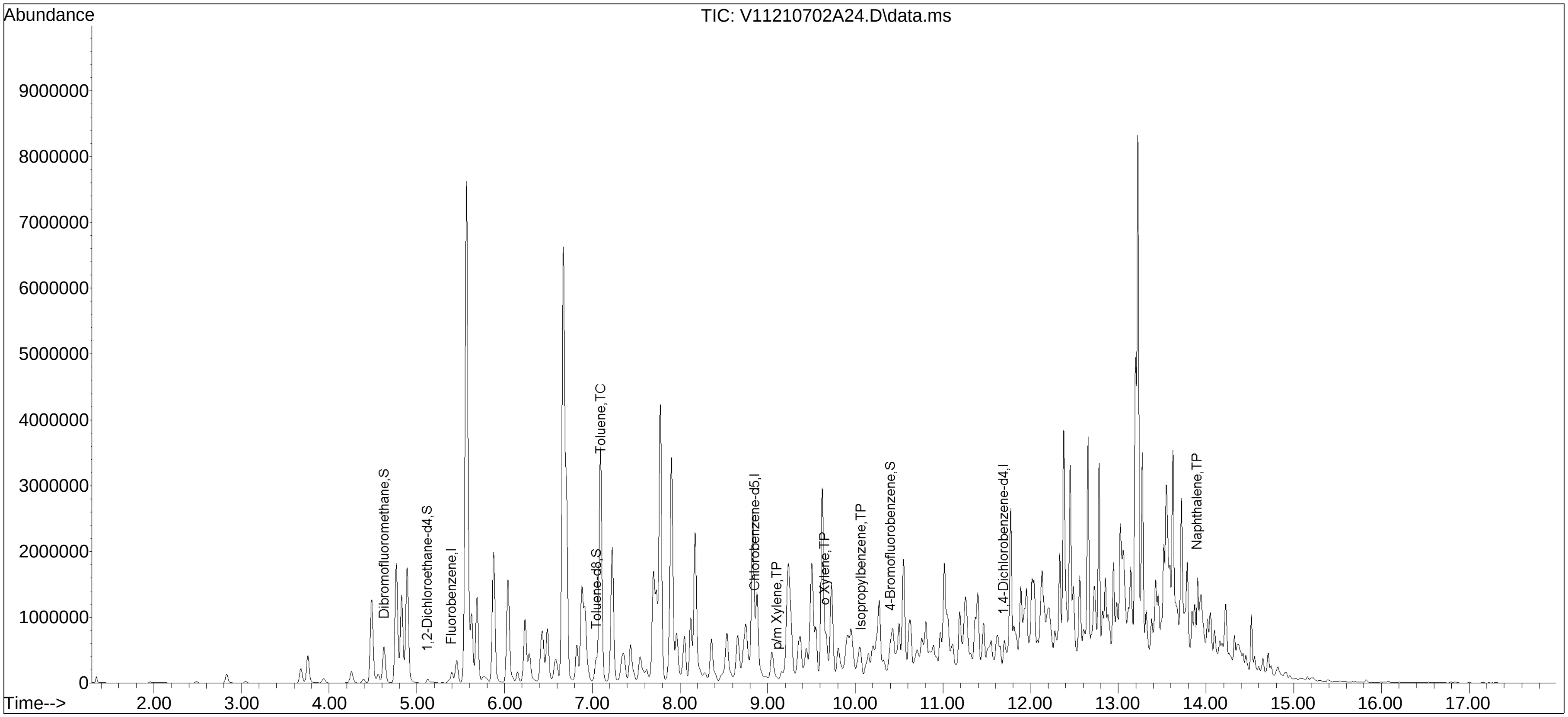


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A24.D
Acq On : 02 Jul 2021 03:20 pm
Operator : VOA111:MV
Sample : L2134501-22,31H,5.09,5,0.100,,A
Misc : WG1519793,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 02 20:23:04 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

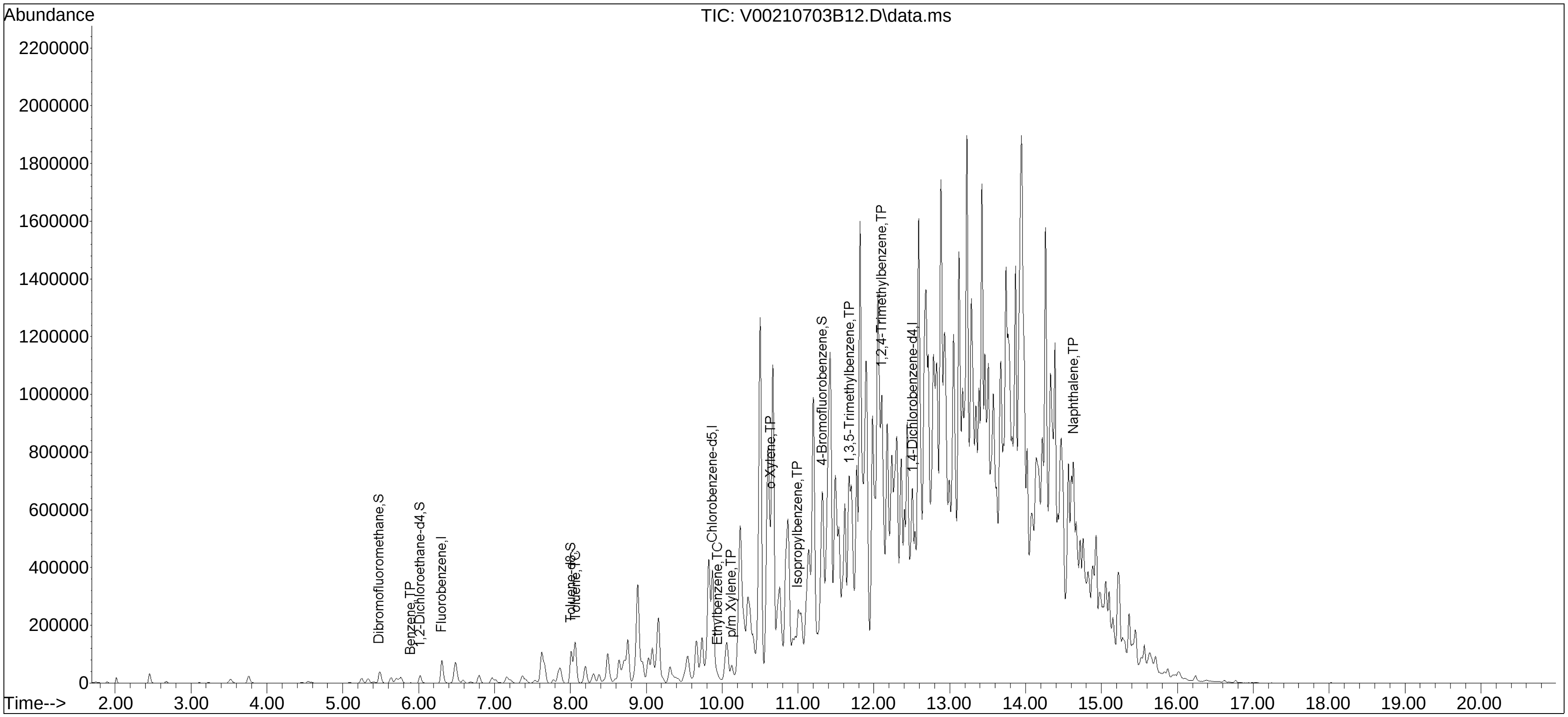


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\210703B\
Data File : V00210703B12.D
Acq On   : 3 Jul 2021   1:23 pm
Operator : VOA100:AJK
Sample   : L2134501-23,31,5.98,5,,C
Misc   : WG1520495,ICAL18027
ALS Vial : 12   Sample Multiplier: 1

Quant Time: Jul 04 10:21:48 2021
Quant Method : I:\VOLATILES\VOA100\2021\210703B\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list03B\V00210703B01.D•

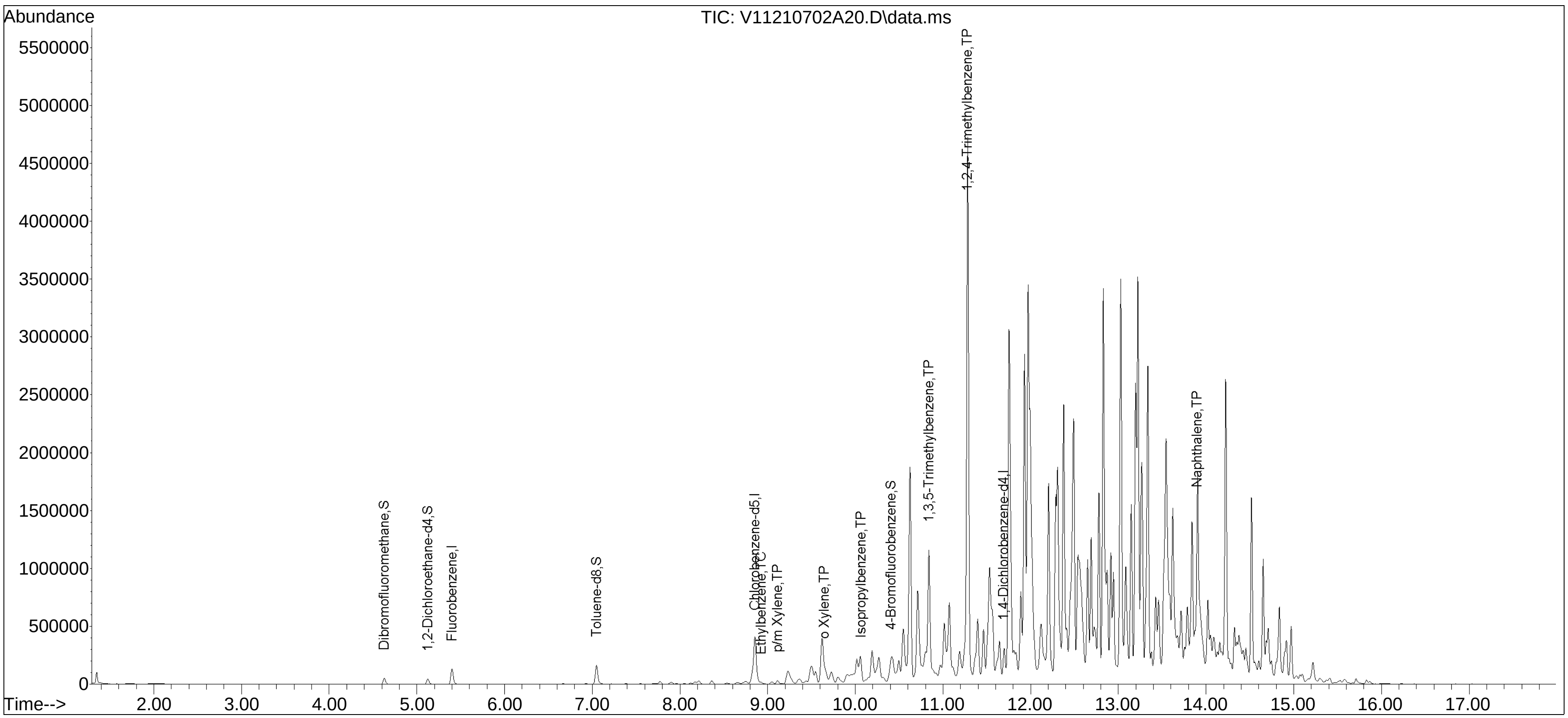


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A20.D
Acq On : 02 Jul 2021 01:40 pm
Operator : VOA111:MV
Sample : L2134501-27D,31H,5.09,5,0.020,,A
Misc : WG1519793,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 20:11:11 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•



Quantitation Report   (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210703A\
Data File : V11210703A05.D
Acq On    : 03 Jul 2021  08:36 am
Operator  : VOA111:KJD
Sample    : L2134501-27D2,31H,5.09,5,0.010,,A
Misc      : WG1519793,ICAL18049
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Jul 04 17:26:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210703A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-1,2,4-TMB - 1,2,4-Trimethylbenzene only03A01.D•
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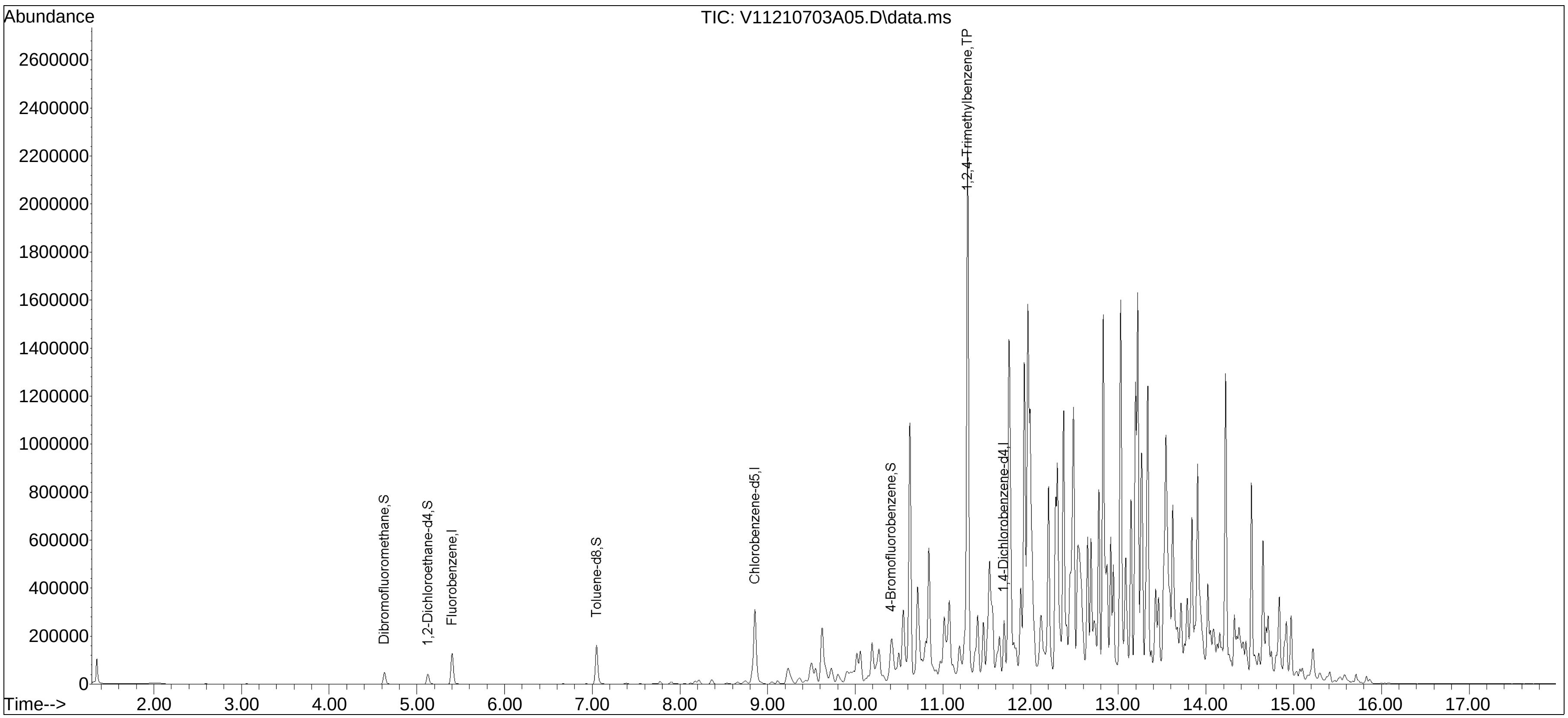


ANALYTICAL REPORT

Lab Number:	L2134780
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/08/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134780-01	PB43-04-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:30	06/25/21
L2134780-02	PB43-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:55	06/25/21
L2134780-03	PB43-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:05	06/25/21
L2134780-04	PB43-13-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:20	06/25/21
L2134780-05	PB43-14-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:35	06/25/21
L2134780-06	PB83-08-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:45	06/25/21
L2134780-07	PB83-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:05	06/25/21
L2134780-08	PB83-10-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:20	06/25/21
L2134780-09	PB83-01-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:35	06/25/21
L2134780-10	PB83-02-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:50	06/25/21
L2134780-11	PB83-03-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:00	06/25/21
L2134780-12	PB83-07-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:10	06/25/21
L2134780-13	PB83-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:20	06/25/21
L2134780-14	PB43-15-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:40	06/25/21
L2134780-15	PB43-16-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:50	06/25/21
L2134780-16	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/25/21
L2134780-17	FB-210625	WATER	PHILADELPHIA, PA	06/25/21 12:00	06/25/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2134780-03, -04, and -11: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

The surrogate recovery for the following samples is outside the acceptance criteria for 4-bromofluorobenzene; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2137480-03: 139%

L2134780-04: 153%

L2134780-09D2: 149%

L2134780-10: 144%

L2134780-11: 322%

Microextractables

The WG1518183-2 LCS recovery for 1,2,3-trichloropropane (128%), associated with L2134780-16 and -17, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative

Date: 07/08/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-01
Client ID: PB43-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 08:30
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 15:38
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0088		mg/kg	0.0019	0.00019	1
Benzene	0.035		mg/kg	0.00047	0.00016	1
Toluene	0.0013		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	0.0010		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-02
Client ID: PB43-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 08:55
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 16:04
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-03	Date Collected:	06/25/21 09:05
Client ID:	PB43-12-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:32
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.059	J	mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1
Naphthalene	0.17	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-04	Date Collected:	06/25/21 09:20
Client ID:	PB43-13-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:58
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0098	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	ND		mg/kg	0.059	0.0084	1
Isopropylbenzene	0.076		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.020	J	mg/kg	0.12	0.020	1
Naphthalene	0.20	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-05
Client ID: PB43-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:35
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:06
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-06	Date Collected:	06/25/21 09:45
Client ID:	PB83-08-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/05/21 22:16
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-07
Client ID: PB83-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:05
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:02
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	ND		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-08 Date Collected: 06/25/21 10:20
Client ID: PB83-10-SS01 Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 16:56
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.00048	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1
Naphthalene	ND		mg/kg	0.0058	0.00094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-09 D2	Date Collected:	06/25/21 10:35
Client ID:	PB83-01-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:36
Analyst: MV
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.026	2
Benzene	5.0		mg/kg	0.064	0.021	2
Toluene	0.53		mg/kg	0.13	0.069	2
Ethylbenzene	40.	E	mg/kg	0.13	0.018	2
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	19.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	71.	E	mg/kg	0.25	0.042	2
Naphthalene	14.		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-09 D	Date Collected:	06/25/21 10:35
Client ID:	PB83-01-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 20:50
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	38.		mg/kg	0.64	0.090	10
1,2,4-Trimethylbenzene	51.		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-10	Date Collected:	06/25/21 10:50
Client ID:	PB83-02-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 21:16
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.64		mg/kg	0.032	0.010	1
Toluene	0.24		mg/kg	0.064	0.035	1
Ethylbenzene	12.		mg/kg	0.064	0.0090	1
Isopropylbenzene	3.0		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	3.3		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1
Naphthalene	1.3		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	77		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-11
Client ID: PB83-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 11:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 21:42
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	0.036	J	mg/kg	0.061	0.033	1
Ethylbenzene	0.016	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	0.012	J	mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.015	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.12	0.020	1
Naphthalene	0.044	J	mg/kg	0.24	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	80		70-130
4-Bromofluorobenzene	**322**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
Client ID: PB83-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 17:22
Analyst: AJK
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00026	1
Benzene	ND		mg/kg	0.00063	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13
Client ID: PB83-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 11:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:29
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0039	0.00040	1
Benzene	ND		mg/kg	0.00098	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0039	0.00066	1
Naphthalene	ND		mg/kg	0.0079	0.0013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-14
Client ID: PB43-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:40
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 18:14
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00029	1
Benzene	ND		mg/kg	0.00071	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00048	1
Naphthalene	ND		mg/kg	0.0057	0.00093	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-15	Date Collected:	06/25/21 11:50
Client ID:	PB43-16-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:55
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	0.0038		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00053	1
Ethylbenzene	0.00022	J	mg/kg	0.00097	0.00014	1
Isopropylbenzene	0.00087	J	mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.00090	J	mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
Client ID: TB
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 00:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/29/21 18:00
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 19:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-17
Client ID: FB-210625
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 12:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/29/21 18:06
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-17
Client ID: FB-210625
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 12:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 20:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134780

Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/29/21 16:13
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-17 Batch: WG1518183-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,12,14 Batch: WG1520501-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1520503-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,09-11 Batch: WG1520503-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1520600-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,13,15 Batch: WG1520743-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 19:26
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-17 Batch: WG1521186-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-17 Batch: WG1518183-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,12,14 Batch: WG1520501-3 WG1520501-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,09-11 Batch: WG1520503-3 WG1520503-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1520503-8 WG1520503-9								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,13,15 Batch: WG1520743-3 WG1520743-4								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-17 Batch: WG1521186-3 WG1521186-4								
Methyl tert butyl ether	95		95		63-130	0		20
Benzene	99		94		70-130	5		20
Toluene	95		92		70-130	3		20
Ethylbenzene	96		93		70-130	3		20
Isopropylbenzene	96		92		70-130	4		20
1,3,5-Trimethylbenzene	94		92		64-130	2		20
1,2,4-Trimethylbenzene	93		93		70-130	0		20
Naphthalene	90		98		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		108		70-130
Toluene-d8	98		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		101		70-130

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-01	Date Collected:	06/25/21 08:30
Client ID:	PB43-04-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-02
Client ID: PB43-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 08:55
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-03
Date Collected: 06/25/21 09:05
Client ID: PB43-12-SS01
Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-04
Client ID: PB43-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-05
Client ID: PB43-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:35
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-06
Client ID: PB83-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 09:45
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-07
Client ID: PB83-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 10:05
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-08
Client ID: PB83-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09
Date Collected: 06/25/21 10:35
Client ID: PB83-01-SS01
Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-10
Client ID: PB83-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:50
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-11
Client ID: PB83-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
Client ID: PB83-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13
Client ID: PB83-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 11:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-14	Date Collected:	06/25/21 11:40
Client ID:	PB43-15-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-15 Date Collected: 06/25/21 11:50
Client ID: PB43-16-SS01 Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	***Lab Number:***	L2134780
Project Number:	200.00135.005.03	***Report Date:***	07/08/21

Lab Duplicate Analysis
Batch Quality Control

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1517300-1 QC Sample: L2134746-01 Client ID: DUP Sample						
Solids, Total	79.4	80.4	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-01B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-02B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-03B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-04B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-05B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-06B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-06C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-06D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-07A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-07B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-08A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-08B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-09A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-09B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-10A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-10B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-11A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-11B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-12A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-12B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-13A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-13B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2134780-13C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-13D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-14A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-14B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-15A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-15B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-16A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16C	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-16D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34780-01	PB43-04-SS01	6/25	0830	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-02	PB43-09-SS01	↓	0855	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB43-12-SS01	↓	0905	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB43-13-SS01	↓	0920	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB43-14-SS01	↓	0935	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB83-08-SS01	↓	0945	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB83-09-SS01	↓	1005	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB83-10-SS01	↓	1020	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB83-01-SS01	↓	1035	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	HIGH PID (3000)	↓
-10	PB83-02-SS01	↓	1050	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/25 1445	[signature]	AAL 6-25 1445
[signature] AAL	6-25 1800	[signature]	AAL 6/25/21 1800
AAL	6/25/21	[signature] AAL	6/25/21 2300
[signature] AAL	6/26/21 0300	[signature]	6/26/21 03:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

ALPHA ANALYTICAL

PAGE 2 OF 2

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
34780-11	PB83-03-5501	6/25	1100	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-12	PB83-07-5501		1110	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-13	PB83-12-5501		1120	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-14	PB83-15-5501		1140	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-15	PB43-16-5501		1150	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-16	TB			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-17	FB-210625		1206	W	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/25 1415	[signature] AAL	6-25 1445
[signature] AAL	6/25 1800	[signature] AAL	6/25/21 1800
[signature] AAL	6/25/21	[signature] AAL	6/25/21 2330
[signature] AAL	6/26/21 0300	[signature]	6/26/21 03:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

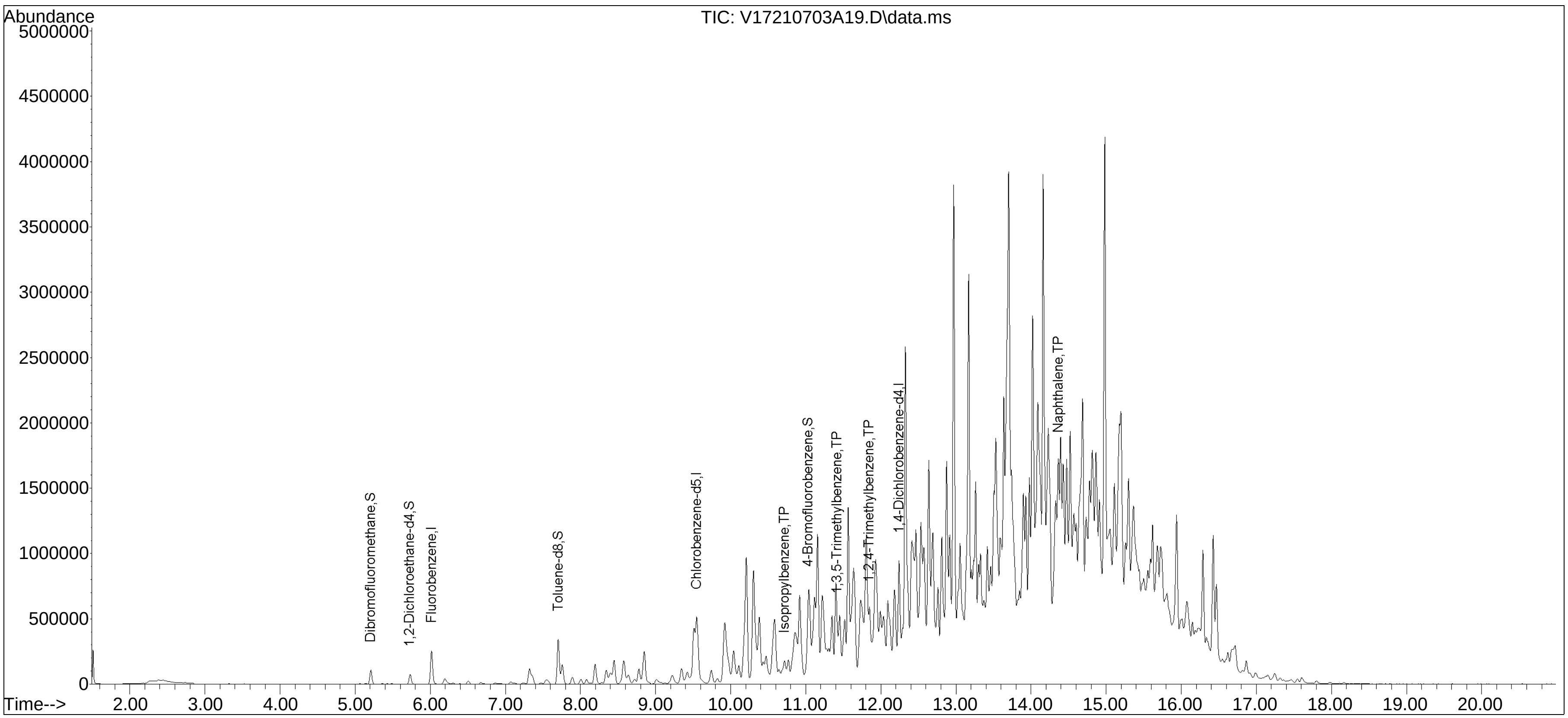
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A19.D
Acq On : 03 Jul 2021 07:32 pm
Operator : VOA117:AJK
Sample : L2134780-03,31H,6.51,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 04 14:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

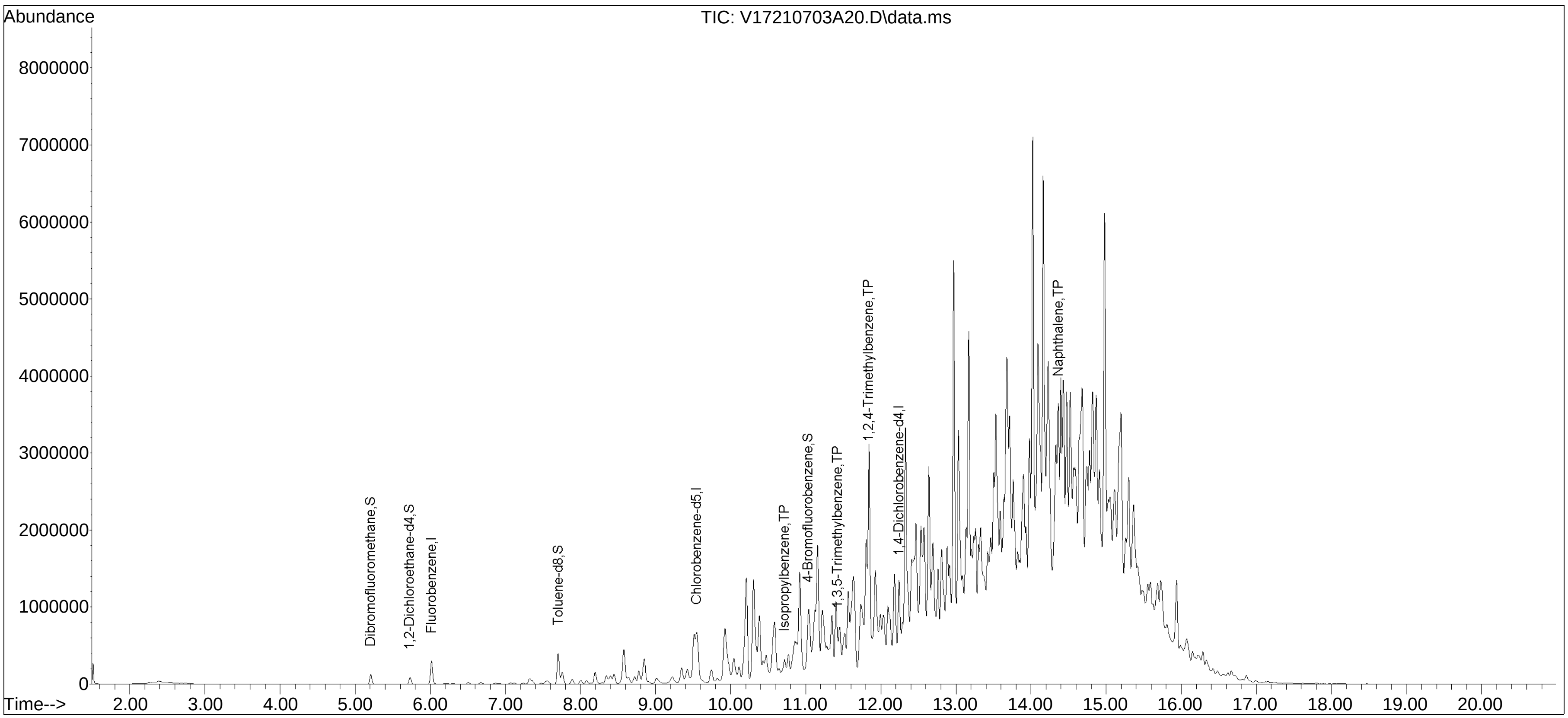


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A20.D
Acq On : 03 Jul 2021 07:58 pm
Operator : VOA117:AJK
Sample : L2134780-04,31H,6.18,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 04 14:13:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

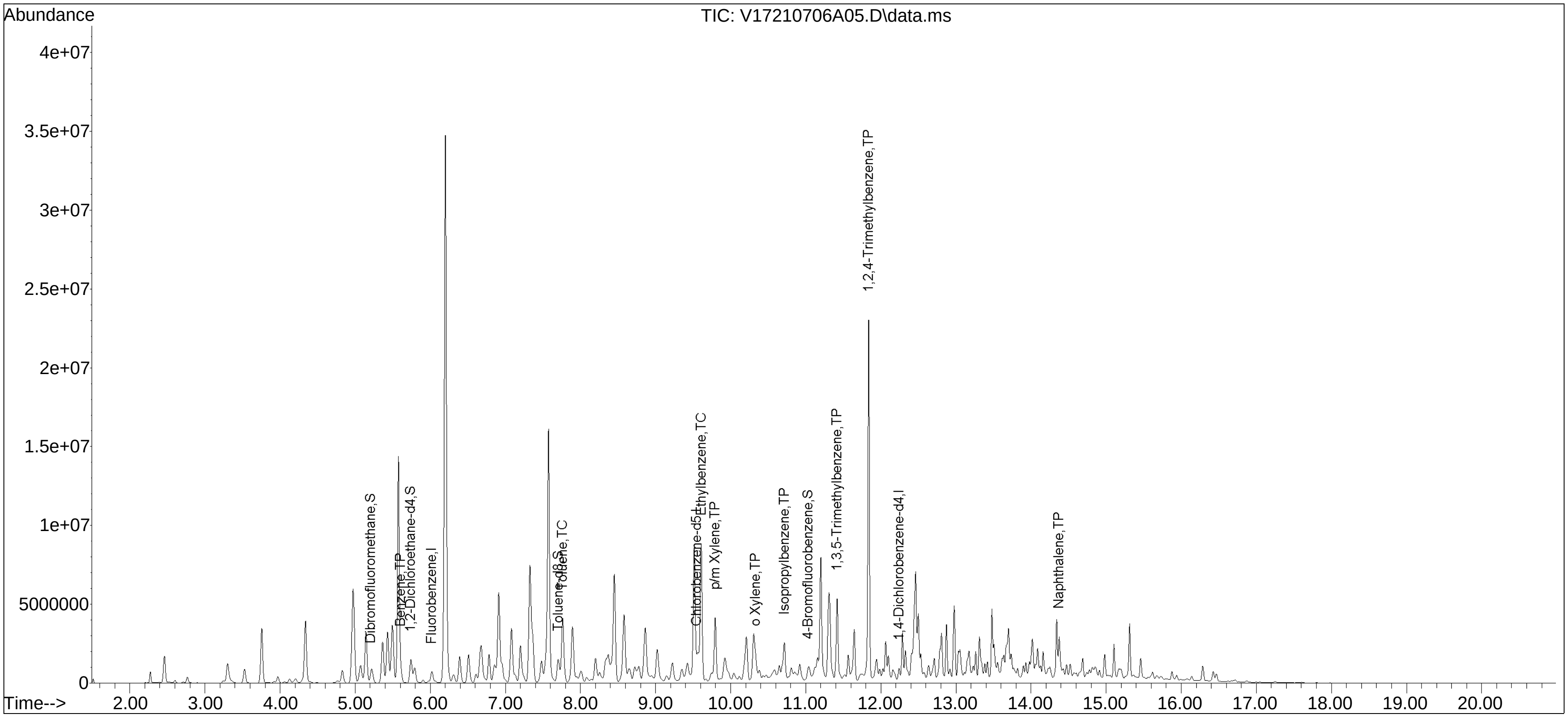


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210706A\
Data File : V17210706A05.D
Acq On : 06 Jul 2021 08:36 am
Operator : VOA117:MV
Sample : L2134780-09D2,31H,5.48,5,0.050,,A
Misc : WG1520503,ICAL18099
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 06 09:43:08 2021
Quant Method : I:\VOLATILES\VOA117\2021\210706A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list06A\V17210706A01.D•



Quantitation Report (QT Reviewed)

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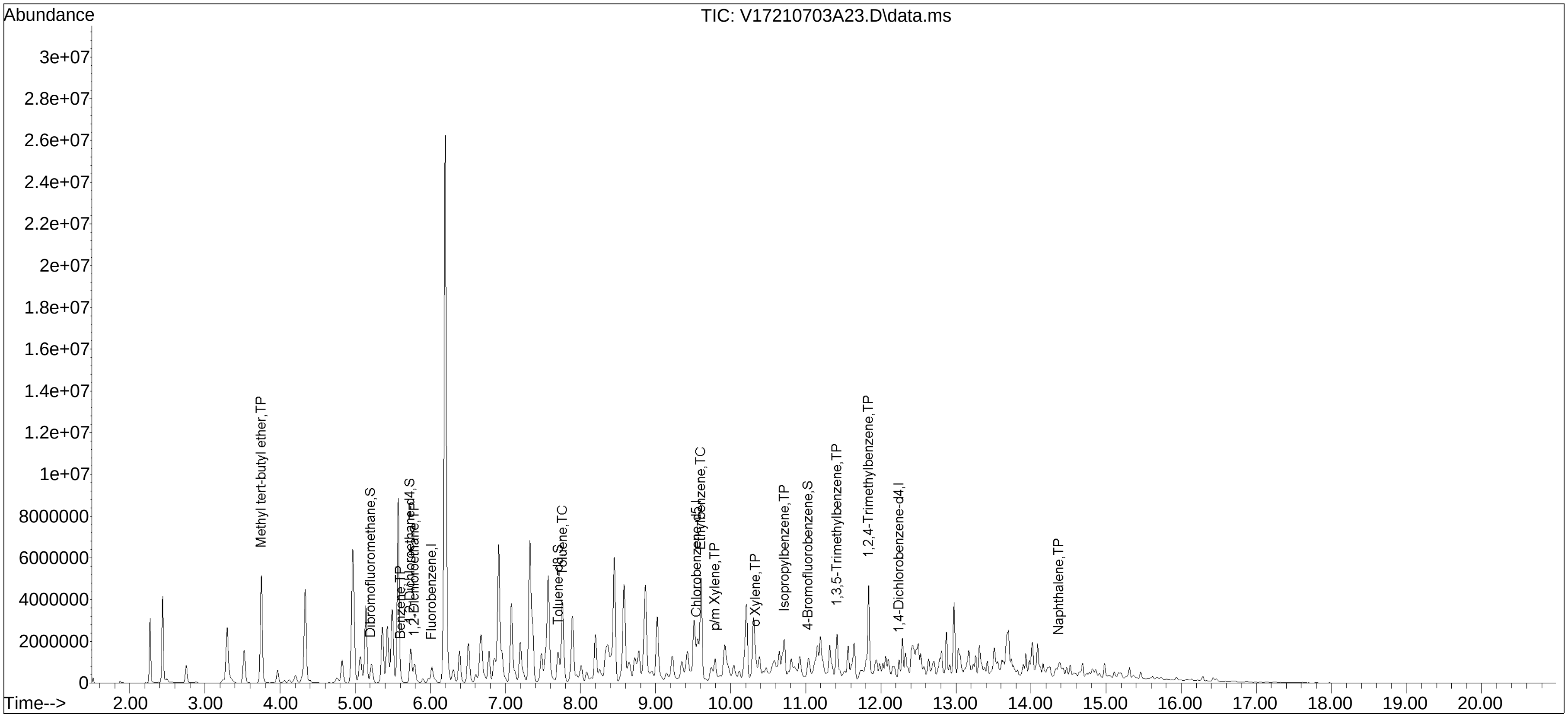
Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A23.D
Acq On    : 03 Jul 2021  09:16 pm
Operator  : VOA117:AJK
Sample    : L2134780-10,31H,6.05,5,0.100,,A
Misc      : WG1520503,ICAL18099
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jul 04 14:30:43 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•
```

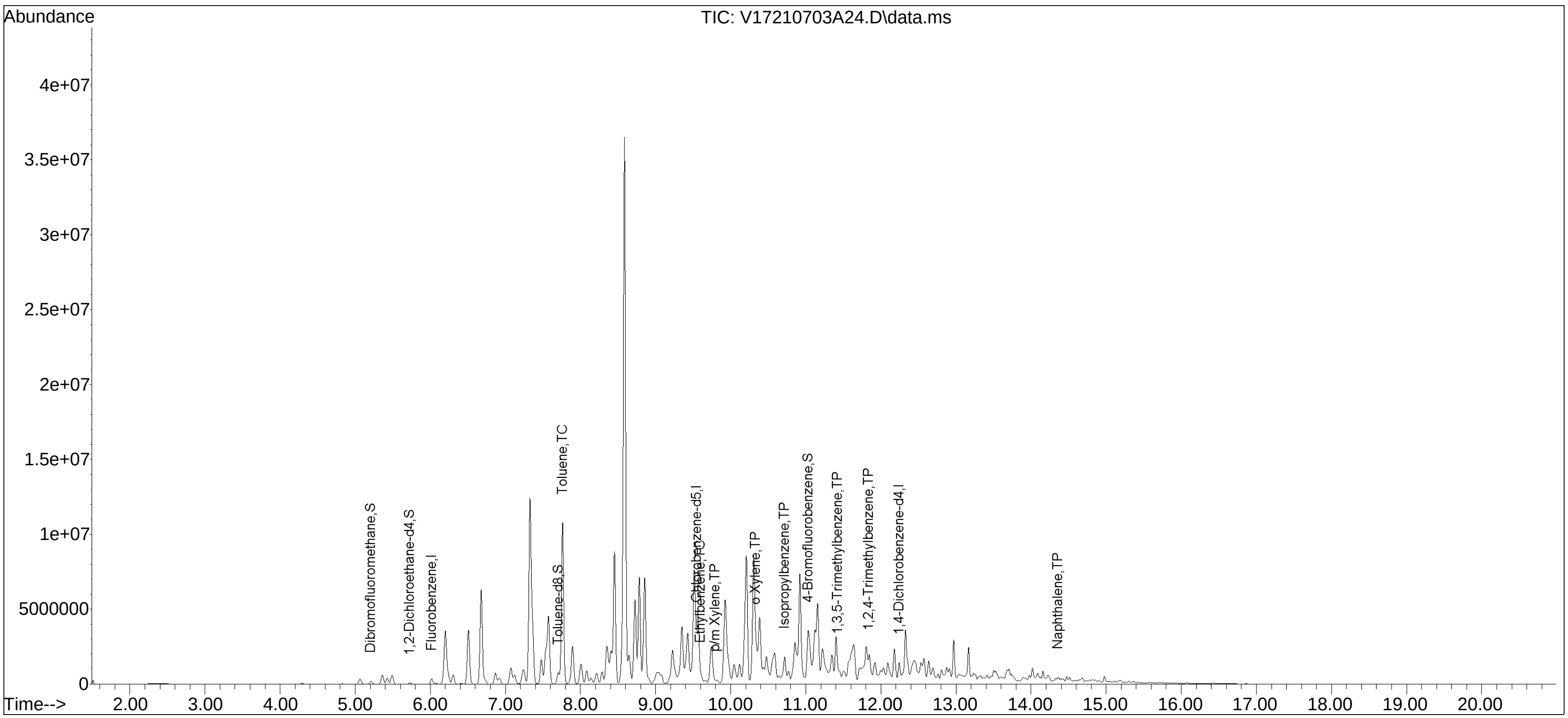


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A24.D
Acq On : 03 Jul 2021 09:42 pm
Operator : VOA117:AJK
Sample : L2134780-11,31H,5.90,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 04 14:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•



ANALYTICAL REPORT

Lab Number:	L2137252
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2137252-01	PB85-01-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:40	07/12/21
L2137252-02	PB85-02-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:50	07/12/21
L2137252-03	PB85-06-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:10	07/12/21
L2137252-04	PB85-07-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:20	07/12/21
L2137252-05	PB85-08-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:40	07/12/21
L2137252-06	PB85-03-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:55	07/12/21
L2137252-07	PB85-04-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:10	07/12/21
L2137252-08	PB85-05-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:20	07/12/21
L2137252-09	PB85-10-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:40	07/12/21
L2137252-10	PB85-16-SS01	SOIL	PHILADELPHIA, PA	07/12/21 11:00	07/12/21
L2137252-11	PB85-13-SS01	SOIL	PHILADELPHIA, PA	07/12/21 12:30	07/12/21
L2137252-12	PB85-14-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:00	07/12/21
L2137252-13	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:50	07/12/21
L2137252-14	FB-210712	WATER	PHILADELPHIA, PA	07/12/21 14:30	07/12/21
L2137252-15	TB	WATER	PHILADELPHIA, PA	07/12/21 00:00	07/12/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt
L2137252-13: The container for Total Solids was received empty; the analysis could not be performed. At the client's request the sample was canceled.
L2137252-14 and -15: Sample containers 504/8011 analysis were received for the samples, but were not listed on the chain of custody. The analysis was not performed.

Volatile Organics
L2137252-03 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (64%) and dibromofluoromethane (66%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2137252-03, -05, -06, and -07: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.
L2137252-04, -09, and -10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2137252-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2137252-05 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (57%) and 4-bromofluorobenzene (576%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol. The results of both analyses are

Case Narrative (continued)

reported.
L2137252-06 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (318%) and the surrogate recoveries for toluene-d8 (48%) and 4-bromofluorobenzene (1880%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.
L2137252-07 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (282%) and the surrogate recovery for toluene-d8 (40%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2137252-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (427%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2137252-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (267%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2137252-11 (Low): The internal standard (IS) response(s) for fluorobenzene (201%), chlorobenzene-d5 (291%) and the surrogate recovery for 4-bromofluorobenzene (394%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2137252-12 (Low): The internal standard (IS) response(s) for fluorobenzene (341%), chlorobenzene-d5

Case Narrative (continued)

(471%) and the surrogate recovery for 1,2-dichloroethane-d4 (184%), toluene-d8 (844%), 4-bromofluorobenzene (1796%) and dibromofluoromethane (135%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2137252-15: The pH of the sample was greater than two; however, the sample was analyzed within the method required holding time.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
Client ID: PB85-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 08:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 09:29
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	0.018		mg/kg	0.00077	0.00026	1
Toluene	ND		mg/kg	0.0015	0.00084	1
Ethylbenzene	0.00061	J	mg/kg	0.0015	0.00022	1
Isopropylbenzene	0.0016		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.00046	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00051	1
Naphthalene	ND		mg/kg	0.0062	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-02
Client ID: PB85-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 08:50
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:38
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00041	0.00014	1
Toluene	ND		mg/kg	0.00082	0.00044	1
Ethylbenzene	ND		mg/kg	0.00082	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00027	1
Naphthalene	ND		mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-03	Date Collected:	07/12/21 09:10
Client ID:	PB85-06-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 18:04
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	2.4	E	mg/kg	0.0011	0.00059	1
Ethylbenzene	0.68	E	mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.067		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.35	E	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.74	E	mg/kg	0.0022	0.00036	1
Naphthalene	0.033		mg/kg	0.0044	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	**64**	Q	70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03 D
Client ID: PB85-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 08:12
Analyst: MV
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	4
Benzene	3.1		mg/kg	0.15	0.050	4
Toluene	34.		mg/kg	0.30	0.16	4
Ethylbenzene	2.6		mg/kg	0.30	0.042	4
Isopropylbenzene	0.12	J	mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	0.32	J	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	1.2		mg/kg	0.60	0.10	4
Naphthalene	ND		mg/kg	1.2	0.19	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-04
Client ID: PB85-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:20
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 20:40
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.014	J	mg/kg	0.035	0.012	1
Toluene	0.080		mg/kg	0.069	0.038	1
Ethylbenzene	ND		mg/kg	0.069	0.0098	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.022	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.14	0.023	1
Naphthalene	0.34		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**211**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-05	Date Collected:	07/12/21 09:40
Client ID:	PB85-08-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 21:06
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.028	J	mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	0.60		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-05	Date Collected:	07/12/21 09:40
Client ID:	PB85-08-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 09:55
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.017		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00034	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1
Naphthalene	0.028		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	**57**	Q	70-130
4-Bromofluorobenzene	**576**	Q	70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-06	Date Collected:	07/12/21 09:55
Client ID:	PB85-03-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/13/21 21:32
Analyst:	JC
Percent Solids:	80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.063	0.034	1
Ethylbenzene	ND		mg/kg	0.063	0.0089	1
Isopropylbenzene	0.59		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	1.6		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-06
Client ID: PB85-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:55
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 11:39
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.00038	J	mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.34		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	0.012		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	**48**	Q	70-130
4-Bromofluorobenzene	**1880**	Q	70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
Client ID: PB85-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 21:58
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.073		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	0.30		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
Client ID: PB85-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 10:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 10:21
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	0.13		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0095		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	**40**	Q	70-130
4-Bromofluorobenzene	**702**	Q	70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-08 Date Collected: 07/12/21 10:20
Client ID: PB85-05-SS01 Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 10:47
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	0.00024	J	mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	0.0024	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
Client ID: PB85-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 10:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 22:24
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.038	J	mg/kg	0.040	0.013	1
Toluene	0.059	J	mg/kg	0.080	0.043	1
Ethylbenzene	ND		mg/kg	0.080	0.011	1
Isopropylbenzene	1.8		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.16	0.027	1
Naphthalene	0.33		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	74		70-130
4-Bromofluorobenzene	**427**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-10
Client ID: PB85-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 11:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 23:16
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	ND		mg/kg	0.066	0.036	1
Ethylbenzene	ND		mg/kg	0.066	0.0094	1
Isopropylbenzene	1.5		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1
Naphthalene	0.38		mg/kg	0.26	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	**267**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11
Client ID: PB85-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 12:30
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 23:42
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.17	0.017	1
Benzene	0.10		mg/kg	0.043	0.014	1
Toluene	ND		mg/kg	0.086	0.047	1
Ethylbenzene	0.14		mg/kg	0.086	0.012	1
Isopropylbenzene	0.21		mg/kg	0.086	0.0094	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.21	J	mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-11	Date Collected:	07/12/21 12:30
Client ID:	PB85-13-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 11:13
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0059		mg/kg	0.0024	0.00024	1
Benzene	0.060		mg/kg	0.00059	0.00020	1
Toluene	0.018		mg/kg	0.0012	0.00064	1
Ethylbenzene	0.12		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.36	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0096		mg/kg	0.0024	0.00039	1
Naphthalene	0.11		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	**394**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12
Client ID: PB85-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 13:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 00:09
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.10	0.010	1
Benzene	0.074		mg/kg	0.026	0.0087	1
Toluene	ND		mg/kg	0.052	0.028	1
Ethylbenzene	0.15		mg/kg	0.052	0.0074	1
Isopropylbenzene	0.71		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1
Naphthalene	0.41		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12 Date Collected: 07/12/21 13:00
Client ID: PB85-14-SS01 Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 12:32
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0044		mg/kg	0.0023	0.00023	1
Benzene	0.062		mg/kg	0.00058	0.00019	1
Toluene	0.018		mg/kg	0.0012	0.00063	1
Ethylbenzene	0.23		mg/kg	0.0012	0.00016	1
Isopropylbenzene	0.84	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0056		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.023		mg/kg	0.0023	0.00039	1
Naphthalene	0.024		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**184**	Q	70-130
Toluene-d8	**844**	Q	70-130
4-Bromofluorobenzene	**1800**	Q	70-130
Dibromofluoromethane	**135**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-14
Client ID: FB-210712
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 14:30
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/21 12:35
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-15	Date Collected:	07/12/21 00:00
Client ID:	TB	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	07/16/21 11:09
Analyst:	TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:12
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1523623-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:12
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-07,09-12 Batch: WG1523625-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1524092-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-08,11-12 Batch: WG1524093-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2137252
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/15/21 09:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14 Batch: WG1524413-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/16/21 10:43
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1524763-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1523623-3 WG1523623-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	103		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-07,09-12 Batch: WG1523625-3 WG1523625-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	102		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1524092-3 WG1524092-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-08,11-12 Batch: WG1524093-3 WG1524093-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14 Batch: WG1524413-3 WG1524413-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	100		100		70-130	0		20
Toluene	99		100		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	96		99		64-130	3		20
1,2,4-Trimethylbenzene	97		99		70-130	2		20
Naphthalene	78		83		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		110		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1524763-3 WG1524763-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	94		94		70-130	0		20
Toluene	96		93		70-130	3		20
Ethylbenzene	94		91		70-130	3		20
Isopropylbenzene	93		92		70-130	1		20
1,3,5-Trimethylbenzene	92		90		64-130	2		20
1,2,4-Trimethylbenzene	92		89		70-130	3		20
Naphthalene	83		83		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		108		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	109		114		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
Client ID: PB85-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 08:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-02	Date Collected:	07/12/21 08:50
Client ID:	PB85-02-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03
Date Collected: 07/12/21 09:10
Client ID: PB85-06-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-04
Client ID: PB85-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:20
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.7		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
Date Collected: 07/12/21 09:40
Client ID: PB85-08-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-06	Date Collected:	07/12/21 09:55
Client ID:	PB85-03-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
Client ID: PB85-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 10:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-08	Date Collected:	07/12/21 10:20
Client ID:	PB85-05-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
Date Collected: 07/12/21 10:40
Client ID: PB85-10-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-10	Date Collected:	07/12/21 11:00
Client ID:	PB85-16-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11 | Date Collected: 07/12/21 12:30
Client ID: PB85-13-SS01 | Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12
Client ID: PB85-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 13:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523177-1 QC Sample: L2137330-04 Client ID: DUP Sample						
Solids, Total	80.6	83.0	%	3		20
General Chemistry - Westborough Lab Associated sample(s): 09-12 QC Batch ID: WG1523195-1 QC Sample: L2137210-01 Client ID: DUP Sample						
Solids, Total	88.1	88.4	%	0		20

Serial_No:07192111:12

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-01A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-01B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-02A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-02B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-03A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-03B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-04A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-04B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-05A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-05B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-06A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-06B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-06C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-06D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-07A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-07B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-08A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-08B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-09A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-09B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-10A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-10B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-11A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-11B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-12A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-12B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-13A	Vial MeOH preserved	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2137252-13B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-13C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)
L2137252-13D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		ARCHIVE()
L2137252-14A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14C	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-14E	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-15A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15C	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)
L2137252-15D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)

Container Comments

L2137252-13D Container received empty

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/13/21

ALPHA Job #: L2137252

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration ☐ Done ☒ Not Needed ☐ Lab to do
Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
37252-01	PB85-01-SS01	7/12	0840	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
02	PB85-02-SS01	↓	0850	↓	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
03	PB85-06-SS01		0910		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
04	PB85-07-SS01		0920		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
05	PB85-08-SS01		0940		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
06	PB85-03-SS01		0955		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
07	PB85-04-SS01		1010		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
08	PB85-05-SS01		1020		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
09	PB85-10-SS01		1040		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
10	PB85-16-SS01	↓	1100	↓	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/12	[signature]	7/12/1400
[signature]	7/12/21 15:43	[signature] AAL	7/12/21 22:00
[signature]	7/12 2030		
[signature] AAL 7/13/21 02:30		Mohammed	7/13/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 7/13/21

ALPHA Job #: L2137252

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
37252-11	PB85-13-SS01	7/12	1230	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
12	PB85-14-SS01		1300	S		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
13	DB85-12-SS01		1350	S		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
14	FB-210712		1430	W		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
15	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/12 / 18:00	[signature]	7/12 18:00
[signature] AAL	7/12 2230	[signature] AAL	7/12/21 22:00
[signature] AAL	7/13/21 02:30	Moh [signature]	7/13/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

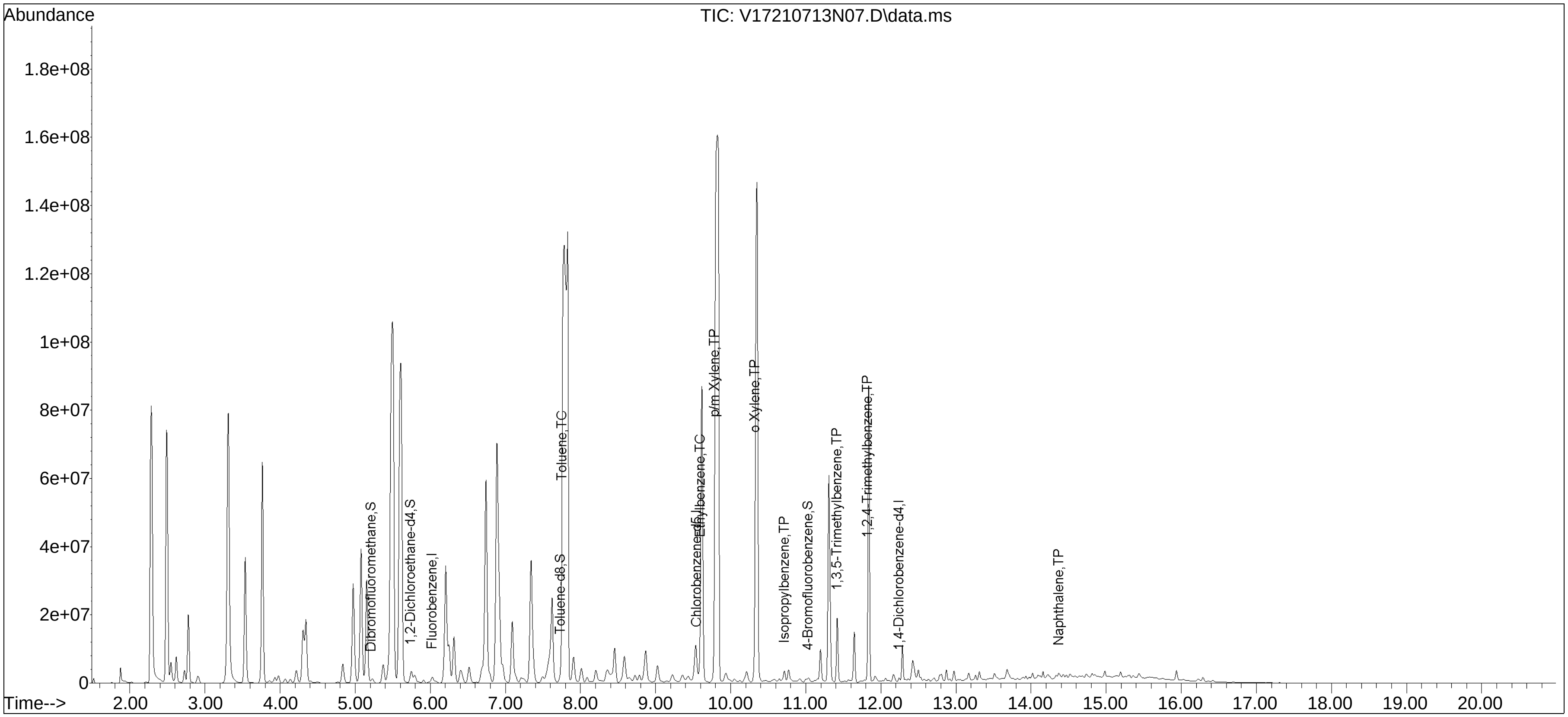
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N07.D
Acq On : 13 Jul 2021 06:04 pm
Operator : VOA117:JC
Sample : L2137252-03,31,6.13,5,,B
Misc : WG1523623,ICAL18099
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 14 07:08:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•



Quantitation Report (QT Reviewed)

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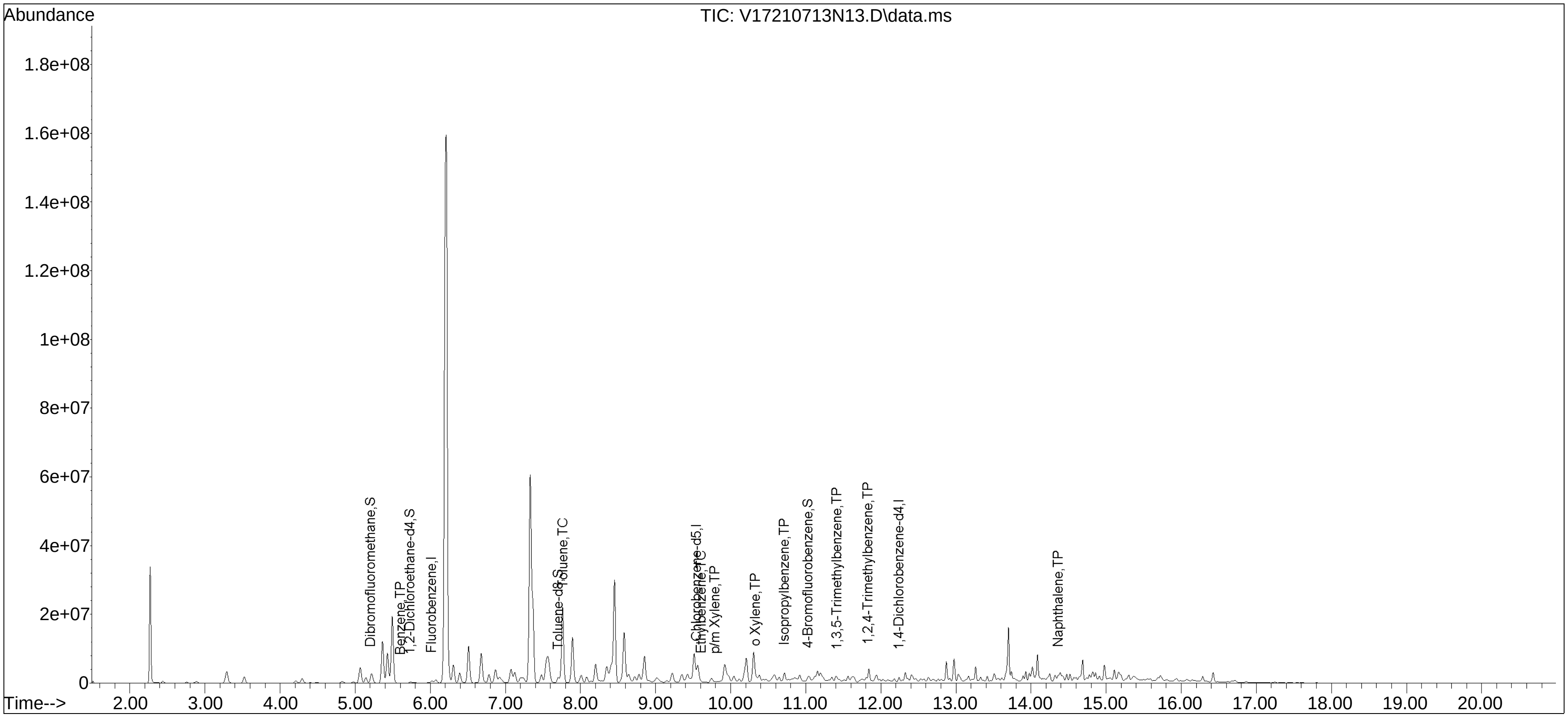
Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N13.D
Acq On    : 13 Jul 2021  08:40 pm
Operator  : VOA117:JC
Sample    : L2137252-04,31H,6.37,5,0.100,,A
Misc      : WG1523625,ICAL18099
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jul 14 07:12:48 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•
```



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A11.D
Acq On    : 14 Jul 2021  09:55 am
Operator  : VOA117:MV
Sample    : L2137252-05,31,5.47,5,,B
Misc      : WG1524093,ICAL18099
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Jul 15 09:33:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
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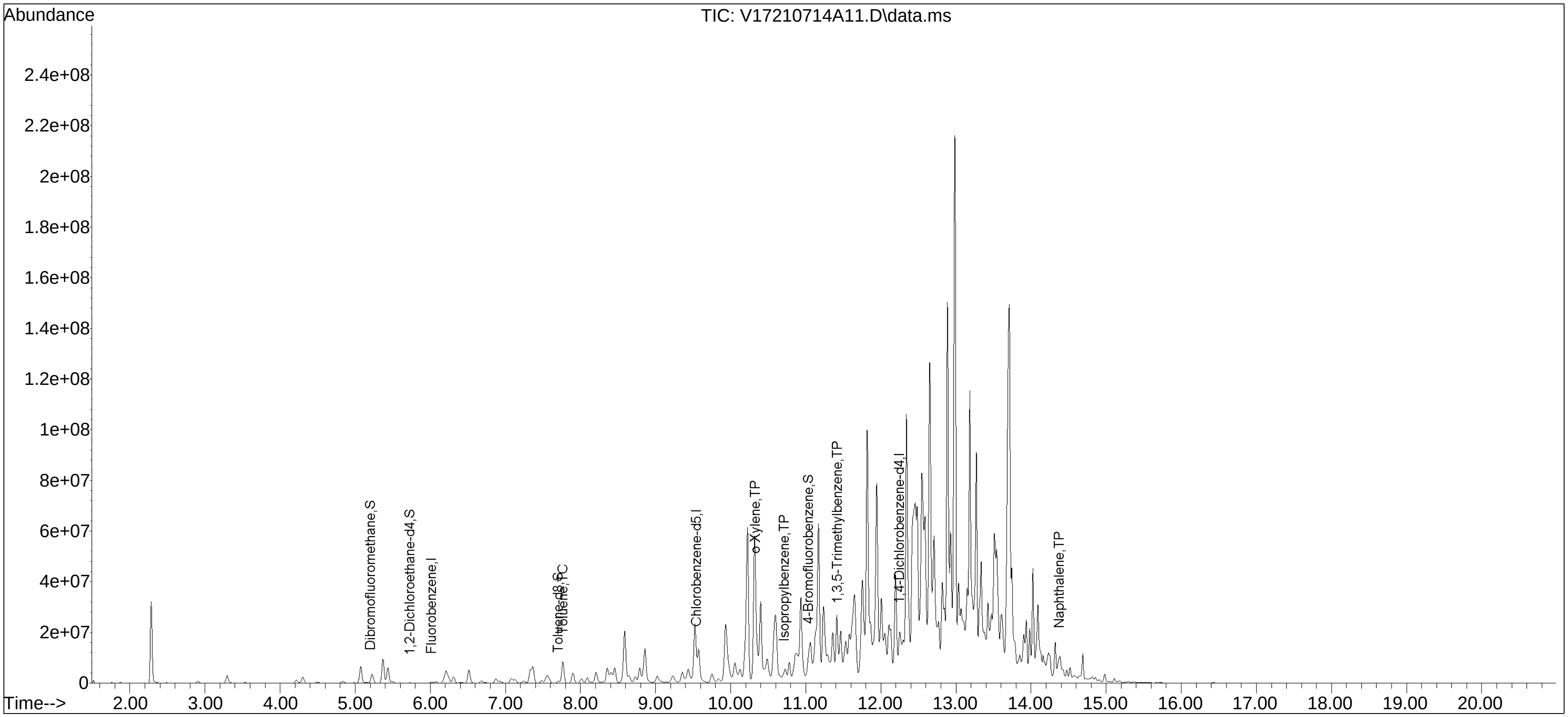

Quantitation Report (QT Reviewed)

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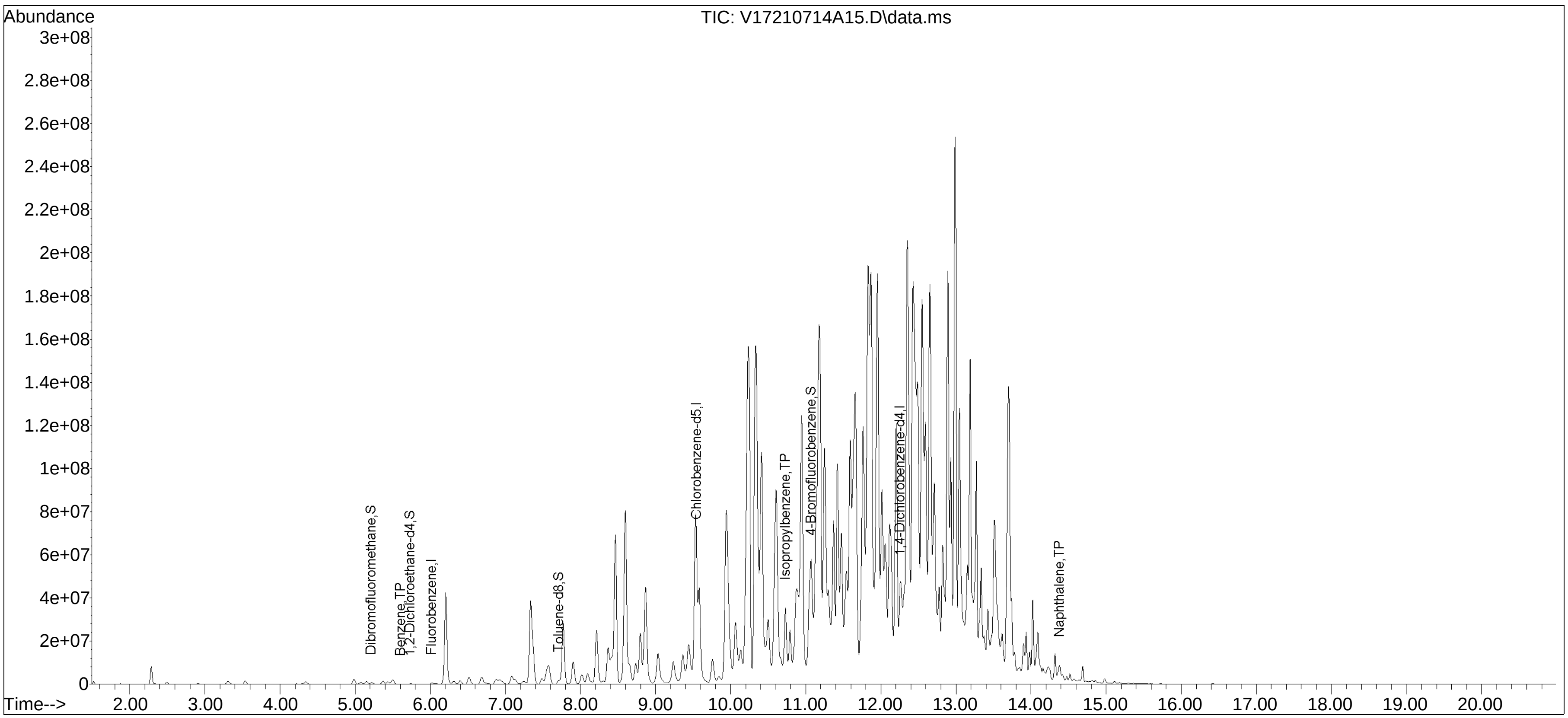
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A15.D
Acq On    : 14 Jul 2021  11:39 am
Operator  : VOA117:KJD
Sample    : L2137252-06,31,5.46,5,,C
Misc      : WG1524093,ICAL18099
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Jul 14 20:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```

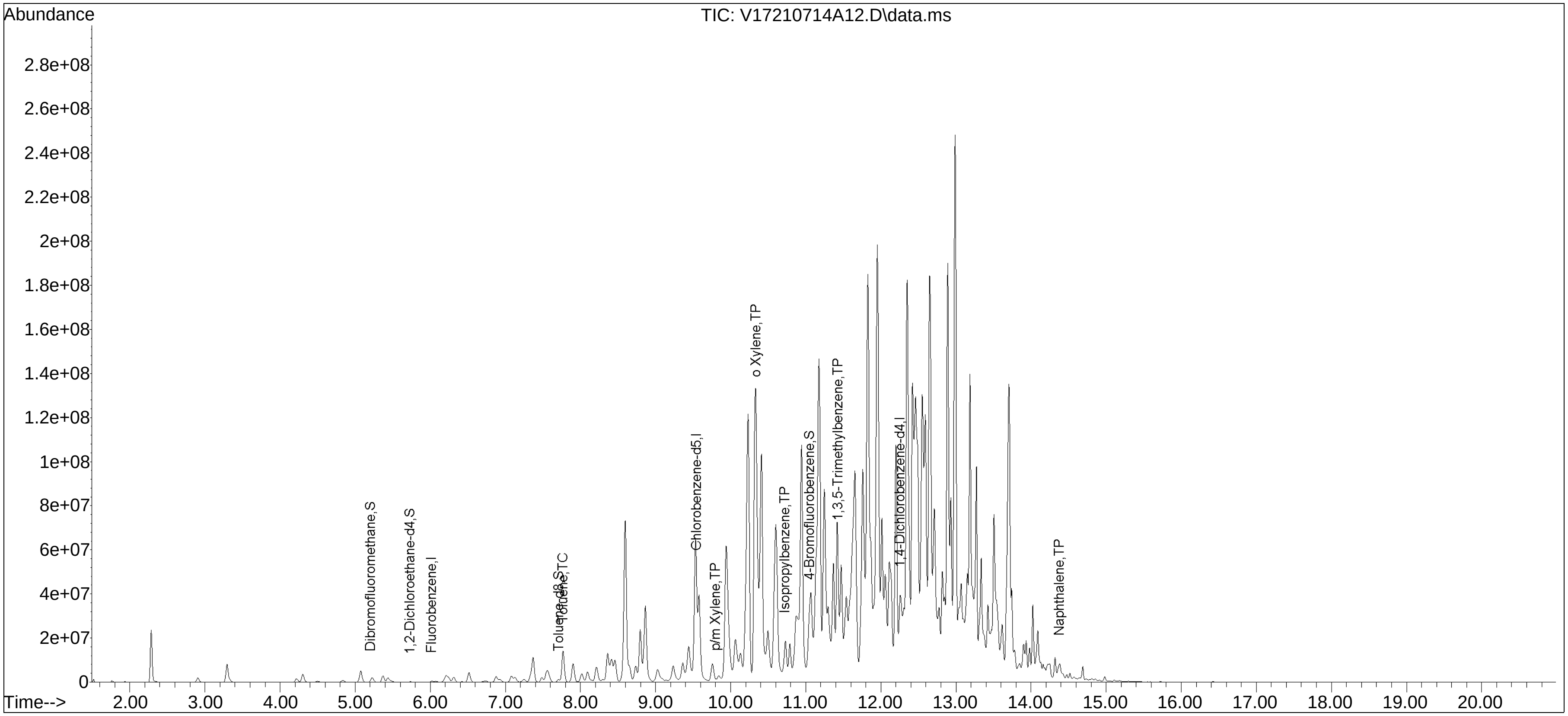


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A12.D
Acq On    : 14 Jul 2021  10:21 am
Operator  : VOA117:MV
Sample    : L2137252-07,31,6.58,5,,C
Misc      : WG1524093,ICAL18099
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Jul 15 10:04:32 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```

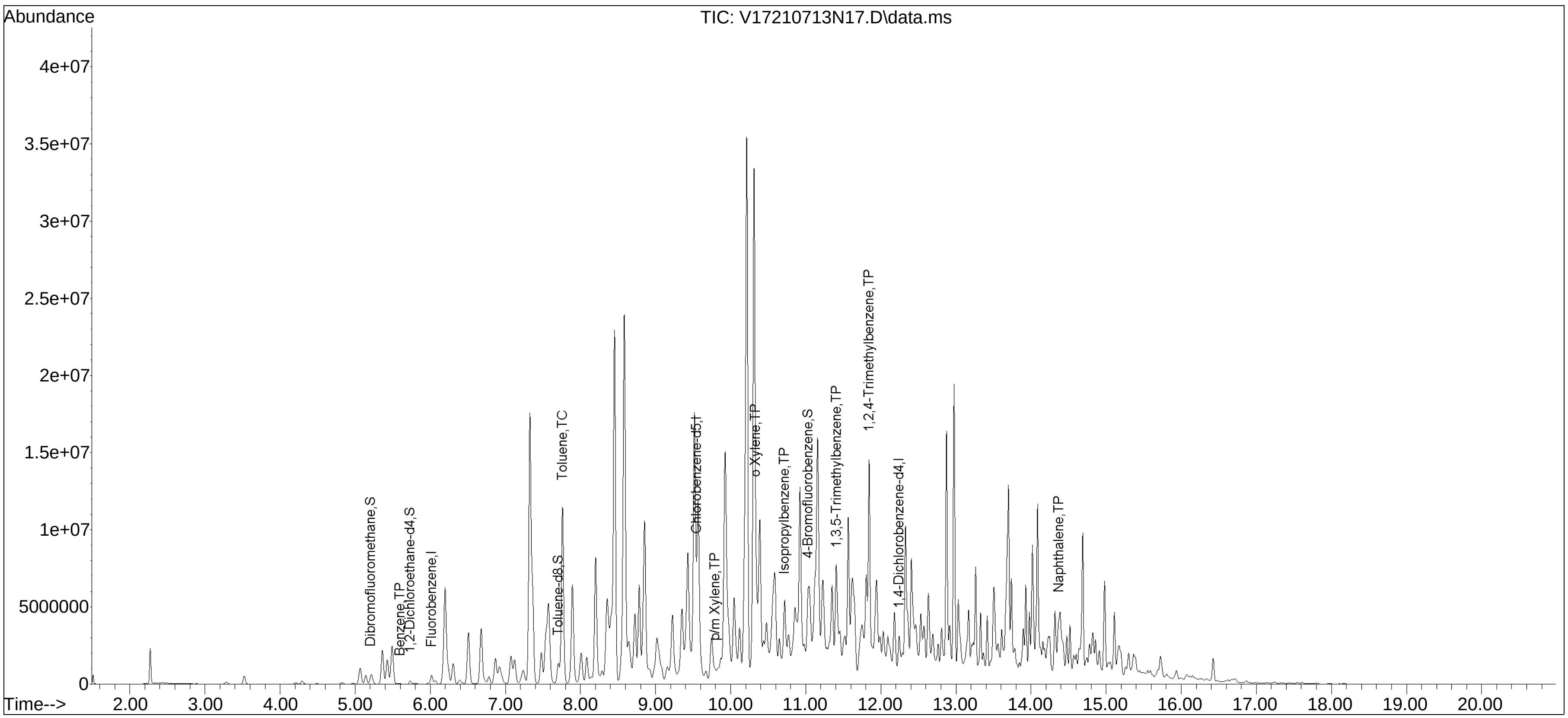


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N17.D
Acq On    : 13 Jul 2021  10:24 pm
Operator  : VOA117:JC
Sample    : L2137252-09,31H,5.47,5,0.100,,A
Misc      : WG1523625,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jul 14 07:15:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•
```

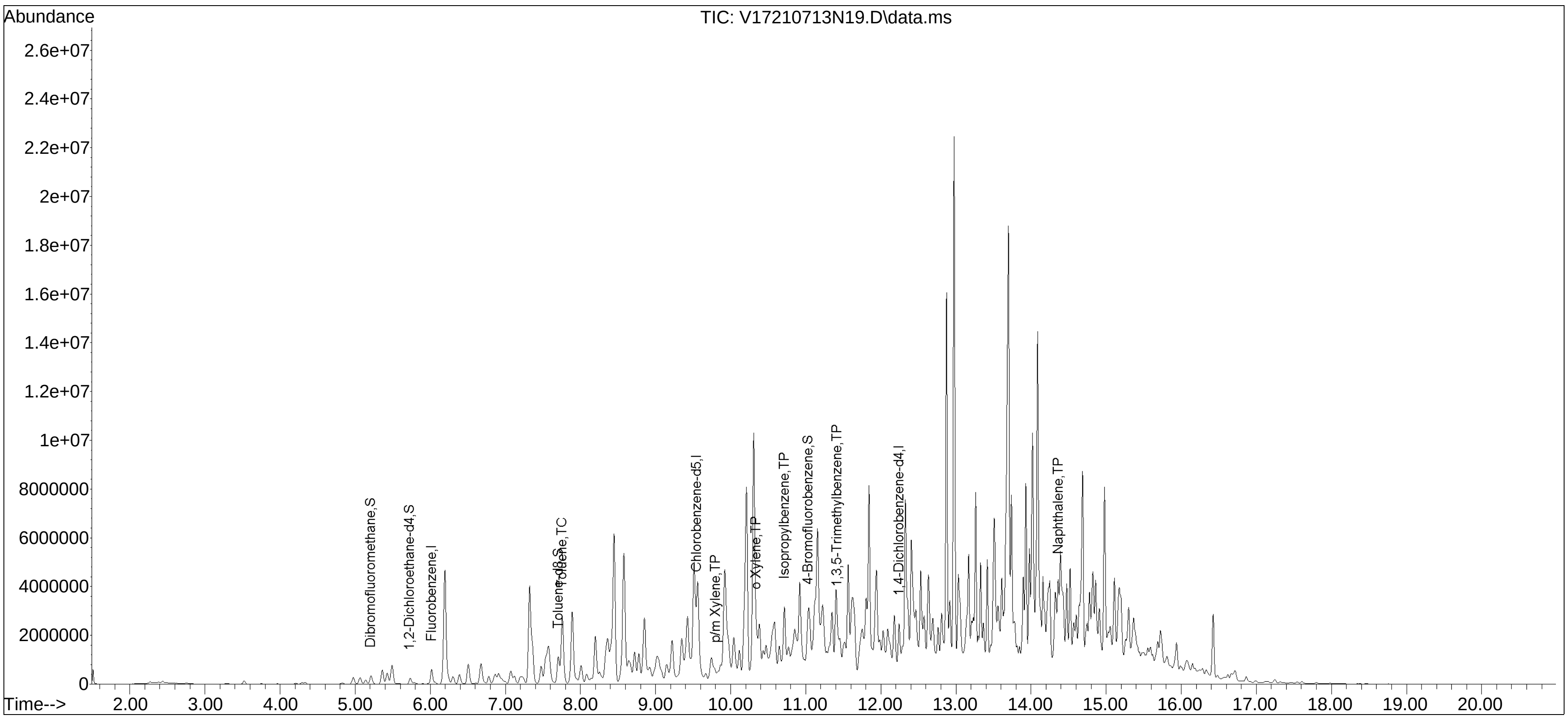


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N19.D
Acq On : 13 Jul 2021 11:16 pm
Operator : VOA117:JC
Sample : L2137252-10,31H,5.36,5,0.100,,A
Misc : WG1523625,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 14 07:16:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

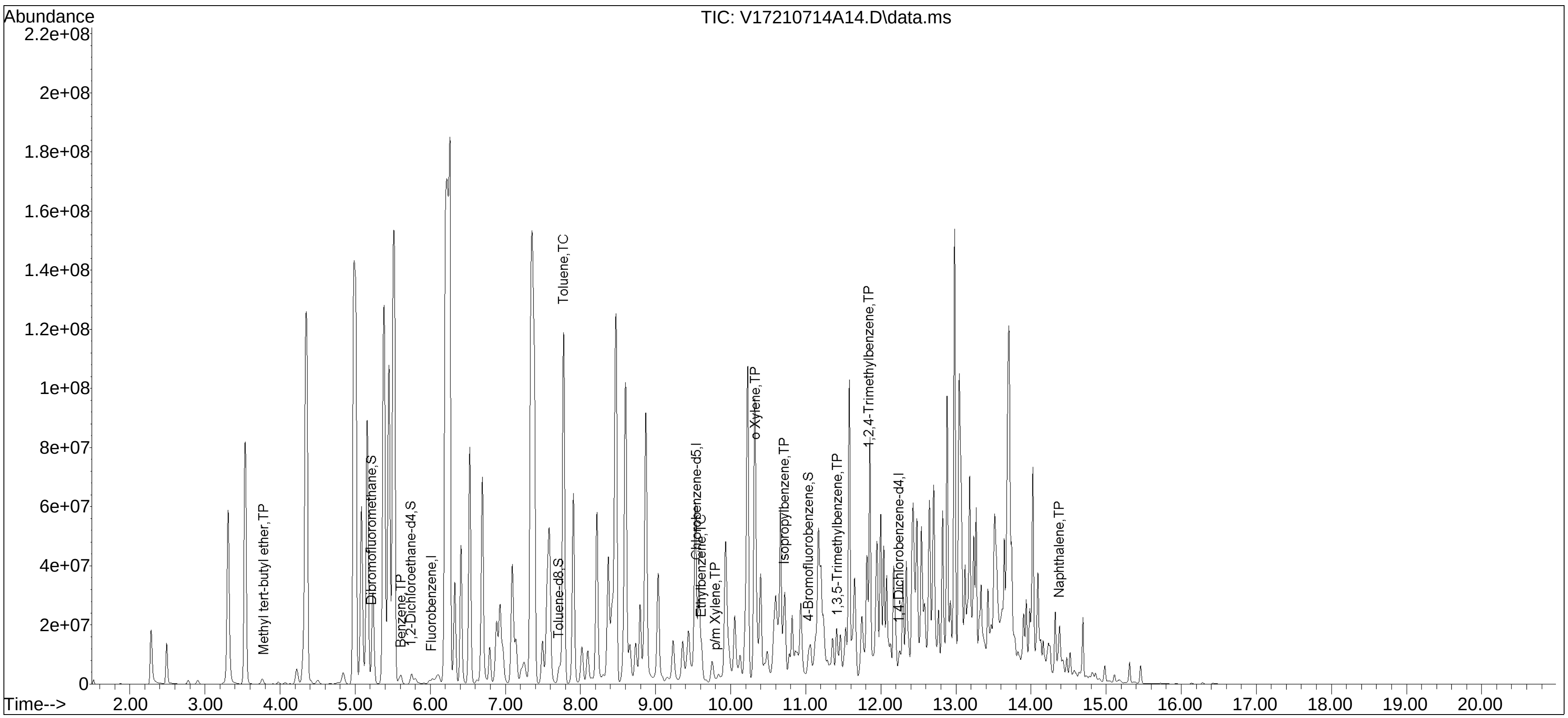


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A14.D
Acq On : 14 Jul 2021 11:13 am
Operator : VOA117:KJD
Sample : L2137252-11,31,5.30,5,,B
Misc : WG1524093,ICAL18099
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 14 20:29:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

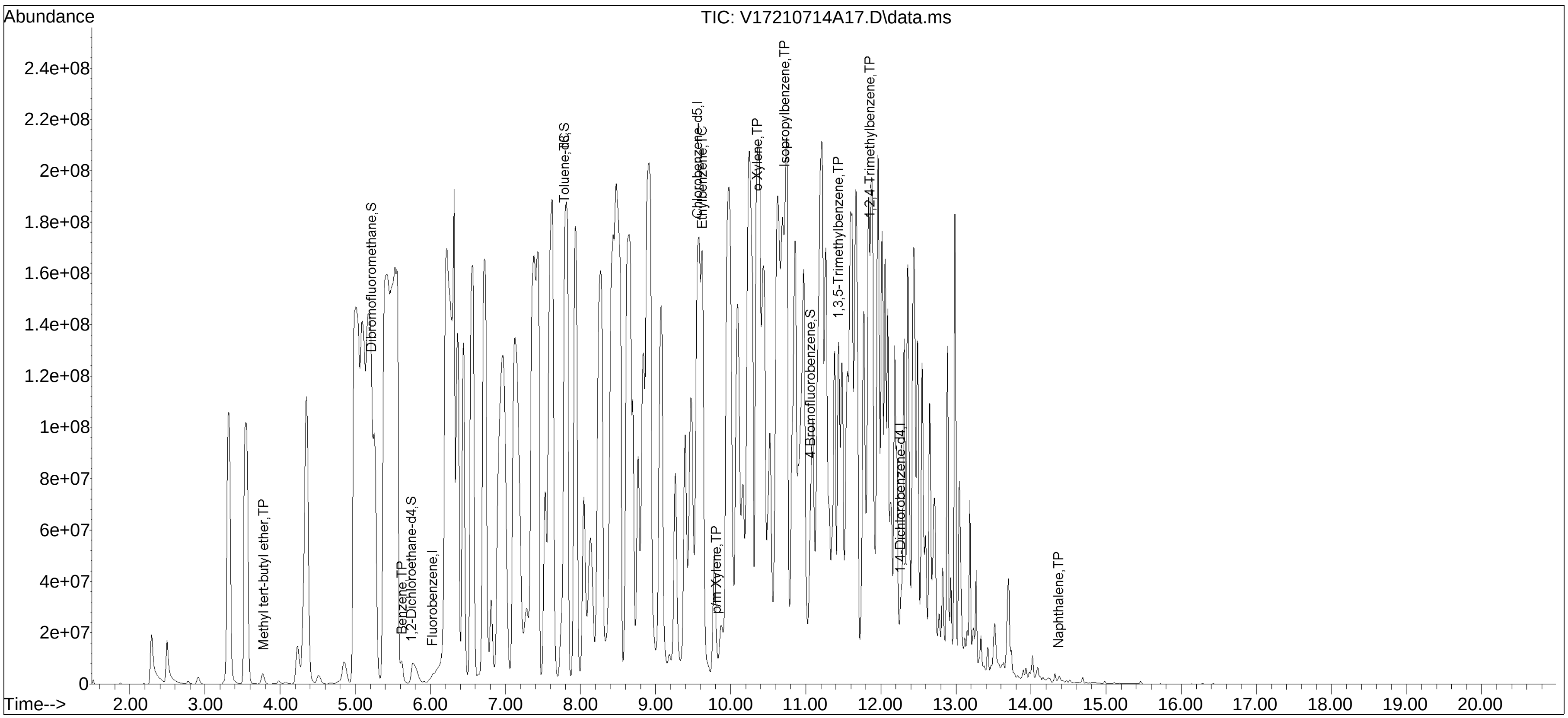


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A17.D
Acq On    : 14 Jul 2021  12:32 pm
Operator  : VOA117:KJD
Sample    : L2137252-12,31,5.07,5,,B
Misc      : WG1524093,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jul 14 20:41:17 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2138177
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/10/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-01	PB121-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:35	07/15/21
L2138177-02	PB121-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:45	07/15/21
L2138177-03	PB121-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:55	07/15/21
L2138177-04	PB121-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:05	07/15/21
L2138177-05	PB121-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:10	07/15/21
L2138177-06	PB121-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:20	07/15/21
L2138177-07	PB121-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:35	07/15/21
L2138177-08	PB121-14-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:45	07/15/21
L2138177-09	PB121-15-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:55	07/15/21
L2138177-10	PB121-16-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:10	07/15/21
L2138177-11	PB39-01-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:55	07/15/21
L2138177-12	PB39-02-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:05	07/15/21
L2138177-13	PB39-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:20	07/15/21
L2138177-14	PB39-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:30	07/15/21
L2138177-15	PB39-05-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:35	07/15/21
L2138177-16	PB39-06-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:45	07/15/21
L2138177-17	PB39-07-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:55	07/15/21
L2138177-18	PB85-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 12:05	07/15/21
L2138177-19	PB39-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:15	07/15/21
L2138177-20	PB39-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:25	07/15/21
L2138177-21	PB39-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:35	07/15/21
L2138177-22	PB39-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:40	07/15/21
L2138177-23	PB39-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:45	07/15/21
L2138177-24	PB39-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 14:00	07/15/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-25	FB-210715-1	WATER	PHILADELPHIA, PA	07/15/21 12:00	07/15/21
L2138177-26	FB-210715-2	WATER	PHILADELPHIA, PA	07/15/21 14:30	07/15/21
L2138177-27	TB-210715	WATER	PHILADELPHIA, PA	07/15/21 00:00	07/15/21
L2138177-28	DUP-13	SOIL	PHILADELPHIA, PA	07/15/21 00:00	07/15/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission
August 10, 2021: This final report includes the results of all requested analyses.
July 22, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt
L2138177-27: Headspace was noted in the Trip Blank containers submitted for Volatile Organics. A sample container submitted for Microextractables was utilized for the Volatile Organics analysis.

Volatile Organics
L2138177-07: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (386%) on the Low Level analysis; however, re-analysis was not performed due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.
L2138177-08: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2138177-09, -16, -18, -19, and -20: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
Surrogate recoveries for the following samples are outside the acceptance criteria; however, the samples were

Case Narrative (continued)

not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2138177-09: 4-bromofluorobenzene (139%)
L2138177-15: 4-bromofluorobenzene (135%)
L2138177-16: 4-bromofluorobenzene (156%)
L2138177-18: toluene-d8 (144%) and 4-bromofluorobenzene (544%)
L2138177-19: 4-bromofluorobenzene (140%)
L2138177-20: 4-bromofluorobenzene (195%)
L2138177-28: 4-bromofluorobenzene (140%)

L2138177-10: The internal standard (IS) response for fluorobenzene (48%) and the surrogate recovery for 4-bromofluorobenzene (725%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. A high-level analysis was performed, and those results are also reported.

L2138177-24: The internal standard (IS) response for fluorobenzene (215%) and the surrogate recoveries for dibromofluoromethane (46%) and 4-bromofluorobenzene (152%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 08/10/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-01	Date Collected:	07/15/21 08:35
Client ID:	PB121-03-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 13:30
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00049		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.0013		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00042	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Client ID: PB121-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 08:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 13:55
Analyst: AJK
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00078		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-03	Date Collected:	07/15/21 08:55
Client ID:	PB121-08-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 14:20
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	6.3		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	ND		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.011	J	mg/kg	0.058	0.0082	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.058	0.017	1
Xylenes, Total	ND		mg/kg	0.058	0.017	1
Isopropylbenzene	ND		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-04	Date Collected:	07/15/21 09:05
Client ID:	PB121-09-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:36
Analyst: MV
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	7.4		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	1.4		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.043	J	mg/kg	0.055	0.0078	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.026	J	mg/kg	0.055	0.016	1
Xylenes, Total	0.13	J	mg/kg	0.055	0.016	1
Isopropylbenzene	ND		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.021	J	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-05	Date Collected:	07/15/21 09:10
Client ID:	PB121-10-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:10
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.026		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00094	0.00027	1
Xylenes, Total	ND		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.012		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-06 D2	Date Collected:	07/15/21 09:20
Client ID:	PB121-12-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 08:41
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	320		mg/kg	1.4	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06 D
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:35
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.44	0.045	4
Benzene	260	E	mg/kg	0.11	0.037	4
1,2-Dichloroethane	ND		mg/kg	0.22	0.057	4
Toluene	0.77		mg/kg	0.22	0.12	4
1,2-Dibromoethane	ND		mg/kg	0.11	0.065	4
Ethylbenzene	3.2		mg/kg	0.22	0.031	4
p/m-Xylene	4.5		mg/kg	0.44	0.12	4
o-Xylene	1.2		mg/kg	0.22	0.065	4
Xylenes, Total	5.7		mg/kg	0.22	0.065	4
Isopropylbenzene	1.0		mg/kg	0.22	0.024	4
1,3,5-Trimethylbenzene	0.79		mg/kg	0.44	0.043	4
1,2,4-Trimethylbenzene	1.3		mg/kg	0.44	0.074	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
Client ID: PB121-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:01
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.021	J	mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	ND		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	ND		mg/kg	0.057	0.0081	1
p/m-Xylene	ND		mg/kg	0.11	0.032	1
o-Xylene	ND		mg/kg	0.057	0.017	1
Xylenes, Total	ND		mg/kg	0.057	0.017	1
Isopropylbenzene	0.46		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-07	Date Collected:	07/15/21 09:35
Client ID:	PB121-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 12:01
Analyst: KJD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.013		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	0.00048	J	mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	0.00026	J	mg/kg	0.00086	0.00025	1
Xylenes, Total	0.00026	J	mg/kg	0.00086	0.00025	1
Isopropylbenzene	0.11		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**386**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 16:25
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0043		mg/kg	0.0018	0.00019	1
Benzene	1.5	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.22		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.0031		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.0045		mg/kg	0.0018	0.00052	1
o-Xylene	0.0028		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.0073		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00067	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00074	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-08	Date Collected:	07/15/21 09:45
Client ID:	PB121-14-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:06
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	3.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.28		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.061	0.018	1
Xylenes, Total	ND		mg/kg	0.061	0.018	1
Isopropylbenzene	ND		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-09	Date Collected:	07/15/21 09:55
Client ID:	PB121-15-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:26
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.18		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 10:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 17:16
Analyst: AJK
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.010	J	mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.014	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.052	0.0074	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	ND		mg/kg	0.052	0.015	1
Isopropylbenzene	0.013	J	mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:31
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00020	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.057		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	86		70-130
4-Bromofluorobenzene	**725**	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
Client ID: PB39-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 17:41
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	0.0012		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0028	0.00077	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.00022	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1
Naphthalene	ND		mg/kg	0.0055	0.00090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-12	Date Collected:	07/15/21 11:05
Client ID:	PB39-02-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 18:06
Analyst: AJK
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.00039	J	mg/kg	0.00099	0.00014	1
p/m-Xylene	0.0025		mg/kg	0.0020	0.00055	1
o-Xylene	0.00069	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.0032	J	mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.011		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	0.00038	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0030		mg/kg	0.0020	0.00033	1
Naphthalene	0.0067		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-13	Date Collected:	07/15/21 11:20
Client ID:	PB39-03-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 18:31
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00033	1
Benzene	ND		mg/kg	0.00082	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00089	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00092	1
o-Xylene	ND		mg/kg	0.0016	0.00048	1
Xylenes, Total	ND		mg/kg	0.0016	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00055	1
Naphthalene	ND		mg/kg	0.0066	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-14	Date Collected:	07/15/21 11:30
Client ID:	PB39-04-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:51
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.11	0.011	1
Benzene	0.65		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.16		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	5.3		mg/kg	0.056	0.0079	1
p/m-Xylene	19.		mg/kg	0.11	0.031	1
o-Xylene	0.38		mg/kg	0.056	0.016	1
Xylenes, Total	19.		mg/kg	0.056	0.016	1
Isopropylbenzene	0.33		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.11	0.019	1
Naphthalene	5.4		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
Client ID: PB39-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 11:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:56
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0037		mg/kg	0.0034	0.00034	1
Benzene	0.015		mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0077		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00049	1
Ethylbenzene	0.0051		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.016		mg/kg	0.0034	0.00094	1
o-Xylene	0.0036		mg/kg	0.0017	0.00049	1
Xylenes, Total	0.020		mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.070		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0024	J	mg/kg	0.0034	0.00032	1
1,2,4-Trimethylbenzene	0.0041		mg/kg	0.0034	0.00056	1
Naphthalene	0.0011	J	mg/kg	0.0068	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**135**	Q	70-130
Dibromofluoromethane	82		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-16	Date Collected:	07/15/21 11:45
Client ID:	PB39-06-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 19:46
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	0.92		mg/kg	0.050	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.099	0.025	1
Toluene	0.37		mg/kg	0.099	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.050	0.029	1
Ethylbenzene	0.26		mg/kg	0.099	0.014	1
p/m-Xylene	1.1		mg/kg	0.20	0.056	1
o-Xylene	0.20		mg/kg	0.099	0.029	1
Xylenes, Total	1.3		mg/kg	0.099	0.029	1
Isopropylbenzene	0.72		mg/kg	0.099	0.011	1
1,3,5-Trimethylbenzene	0.10	J	mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	0.34		mg/kg	0.20	0.033	1
Naphthalene	0.26	J	mg/kg	0.40	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-17	Date Collected:	07/15/21 11:55
Client ID:	PB39-07-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 20:11
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0047		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-18
Client ID: PB85-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 12:51
Analyst: KJD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.027	0.0090	1
Toluene	0.083		mg/kg	0.054	0.029	1
Ethylbenzene	0.026	J	mg/kg	0.054	0.0076	1
Isopropylbenzene	8.6		mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.018	1
Naphthalene	0.12	J	mg/kg	0.22	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	**144**	Q	70-130
4-Bromofluorobenzene	**544**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-19
Client ID: PB39-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:15
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 13:16
Analyst: KJD
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.12	0.012	1
Benzene	0.72		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.20		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	1.2		mg/kg	0.060	0.0085	1
p/m-Xylene	0.43		mg/kg	0.12	0.034	1
o-Xylene	0.12		mg/kg	0.060	0.018	1
Xylenes, Total	0.55		mg/kg	0.060	0.018	1
Isopropylbenzene	16.		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	1.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.1		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20
Client ID: PB39-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:25
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 13:41
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	1.4		mg/kg	0.061	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	0.68		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	1
Ethylbenzene	0.33		mg/kg	0.12	0.017	1
p/m-Xylene	1.2		mg/kg	0.24	0.068	1
o-Xylene	0.22		mg/kg	0.12	0.035	1
Xylenes, Total	1.4		mg/kg	0.12	0.035	1
Isopropylbenzene	7.6		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.14	J	mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.50		mg/kg	0.24	0.040	1
Naphthalene	0.97		mg/kg	0.49	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**195**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
Client ID: PB39-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 10:21
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0019	J	mg/kg	0.0025	0.00026	1
Benzene	0.00028	J	mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-22
Client ID: PB39-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:40
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 10:46
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00081	J	mg/kg	0.0029	0.00029	1
Benzene	0.0020		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.0010	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0010	J	mg/kg	0.0029	0.00082	1
o-Xylene	0.0010	J	mg/kg	0.0015	0.00042	1
Xylenes, Total	0.0020	J	mg/kg	0.0015	0.00042	1
Isopropylbenzene	0.0011	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00049	1
Naphthalene	0.016		mg/kg	0.0058	0.00095	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-23 D2	Date Collected:	07/15/21 13:45
Client ID:	PB39-12-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 14:31
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	350		mg/kg	3.1	1.7	50
p/m-Xylene	670		mg/kg	6.3	1.8	50
Xylenes, Total	920		mg/kg	1.6	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23 D
Client ID: PB39-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:41
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	3.1	0.31	25
Benzene	73.		mg/kg	0.78	0.26	25
1,2-Dichloroethane	ND		mg/kg	1.6	0.40	25
Toluene	470	E	mg/kg	1.6	0.85	25
1,2-Dibromoethane	ND		mg/kg	0.78	0.46	25
Ethylbenzene	180		mg/kg	1.6	0.22	25
p/m-Xylene	1000	E	mg/kg	3.1	0.88	25
o-Xylene	250		mg/kg	1.6	0.46	25
Isopropylbenzene	11.		mg/kg	1.6	0.17	25
1,3,5-Trimethylbenzene	98.		mg/kg	3.1	0.30	25
1,2,4-Trimethylbenzene	390		mg/kg	3.1	0.52	25
Naphthalene	40.		mg/kg	6.3	1.0	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-24	Date Collected:	07/15/21 14:00
Client ID:	PB39-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 16:07
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0035		mg/kg	0.0023	0.00023	1
Benzene	0.069		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00030	1
Toluene	0.034		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00034	1
Ethylbenzene	0.026		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.067		mg/kg	0.0023	0.00064	1
o-Xylene	0.012		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.079		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.55	E	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0073		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.020		mg/kg	0.0023	0.00038	1
Naphthalene	0.041		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	**152**	Q	70-130
Dibromofluoromethane	**46**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
Client ID: PB39-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 14:06
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.16		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.046	J	mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.018	1
Ethylbenzene	0.12		mg/kg	0.063	0.0089	1
p/m-Xylene	0.14		mg/kg	0.13	0.035	1
o-Xylene	0.030	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.17	J	mg/kg	0.063	0.018	1
Isopropylbenzene	0.60		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.087	J	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
Client ID: FB-210715-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/19/21 13:39
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-25	Date Collected:	07/15/21 12:00
Client ID:	FB-210715-1	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 18:13
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-26	Date Collected:	07/15/21 14:30
Client ID:	FB-210715-2	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	07/19/21 09:50
Analytical Date:	07/19/21 13:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
Client ID: FB-210715-2
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 18:40
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-27
Client ID: TB-210715
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/19/21 13:52
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-27	Date Collected:	07/15/21 00:00
Client ID:	TB-210715	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 19:06
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-28	Date Collected:	07/15/21 00:00
Client ID:	DUP-13	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/21/21 11:11
Analyst:	JC
Percent Solids:	85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00084	0.00022	1
Toluene	ND		mg/kg	0.00084	0.00046	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00025	1
Ethylbenzene	ND		mg/kg	0.00084	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00047	1
o-Xylene	ND		mg/kg	0.00084	0.00024	1
Xylenes, Total	ND		mg/kg	0.00084	0.00024	1
Isopropylbenzene	0.0056		mg/kg	0.00084	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8011	Extraction Method:	EPA 8011
Analytical Date:	07/19/21 11:35	Extraction Date:	07/19/21 09:50
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-27 Batch: WG1525272-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/18/21 14:49
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-27 Batch: WG1525570-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06,10,16 Batch: WG1525959-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1526039-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 24 Batch: WG1526040-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10,15,21-22,28 Batch: WG1526316-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-27 Batch: WG1525272-2									
1,2-Dibromoethane	105		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138177

Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-27 Batch: WG1525570-3 WG1525570-4								
Methyl tert butyl ether	92		93		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		99		70-130	1		20
1,2-Dibromoethane	87		86		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	95		90		64-130	5		20
1,2,4-Trimethylbenzene	96		94		70-130	2		20
Naphthalene	91		91		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	99		97		70-130
Dibromofluoromethane	107		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06,10,16 Batch: WG1525959-3 WG1525959-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-8 WG1525959-9								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-3 WG1525962-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1526039-3 WG1526039-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 24 Batch: WG1526040-3 WG1526040-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10,15,21-22,28 Batch: WG1526316-3 WG1526316-4								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Client ID: PB121-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 15:51
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	120	32.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	150	23.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	120	23.	1
Pyrene	ND		ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Client ID: PB121-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 08:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 12:00
Analyst: CMM
Percent Solids: 93%
Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	40		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-03	Date Collected:	07/15/21 08:55
Client ID:	PB121-08-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 12:24		
Analyst:	CMM		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	83	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	43	J	ug/kg	120	33.	1
Chrysene	120		ug/kg	120	21.	1
Anthracene	60	J	ug/kg	120	39.	1
Benzo(ghi)perylene	28	J	ug/kg	160	23.	1
Fluorene	90	J	ug/kg	200	19.	1
Phenanthrene	110	J	ug/kg	120	24.	1
Pyrene	120		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
Client ID: PB121-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 12:49
Analyst: CMM
Percent Solids: 87%
Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	46		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-05	Date Collected:	07/15/21 09:10
Client ID:	PB121-10-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 16:15		
Analyst:	CMM		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	41		30-120
4-Terphenyl-d14	33		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 16:38
Analyst: CMM
Percent Solids: 86%
Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	38	J	ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	46		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
Client ID: PB121-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 13:29
Analyst: CMM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	240		ug/kg	200	20.	1
Phenanthrene	140		ug/kg	120	24.	1
Pyrene	22	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	44		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 13:13
Analyst: CMM
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
Client ID: PB121-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 13:52
Analyst: CMM
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	67	J	ug/kg	120	24.	1
Pyrene	20	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 14:16
Analyst: CMM
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
Client ID: FB-210715-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 07/22/21 15:57
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 07/19/21 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	89		15-120
4-Terphenyl-d14	99		41-149

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
Client ID: FB-210715-2
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 07/22/21 16:15
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 07/19/21 20:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	85		15-120
4-Terphenyl-d14	95		41-149

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
Client ID: DUP-13
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/21/21 11:43
Analyst: WR
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 07/20/21 13:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	24.	1
Benzo(a)anthracene	58	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	52	J	ug/kg	120	20.	1
Anthracene	48	J	ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	86	J	ug/kg	190	19.	1
Phenanthrene	240		ug/kg	120	24.	1
Pyrene	83	J	ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/22/21 17:29
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 07/19/21 20:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-26 Batch: WG1525554-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	94		21-120
Phenol-d6	76		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	99		15-120
2,4,6-Tribromophenol	**124**	Q	10-120
4-Terphenyl-d14	108		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/20/21 11:07
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,28 Batch: WG1525581-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		25-120
Phenol-d6	49		10-120
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	44		30-120
2,4,6-Tribromophenol	45		10-136
4-Terphenyl-d14	46		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-26 Batch: WG1525554-2 WG1525554-3								
Naphthalene	109		90		40-140	19		40
Fluorene	113		94		40-140	18		40
Phenanthrene	122		103		40-140	17		40
Anthracene	128		106		40-140	19		40
Pyrene	**131**	Q	109		26-127	18		40
Benzo(a)anthracene	131		111		40-140	17		40
Chrysene	125		106		40-140	16		40
Benzo(b)fluoranthene	139		111		40-140	22		40
Benzo(a)pyrene	**142**	Q	119		40-140	18		40
Benzo(ghi)perylene	**147**	Q	125		40-140	16		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	81		65		21-120
Phenol-d6	71		57		10-120
Nitrobenzene-d5	**127**	Q	104		23-120
2-Fluorobiphenyl	**123**	Q	105		15-120
2,4,6-Tribromophenol	118		98		10-120
4-Terphenyl-d14	144		120		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,28 Batch: WG1525581-2 WG1525581-3								
Naphthalene	47		49		40-140	4		50
Benzo(a)anthracene	46		48		40-140	4		50
Benzo(a)pyrene	52		54		40-140	4		50
Benzo(b)fluoranthene	51		53		40-140	4		50
Chrysene	46		50		40-140	8		50
Anthracene	48		51		40-140	6		50
Benzo(ghi)perylene	48		50		40-140	4		50
Fluorene	48		50		40-140	4		50
Phenanthrene	45		48		40-140	6		50
Pyrene	49		52		35-142	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		52		25-120
Phenol-d6	53		57		10-120
Nitrobenzene-d5	54		57		23-120
2-Fluorobiphenyl	49		51		30-120
2,4,6-Tribromophenol	51		53		10-136
4-Terphenyl-d14	50		52		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Client ID: PB121-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 08:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Client ID: PB121-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 08:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-03
Client ID: PB121-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04 Date Collected: 07/15/21 09:05
Client ID: PB121-09-SS01 Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
Client ID: PB121-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138177

Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-07
Client ID: PB121-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
Date Collected: 07/15/21 09:55
Client ID: PB121-15-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Date Collected: 07/15/21 10:10
Client ID: PB121-16-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
Date Collected: 07/15/21 10:55
Client ID: PB39-01-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-12 Date Collected: 07/15/21 11:05
Client ID: PB39-02-SS01 Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-13
Date Collected: 07/15/21 11:20
Client ID: PB39-03-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-14	Date Collected:	07/15/21 11:30
Client ID:	PB39-04-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
Date Collected: 07/15/21 11:35
Client ID: PB39-05-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-16
Date Collected: 07/15/21 11:45
Client ID: PB39-06-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-17
Client ID: PB39-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-18
Date Collected: 07/15/21 12:05
Client ID: PB85-11-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-19
Client ID: PB39-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:15
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2138177
Project Number: 200.00135.005.03　　**Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20　　Date Collected: 07/15/21 13:25
Client ID: PB39-09-SS01　　Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
Client ID: PB39-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-22	Date Collected:	07/15/21 13:40
Client ID:	PB39-11-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23
Date Collected: 07/15/21 13:45
Client ID: PB39-12-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-24	Date Collected:	07/15/21 14:00
Client ID:	PB39-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.5		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
Client ID: DUP-13
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1524628-1 QC Sample: L2138177-01 Client ID: PB121-03-SS01						
Solids, Total	84.4	84.3	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24,28 QC Batch ID: WG1524629-1 QC Sample: L2138164-01 Client ID: DUP Sample						
Solids, Total	85.6	86.1	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent
C	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2138177-01A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-01B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-01E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-01F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-02A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-02B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-02E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-02F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-03A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-03B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-03E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-03F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-04A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-04B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-04C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-04E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-04F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-05A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-05B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-05E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-05F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-06A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-06B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-06E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-06F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-07A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-07B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-07E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-07F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-08A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-08B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-08E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-08F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-09A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-09B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-09E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-09F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-10A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-10B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-10E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-10F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-11A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-11B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-11E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-12A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-12B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-12E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-13A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-13B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-13E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-14A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-14B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-14C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-14D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-14E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-15A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-15B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-15E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-16A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-16B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-16E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-17A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-17B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-17E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-18A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-18B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-19A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-19B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-19E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-20A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-20B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-20E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-21A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-21B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-21E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-22A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-22B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-22E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-23A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-23B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-23E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-24A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-24B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-24E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-25A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-25E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-25F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-25G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-25H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-26A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-26G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-26H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-27A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-27D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-28A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-28B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-28E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-28F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/16/21

ALPHA Job #: L2138177

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: Criteria:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38177-01	PB121-03-SS01	7/15	0835	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-02	PB121-04-SS01		0845			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-03	PB121-08-SS01		0855			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB121-09-SS01		0905			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB121-10-SS01		0910			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB121-12-SS01		0920			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB121-13-SS01		0935			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB121-14-SS01		0945			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB121-15-SS01		0955			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB121-16-SS01		1010			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/15 1500	[signature] AAL	7/15/21 1500
[signature] AAL	7/15/21 1830	[signature] AAL	7/15 1830
[signature] AAL	7/16 2200		7/16 2230
	7/16 0300	[signature]	7/16/21 03:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HU) (rev. 5-JAN-12)

Serial_No:08102109:31

CHAIN OF CUSTODY

PAGE 2 OF

ALPHA ANALYTICAL

Date Rec'd in Lab: 7/16/21	ALPHA Job #: L2138177

Project Information

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38177-11	PB39-01-SS01	7/15	1055	S	TS	☒	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
-12	PB39-02-SS01		1105			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB39-03-SS01		1120			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB39-04-SS01		1130			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB39-05-SS01		1135			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	PB39-06-SS01		1145			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	PB39-07-SS01		1155			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-18	PB85-11-SS01		1205			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-19	PB39-08-SS01		1315			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-20	PB39-09-SS01		1325			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 7/15	7/15 500	[signature] AAL	7/15/21 1500
[signature] AAL	7/15/21 1830	[signature]	7/15/21 1830
[signature] 7/15/21 2300		7/15 2300	
7/16 0300		[signature]	7/16/21 03:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 7/16/21	ALPHA Job #: L2138177

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
38177-21	PB39-10-SS01	7/15	1335	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-22	PB39-11-SS01	7/15	1340	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	PB39-12-SS01	7/15	1345	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-24	PB39-13-SS01	7/15	1400	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-25	FB-210715-1	7/15	1200	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-26	FB-210715-2	7/15	1430	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-27	TB-210715	7/15		W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
-28	DUP-13	7/15		S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

	PADEP 1-5	PADEP 1 & 2	PADEP 4	PADEP 3-5	PADEP 5	PADEP 6	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion	
Container Type	G	G	G	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/15 1500	[signature] AAL	7/15/21 1500
[signature] AAL	7/15/21 2000	[signature]	7/15 2030
	7/16 0300	[signature]	7/16/21 03:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

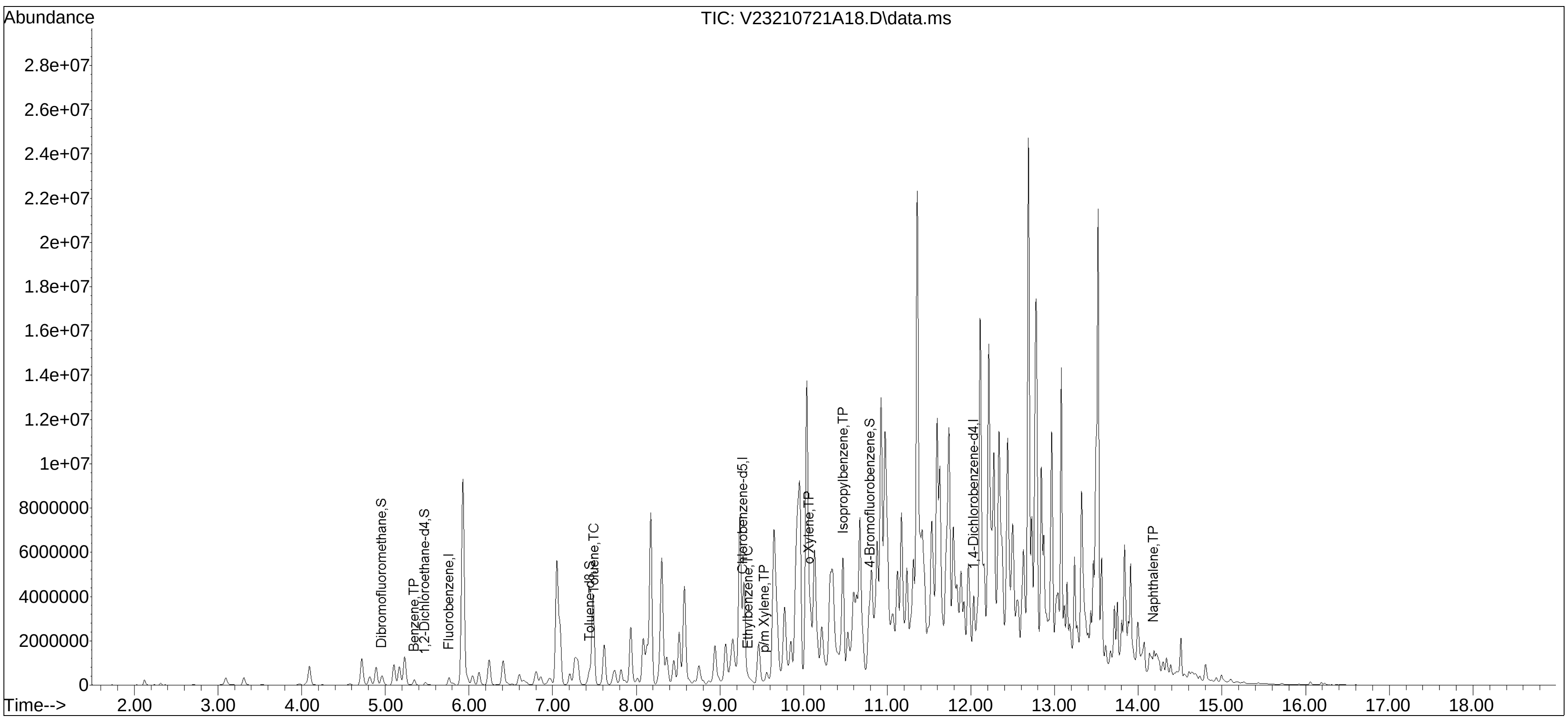
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A18.D
Acq On : 21 Jul 2021 12:01 pm
Operator : VOA123:KJD
Sample : L2138177-07,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 21 18:28:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

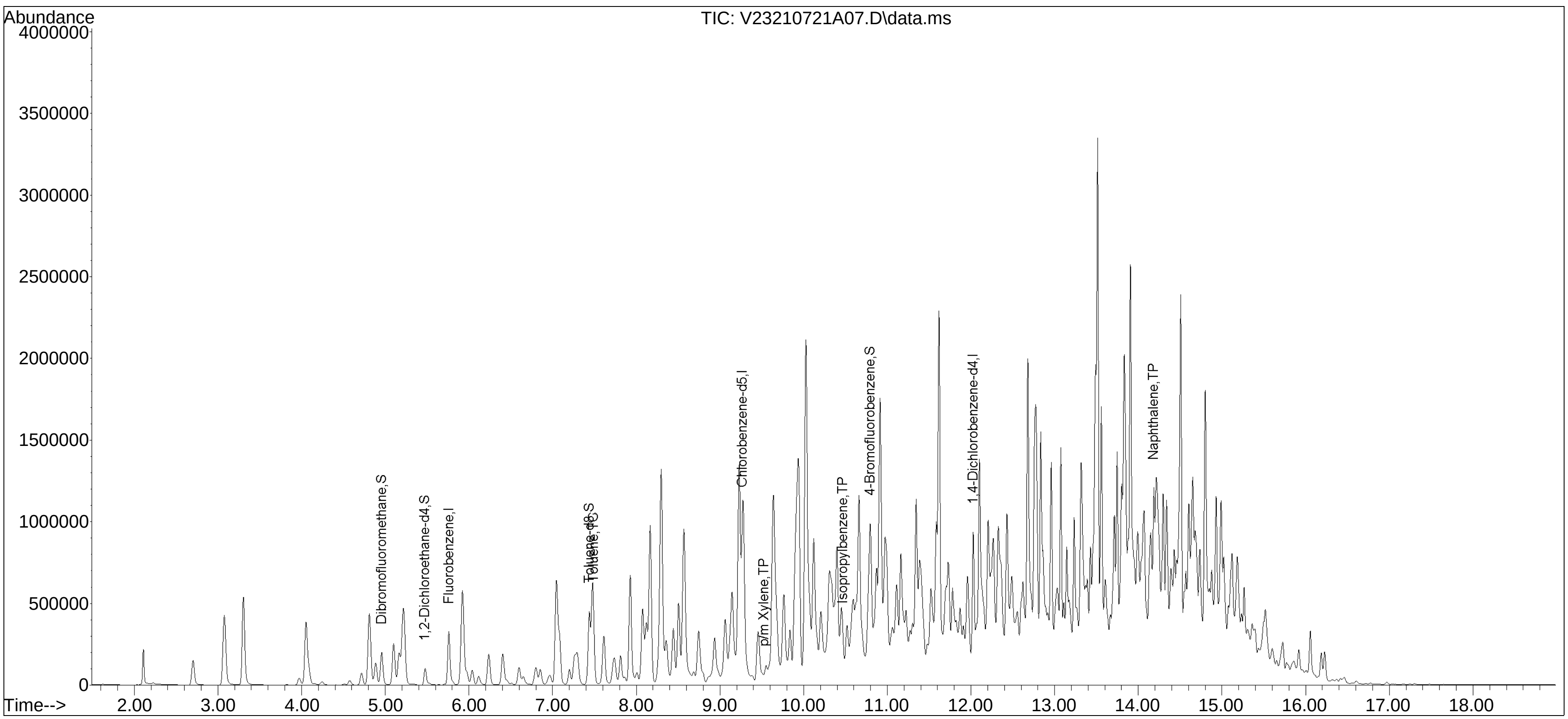


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A07.D
Acq On : 21 Jul 2021 07:26 am
Operator : VOA123:MV
Sample : L2138177-09,31H,6.72,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 21 08:15:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

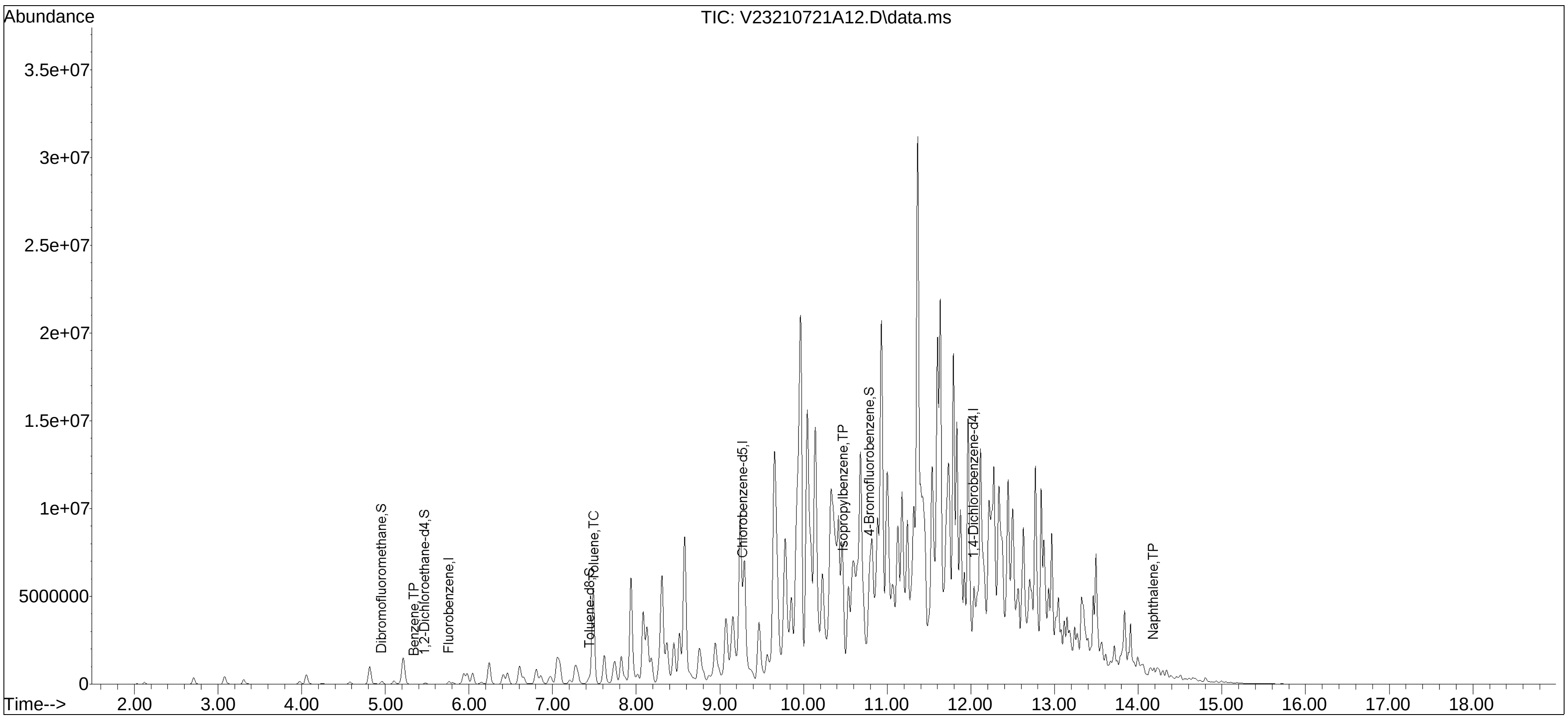


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A12.D
Acq On : 21 Jul 2021 09:31 am
Operator : VOA123:JC
Sample : L2138177-10,31,6.31,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 21 11:31:26 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

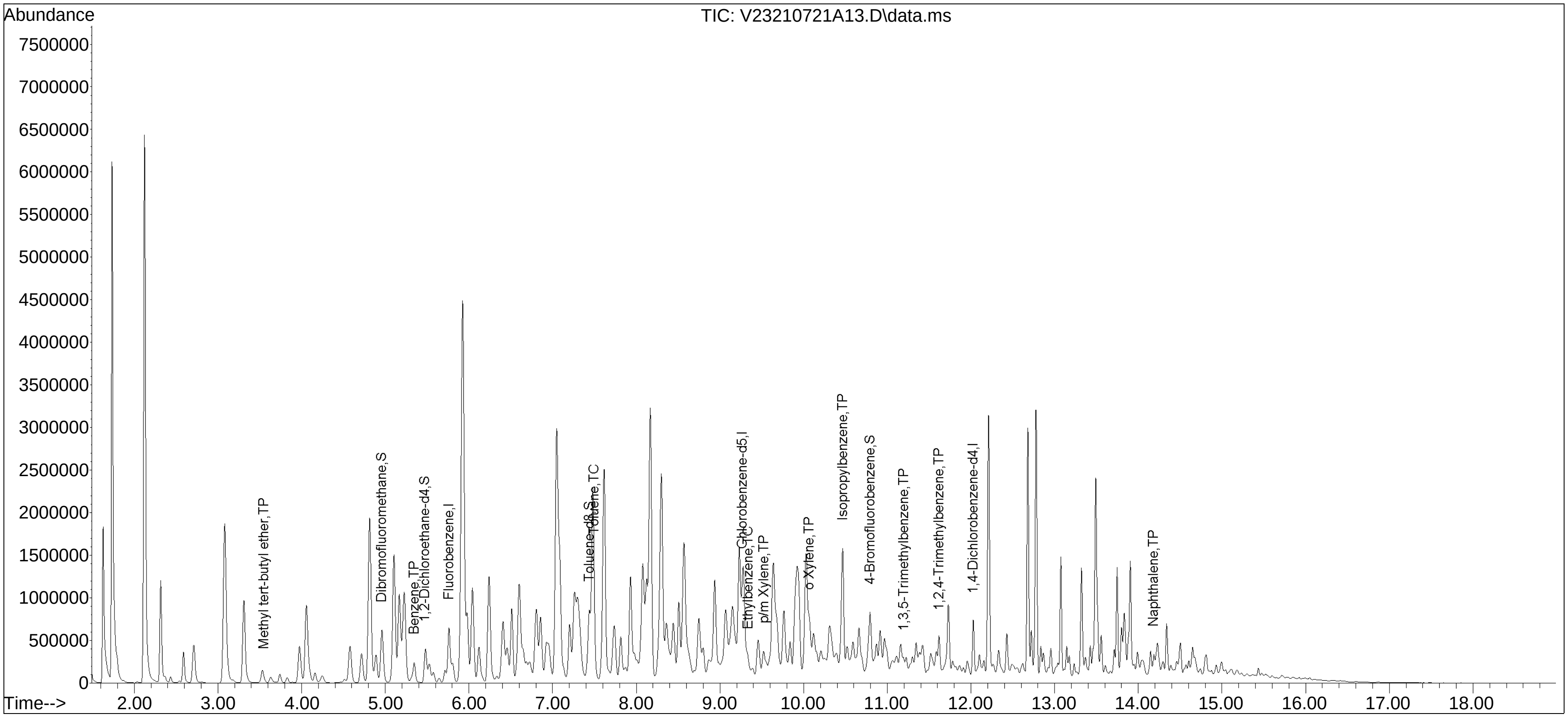


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A13.D
Acq On : 21 Jul 2021 09:56 am
Operator : VOA123:JC
Sample : L2138177-15,31,3.63,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 21 11:35:05 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

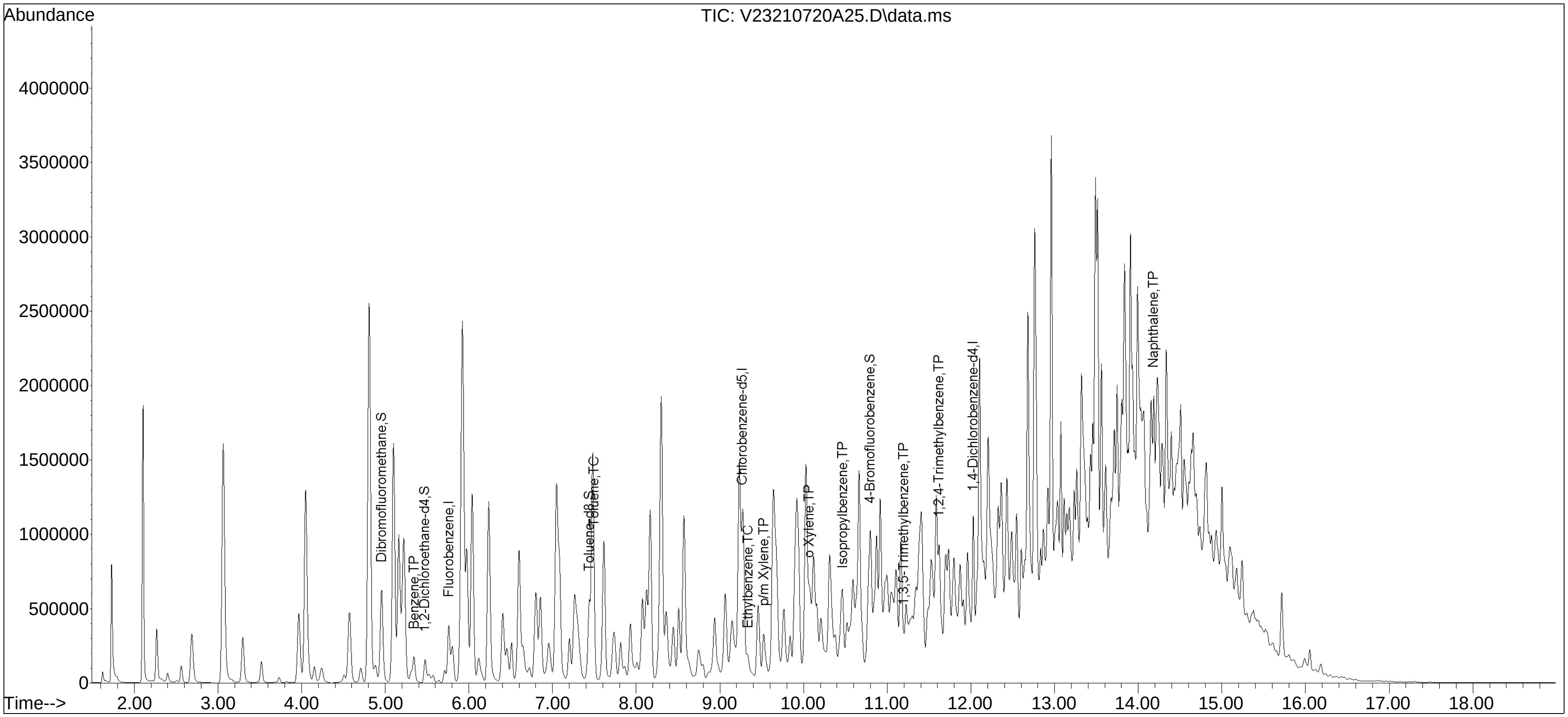


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210720A\
Data File : V23210720A25.D
Acq On : 20 Jul 2021 07:46 pm
Operator : VOA123:AJK
Sample : L2138177-16,31H,3.41,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 20 20:35:55 2021
Quant Method : I:\VOLATILES\VOA123\2021\210720A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V23210720A01.D•

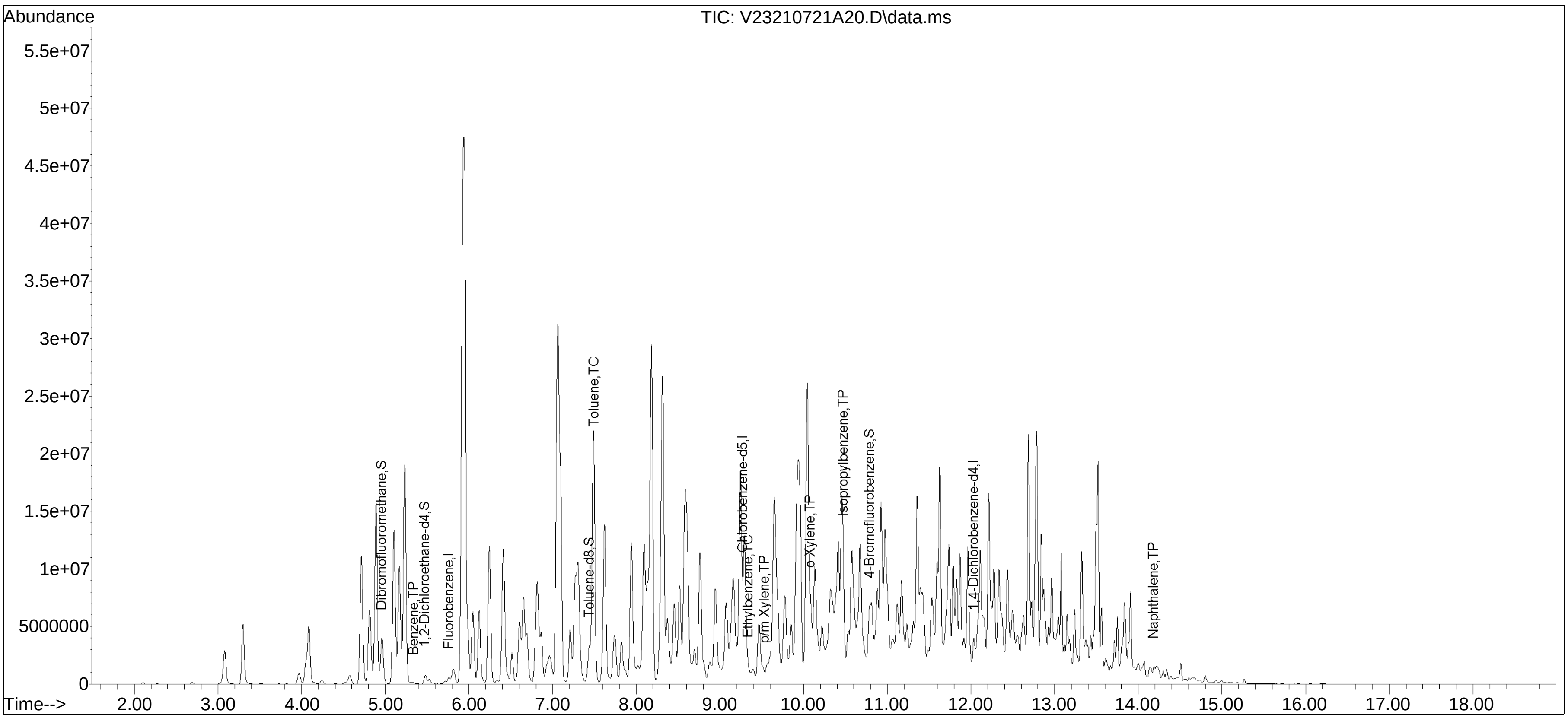


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A20.D
Acq On : 21 Jul 2021 12:51 pm
Operator : VOA123:KJD
Sample : L2138177-18,31H,6.68,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 21 18:29:36 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

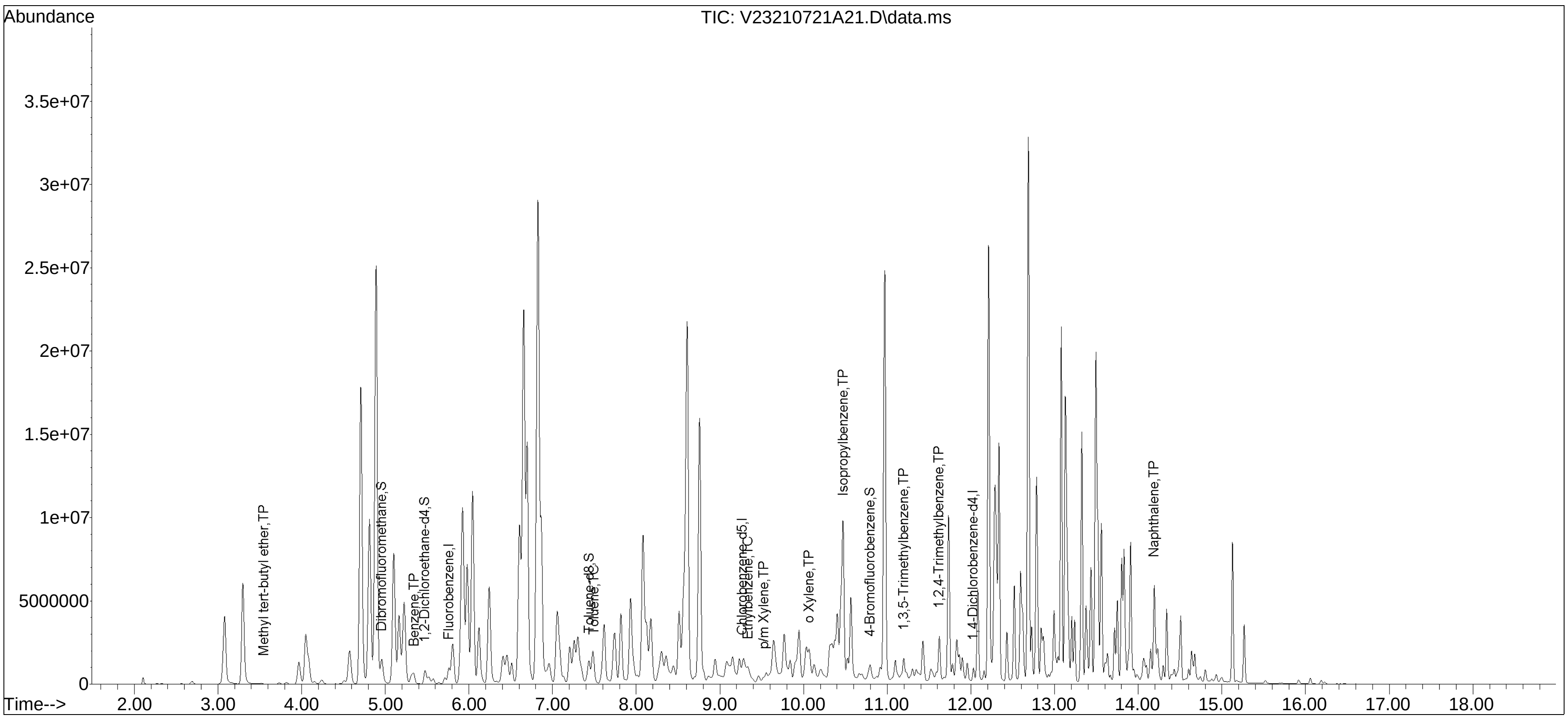


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A21.D
Acq On    : 21 Jul 2021  01:16 pm
Operator  : VOA123:KJD
Sample    : L2138177-19,31H,5.56,5,0.100,,A
Misc      : WG1525959,ICAL18108
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 21 18:32:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•
```

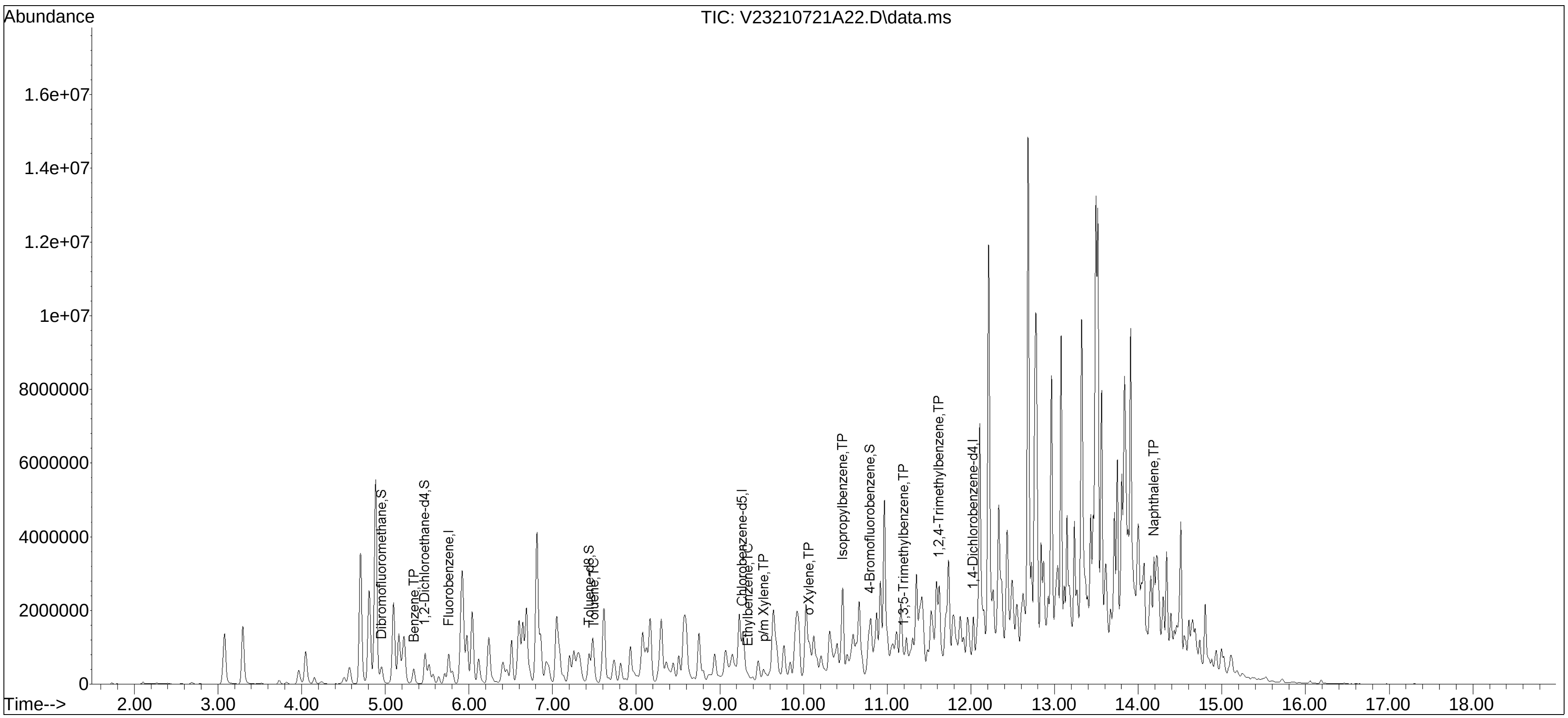


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A22.D
Acq On    : 21 Jul 2021  01:41 pm
Operator  : VOA123:KJD
Sample    : L2138177-20,31H,2.80,5,0.100,,A
Misc      : WG1525959,ICAL18108
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Jul 21 18:33:39 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•
```

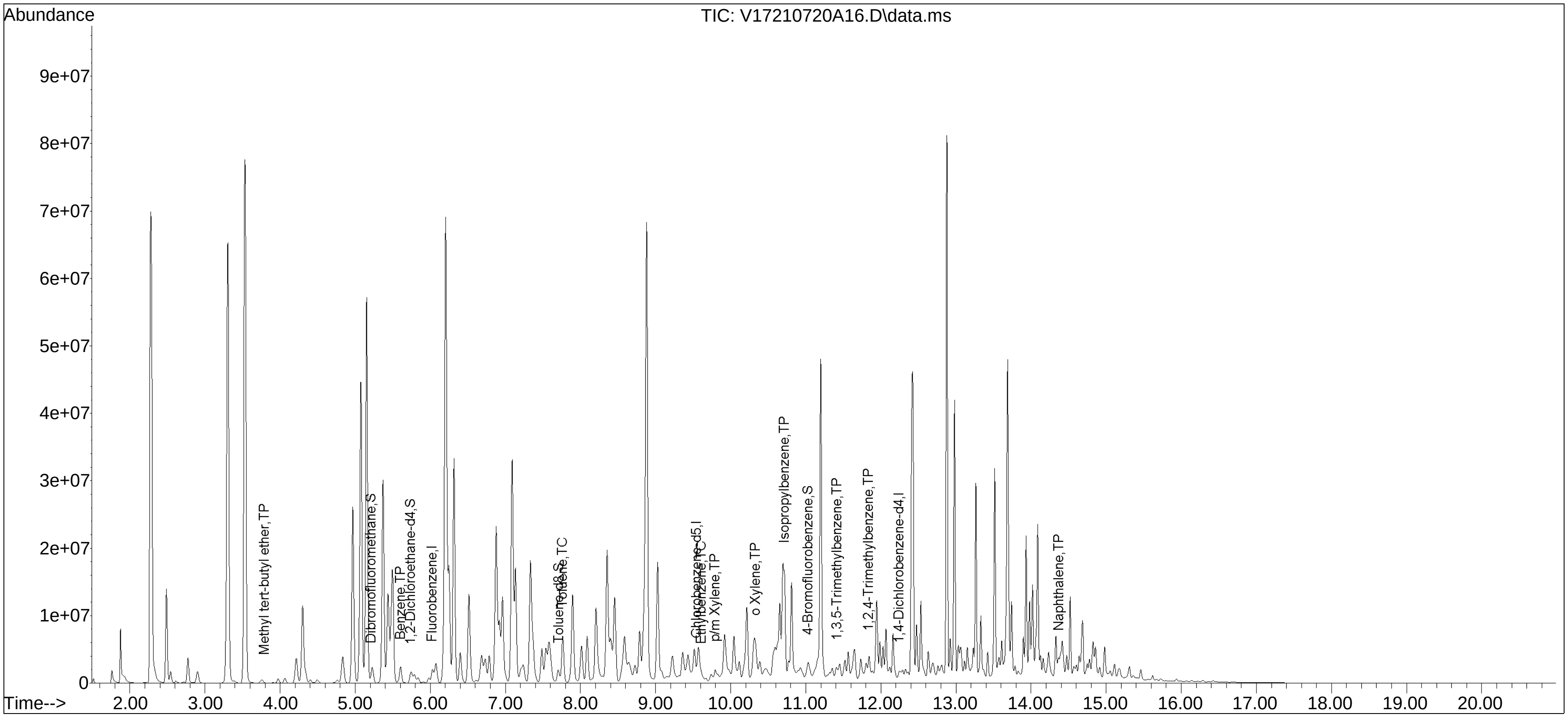


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210720A\
Data File : V17210720A16.D
Acq On    : 20 Jul 2021  04:07 pm
Operator  : VOA117:AJK
Sample    : L2138177-24,31,5.47,5,,B
Misc      : WG1526040,ICAL18099
ALS Vial  : 16   Sample Multiplier: 1

Quant Time: Jul 20 17:58:09 2021
Quant Method : I:\VOLATILES\VOA117\2021\210720A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V17210720A01.D•
```

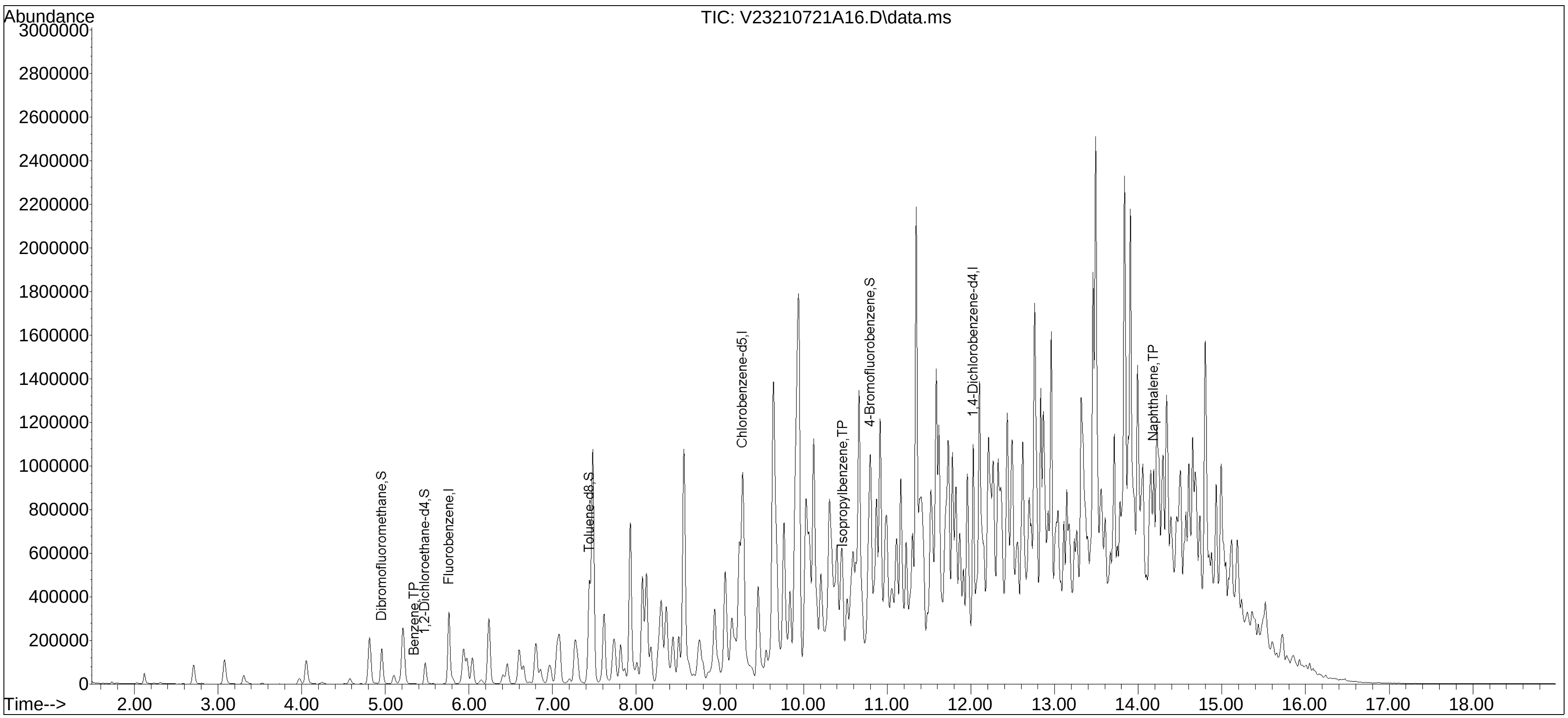


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A16.D
Acq On : 21 Jul 2021 11:11 am
Operator : VOA123:JC
Sample : L2138177-28,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 21 12:15:12 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



SGS

Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138177

SGS Job Number: JD28643

Sampling Date: 07/15/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walkup Drive
Westborough, MA 01581
nyakes@alphalab.com; subreports@alphalab.com

ATTN: Nadine Yakes

Total number of pages in report: 72

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

Sections: 1 2 3 4 5 6

Table of Contents

-1-

SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28643

Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD28643-1	07/15/21	08:35		07/20/21	SO	Soil	PB121-03-SS01
JD28643-2	07/15/21	08:45		07/20/21	SO	Soil	PB121-04-SS01
JD28643-3	07/15/21	08:55		07/20/21	SO	Soil	PB121-08-SS01
JD28643-4	07/15/21	09:05		07/20/21	SO	Soil	PB121-09-SS01
JD28643-5	07/15/21	09:10		07/20/21	SO	Soil	PB121-10-SS01
JD28643-6	07/15/21	09:20		07/20/21	SO	Soil	PB121-12-SS01
JD28643-7	07/15/21	09:35		07/20/21	SO	Soil	PB121-13-SS01
JD28643-8	07/15/21	09:45		07/20/21	SO	Soil	PB121-14-SS01
JD28643-9	07/15/21	09:55		07/20/21	SO	Soil	PB121-15-SS01
JD28643-10	07/15/21	10:10		07/20/21	SO	Soil	PB121-16-SS01
JD28643-11	07/15/21	10:55		07/20/21	SO	Soil	PB39-01-SS01
JD28643-12	07/15/21	11:05		07/20/21	SO	Soil	PB39-02-SS01
JD28643-13	07/15/21	11:20		07/20/21	SO	Soil	PB39-03-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary

(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28643

Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD28643-14	07/15/21	11:30		07/20/21	SO	Soil	PB39-04-SS01
JD28643-15	07/15/21	11:35		07/20/21	SO	Soil	PB39-05-SS01
JD28643-16	07/15/21	11:45		07/20/21	SO	Soil	PB39-06-SS01
JD28643-17	07/15/21	11:55		07/20/21	SO	Soil	PB39-07-SS01
JD28643-18	07/15/21	13:15		07/20/21	SO	Soil	PB39-08-SS01
JD28643-19	07/15/21	13:25		07/20/21	SO	Soil	PB39-09-SS01
JD28643-20	07/15/21	13:35		07/20/21	SO	Soil	PB39-10-SS01
JD28643-21	07/15/21	13:40		07/20/21	SO	Soil	PB39-11-SS01
JD28643-22	07/15/21	13:45		07/20/21	SO	Soil	PB39-12-SS01
JD28643-23	07/15/21	14:00		07/20/21	SO	Soil	PB39-13-SS01
JD28643-24	07/15/21	12:00		07/20/21	AQ	Field Blank Soil	FB-210715-1
JD28643-25	07/15/21	14:30		07/20/21	AQ	Field Blank Soil	FB-210715-2
JD28643-26	07/15/21	00:00		07/20/21	SO	Soil	DUP-13

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

2

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Alpha Analytical Laboratories, Inc.	Job No	JD28643
Site:	Alpha Analytical, PA	Report Date	7/28/2021 12:48:22 P

On 07/20/2021, 24 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28643 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix: AQ	Batch ID: MP27687

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix: SO	Batch ID: MP27576

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

Matrix: SO	Batch ID: MP27578

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28643-11SDL, JD28643-11MSD were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Duplicate Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- RPD(s) for MSD for Lead are outside control limits for sample MP27578-S2. High rpd due to possible sample nonhomogeneity.
- JD28643-1 for Lead: Elevated detection limit due to dilution required for high interfering element.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-1	**PB121-03-SS01**					
Lead [a]		125	12		mg/kg	SW846 6010D
JD28643-2	**PB121-04-SS01**					
Lead		12.5	2.1		mg/kg	SW846 6010D
JD28643-3	**PB121-08-SS01**					
Lead		8.3	2.4		mg/kg	SW846 6010D
JD28643-4	**PB121-09-SS01**					
Lead		10.8	1.4		mg/kg	SW846 6010D
JD28643-5	**PB121-10-SS01**					
Lead		684	2.4		mg/kg	SW846 6010D
JD28643-6	**PB121-12-SS01**					
Lead		11.5	2.5		mg/kg	SW846 6010D
JD28643-7	**PB121-13-SS01**					
Lead		7.8	2.3		mg/kg	SW846 6010D
JD28643-8	**PB121-14-SS01**					
Lead		10.9	2.6		mg/kg	SW846 6010D
JD28643-9	**PB121-15-SS01**					
Lead		8.8	2.3		mg/kg	SW846 6010D
JD28643-10	**PB121-16-SS01**					
Lead		6.7	2.3		mg/kg	SW846 6010D
JD28643-11	**PB39-01-SS01**					
Lead		153	2.3		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-12	**PB39-02-SS01**					
Lead		26.1	2.3		mg/kg	SW846 6010D
JD28643-13	**PB39-03-SS01**					
Lead		19.4	2.4		mg/kg	SW846 6010D
JD28643-14	**PB39-04-SS01**					
Lead		137	2.6		mg/kg	SW846 6010D
JD28643-15	**PB39-05-SS01**					
Lead		268	1.5		mg/kg	SW846 6010D
JD28643-16	**PB39-06-SS01**					
Lead		72.5	2.4		mg/kg	SW846 6010D
JD28643-17	**PB39-07-SS01**					
Lead		59.4	1.4		mg/kg	SW846 6010D
JD28643-18	**PB39-08-SS01**					
Lead		28.8	2.3		mg/kg	SW846 6010D
JD28643-19	**PB39-09-SS01**					
Lead		130	1.5		mg/kg	SW846 6010D
JD28643-20	**PB39-10-SS01**					
Lead		419	2.6		mg/kg	SW846 6010D
JD28643-21	**PB39-11-SS01**					
Lead		32.5	2.3		mg/kg	SW846 6010D
JD28643-22	**PB39-12-SS01**					
Lead		31.5	2.5		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-23	**PB39-13-SS01**					
Lead		84.8	1.5		mg/kg	SW846 6010D
JD28643-24	**FB-210715-1**					
No hits reported in this sample.						
JD28643-25	**FB-210715-2**					
No hits reported in this sample.						
JD28643-26	**DUP-13**					
Lead		13.3	2.4		mg/kg	SW846 6010D

(a) Elevated detection limit due to dilution required for high interfering element.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-03-SS01		
Lab Sample ID:	JD28643-1	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	125	12	mg/kg	5	07/22/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27578

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-04-SS01		
Lab Sample ID:	JD28643-2	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	92.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	12.5	2.1	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-08-SS01		
Lab Sample ID:	JD28643-3	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Lead	8.3	2.4	mg/kg	1	07/22/21	07/24/21 ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-09-SS01		
Lab Sample ID:	JD28643-4	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.5
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10.8	1.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-10-SS01		
Lab Sample ID:	JD28643-5	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	684	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-12-SS01		
Lab Sample ID:	JD28643-6	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	85.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	11.5	2.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-13-SS01		
Lab Sample ID:	JD28643-7	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	7.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-14-SS01		
Lab Sample ID:	JD28643-8	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10.9	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-15-SS01		
Lab Sample ID:	JD28643-9	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.1
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-16-SS01		
Lab Sample ID:	JD28643-10	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	6.7	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-01-SS01		
Lab Sample ID:	JD28643-11	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	153	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-02-SS01		
Lab Sample ID:	JD28643-12	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	87.1
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	26.1	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-03-SS01		
Lab Sample ID:	JD28643-13	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	19.4	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-04-SS01			
Lab Sample ID:	JD28643-14		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	81.6
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	137	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-05-SS01		
Lab Sample ID:	JD28643-15	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	268	1.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-06-SS01		
Lab Sample ID:	JD28643-16	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	72.5	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-07-SS01		
Lab Sample ID:	JD28643-17	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	59.4	1.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-08-SS01		
Lab Sample ID:	JD28643-18	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	28.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-09-SS01		
Lab Sample ID:	JD28643-19	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	130	1.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-10-SS01		
Lab Sample ID:	JD28643-20	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	419	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-11-SS01		
Lab Sample ID:	JD28643-21	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	32.5	2.3	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-12-SS01		
Lab Sample ID:	JD28643-22	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	31.5	2.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-13-SS01		
Lab Sample ID:	JD28643-23	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	84.8	1.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210715-1		
Lab Sample ID:	JD28643-24	**Date Sampled:**	07/15/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210715-2		
Lab Sample ID:	JD28643-25	**Date Sampled:**	07/15/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-13		
Lab Sample ID:	JD28643-26	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	79.5
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.3	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ALPHA ANALYTICAL

So
FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD 28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB121-03-SS01	07-15-21 08:35	SOIL	Total Lead	
2	PB121-04-SS01	07-15-21 08:45	SOIL	Total Lead	
3	PB121-08-SS01	07-15-21 08:55	SOIL	Total Lead	
4	PB121-09-SS01	07-15-21 09:05	SOIL	Total Lead	
5	PB121-10-SS01	07-15-21 09:10	SOIL	Total Lead	
6	PB121-12-SS01	07-15-21 09:20	SOIL	Total Lead	
7	PB121-13-SS01	07-15-21 09:35	SOIL	Total Lead	
8	PB121-14-SS01	07-15-21 09:45	SOIL	Total Lead	
9	PB121-15-SS01	07-15-21 09:55	SOIL	Total Lead	

D17 T2

Relinquished By:	Date/Time:	Received By:	Date/Time:
[signature] AAL	7/19/21 20:05	Paul Mazzella 7/19	7/19/21 20:05
Paul Mazzella 7/19	7/19/21 22:35	Don D AAL	7/20/21 830
Don D AAL	7/20/21 1035	James Yu	7/20/21 1035

Form No: AL_subcoc

IR-5 5.8°C
JY

JD28643: Chain of Custody
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SGS

ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB121-16-SS01	07-15-21 10:10	SOIL	Total Lead	
11	PB39-01-SS01	07-15-21 10:55	SOIL	Total Lead	
12	PB39-02-SS01	07-15-21 11:05	SOIL	Total Lead	
13	PB39-03-SS01	07-15-21 11:20	SOIL	Total Lead	
14	PB39-04-SS01	07-15-21 11:30	SOIL	Total Lead	
15	PB39-05-SS01	07-15-21 11:35	SOIL	Total Lead	
16	PB39-06-SS01	07-15-21 11:45	SOIL	Total Lead	
17	PB39-07-SS01	07-15-21 11:55	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL 7/19	7/19/21 20:05	Paul Mazzella 7/19	16:30
Paul Mazzella	7/19/21 22:35	Don Datl	7/19/21 20:05
Don Datl	7/20/21 1035		7/20/21 830
			7/20/21 10:35

Form No: AL-subcoc

INITIAL ASSESSMENT TS-2B

LABEL VERIFICATION

IR-5 3.8°C IP

JD28643: Chain of Custody
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ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28643

Alpha Job Number
L2138177

Client Information

Client: Alpha Analytical Labs
Address: Eight Walkup Drive
Westborough, MA 01581-1019

Phone: 201.812.9037
Email: nyakes@alphalab.com

Project Information

Project Location: PA
Project Manager: Nadine Yakes

Turnaround & Deliverables Information

Due Date:
Deliverables:

Regulatory Requirements/Report Limits

State/Federal Program:
Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
18	PB39-08-SS01	07-15-21 13:15	SOIL	Total Lead	
19	PB39-09-SS01	07-15-21 13:25	SOIL	Total Lead	
20	PB39-10-SS01	07-15-21 13:35	SOIL	Total Lead	
21	PB39-11-SS01	07-15-21 13:40	SOIL	Total Lead	
22	PB39-12-SS01	07-15-21 13:45	SOIL	Total Lead	
23	PB39-13-SS01	07-15-21 14:00	SOIL	Total Lead	
24	FB-210715-1	07-15-21 12:00	WATER	Total Lead	
25	FB-210715-2	07-15-21 14:30	WATER	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21	Paul Mazzella 7/19	1600
Paul Mazzella 7/19	7/19/21 20:05	Paul Mazzella	7/19/21 20:05
	7/19/21 23:35	Don D	7/20/21 830
Don D	7/20/21 10:35	John Yuda	7/20/21 10:35

Form No: AL_subcoc

IR-5 3.8°C JD

JD28643: Chain of Custody
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ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
26	DUP-13	07-15-21 00:00	SOIL	Total Lead	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	[illegible] AAL	7/19/21	Paul Mazzella	7/19/21 2025
	Paul Mazzella	7/19/21 2205	Don Dor	7/20/21 230
Form No: AL_subcoc	Don Dor	7/20/21 1035	[illegible]	7/20/21 10:38

IR-5 3.8°C IP

JD28643: Chain of Custody
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SGS Sample Receipt Summary

Job Number: JD28643 **Client:** ALPHA ANALYTICAL **Project:** L2138177

Date / Time Received: 7/20/2021 10:35:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.8);

Cooler Security	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD28643: Chain of Custody
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Dayton, NJ

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Lead	17.8	258	246	97.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Tungsten					
Vanadium					
Zinc					
Zirconium					

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	153	459	241	126.8N(a	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium					

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	153	324	239	71.6N(a)	34.5 (b)	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
(b) High rpd due to possible sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	211	200	105.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	1320	1430	8.8	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original	SDL 1:5	%DIF	QC Limits
Zirconium				

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	60	.3	6.9		
Zirconium	10	.5	4.1		

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	0.0	1950	2000	97.5	1.0	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2138358
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/29/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

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508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138358-01	PB38-01-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:05	07/17/21
L2138358-02	PB38-02-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:15	07/17/21
L2138358-03	PB38-03-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:30	07/17/21
L2138358-04	PB38-04-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:35	07/17/21
L2138358-05	PB38-05-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:45	07/17/21
L2138358-06	PB38-06-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:05	07/17/21
L2138358-07	PB38-07-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:35	07/17/21
L2138358-08	PB38-08-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:45	07/17/21
L2138358-09	PB38-09-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:55	07/17/21
L2138358-10	PB38-10-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:05	07/17/21
L2138358-11	PB38-11-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:35	07/17/21
L2138358-12	PB38-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:45	07/17/21
L2138358-13	PB38-13-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:55	07/17/21
L2138358-14	PB38-14-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:05	07/17/21
L2138358-15	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:10	07/17/21
L2138358-16	FB-210716-1	WATER	PHILADELPHIA, PA	07/16/21 11:00	07/17/21
L2138358-17	FB-210716-2	WATER	PHILADELPHIA, PA	07/16/21 13:00	07/17/21
L2138358-18	TB-210716	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-19	DUP-14	SOIL	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-22	PB85-11-SS01	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

July 29, 2021: This final report includes the results of all requested analyses

July 23, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2138358-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard. The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (189%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2138358-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 07/29/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-01
Client ID: PB38-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 11:51
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0024		mg/kg	0.0024	0.00025	1
Benzene	0.10		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.015		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.0050		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.038		mg/kg	0.0024	0.00069	1
o-Xylene	0.0049		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.043		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.028		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0062		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0061		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-02	Date Collected:	07/16/21 09:15
Client ID:	PB38-02-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 10:11
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0024		mg/kg	0.0020	0.00021	1
Benzene	0.00076		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00080	J	mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0047		mg/kg	0.0020	0.00057	1
o-Xylene	0.0026		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0073		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0038		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00088	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03 Date Collected: 07/16/21 09:30
Client ID: PB38-03-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 22:00
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.022	1
Benzene	7.2		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	3.3		mg/kg	0.11	0.058	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.031	1
Ethylbenzene	1.8		mg/kg	0.11	0.015	1
p/m-Xylene	4.9		mg/kg	0.21	0.060	1
o-Xylene	2.0		mg/kg	0.11	0.031	1
Xylenes, Total	6.9		mg/kg	0.11	0.031	1
Isopropylbenzene	0.50		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.21	0.021	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.21	0.036	1
Naphthalene	2.0		mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	85		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-04	Date Collected:	07/16/21 09:35
Client ID:	PB38-04-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 08:56
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	10.		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	1.2		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	15.		mg/kg	0.059	0.0083	1
p/m-Xylene	16.		mg/kg	0.12	0.033	1
o-Xylene	5.9		mg/kg	0.059	0.017	1
Xylenes, Total	22.		mg/kg	0.059	0.017	1
Isopropylbenzene	5.5		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	5.4		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	70		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-05	Date Collected:	07/16/21 09:45
Client ID:	PB38-05-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:50
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00054		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	0.0042		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0010		mg/kg	0.0010	0.00015	1
p/m-Xylene	0.035		mg/kg	0.0021	0.00058	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.053		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00035	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0090		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-06
Client ID: PB38-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 10:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 18:40
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.11		mg/kg	0.0022	0.00022	1
Benzene	0.038		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.0011		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00074	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0022		mg/kg	0.0022	0.00061	1
o-Xylene	0.0014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0036		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00073	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0013	J	mg/kg	0.0022	0.00036	1
Naphthalene	0.00093	J	mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-07
Client ID: PB38-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:35
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 09:46
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00044	J	mg/kg	0.0019	0.00019	1
Benzene	0.00055		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00024	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.00043	J	mg/kg	0.00096	0.00013	1
p/m-Xylene	0.00075	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00045	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0012	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00044	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0010	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D2 Date Collected: 07/16/21 10:45
Client ID: PB38-08-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 08:06
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D
Client ID: PB38-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 22:51
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	5
Benzene	8.4		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	20.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	39.		mg/kg	0.30	0.042	5
p/m-Xylene	66.		mg/kg	0.60	0.17	5
o-Xylene	10.		mg/kg	0.30	0.087	5
Xylenes, Total	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	8.0		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	49.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.60	0.10	5
Naphthalene	24.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-09
Client ID: PB38-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 10:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:05
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00073	J	mg/kg	0.0020	0.00021	1
Benzene	0.00020	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-10	Date Collected:	07/16/21 11:05
Client ID:	PB38-10-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:16
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.013	1
Benzene	1.1		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.064		mg/kg	0.063	0.016	1
Toluene	3.9		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.40		mg/kg	0.063	0.0089	1
p/m-Xylene	4.0		mg/kg	0.12	0.035	1
o-Xylene	0.95		mg/kg	0.063	0.018	1
Xylenes, Total	5.0		mg/kg	0.063	0.018	1
Isopropylbenzene	0.020	J	mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.12	0.021	1
Naphthalene	0.24	J	mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11
Client ID: PB38-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:35
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:30
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0020	J	mg/kg	0.0022	0.00022	1
Benzene	0.0014		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.020		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.0043		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.027		mg/kg	0.0022	0.00063	1
o-Xylene	0.014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.041		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0030		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0026		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.0075		mg/kg	0.0022	0.00037	1
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12 D
Client ID: PB38-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:41
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.059	J	mg/kg	0.26	0.026	2
Benzene	0.040	J	mg/kg	0.064	0.021	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	2
Toluene	ND		mg/kg	0.13	0.070	2
1,2-Dibromoethane	ND		mg/kg	0.064	0.038	2
Ethylbenzene	0.032	J	mg/kg	0.13	0.018	2
p/m-Xylene	0.20	J	mg/kg	0.26	0.072	2
o-Xylene	0.079	J	mg/kg	0.13	0.037	2
Xylenes, Total	0.28	J	mg/kg	0.13	0.037	2
Isopropylbenzene	0.42		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.18	J	mg/kg	0.26	0.043	2
Naphthalene	0.34	J	mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**189**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13 D2
Client ID: PB38-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 12:41
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	98.		mg/kg	1.2	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-13 D	Date Collected:	07/16/21 11:55
Client ID:	PB38-13-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:06
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	19.		mg/kg	0.12	0.042	4
1,2-Dichloroethane	0.078	J	mg/kg	0.25	0.065	4
Toluene	0.75		mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.074	4
Ethylbenzene	28.		mg/kg	0.25	0.035	4
p/m-Xylene	40.		mg/kg	0.50	0.14	4
o-Xylene	1.7		mg/kg	0.25	0.073	4
Xylenes, Total	42.		mg/kg	0.25	0.073	4
Isopropylbenzene	5.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	31.		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	96.	E	mg/kg	0.50	0.084	4
Naphthalene	12.		mg/kg	1.0	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	78		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-14	Date Collected:	07/16/21 12:05
Client ID:	PB38-14-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:31
Analyst: MV
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.054		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.080	0.020	1
Toluene	0.082		mg/kg	0.080	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	0.050	J	mg/kg	0.080	0.011	1
p/m-Xylene	0.22		mg/kg	0.16	0.045	1
o-Xylene	0.086		mg/kg	0.080	0.023	1
Xylenes, Total	0.31		mg/kg	0.080	0.023	1
Isopropylbenzene	0.10		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.046	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.16	0.027	1
Naphthalene	0.71		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-15	Date Collected:	07/16/21 12:10
Client ID:	PB85-12-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:55
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00042	J	mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.00033	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00043	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-16
Client ID: FB-210716-1
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/20/21 13:38
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138358
Project Number: 200.00135.005.03 | **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-16	Date Collected:	07/16/21 11:00
Client ID:	FB-210716-1	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-17	Date Collected:	07/16/21 13:00
Client ID:	FB-210716-2	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	07/20/21 10:45
Analytical Date:	07/20/21 13:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-17	Date Collected:	07/16/21 13:00
Client ID:	FB-210716-2	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:11
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-18
Client ID: TB-210716
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/20/21 13:51
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-18
Client ID: TB-210716
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:38
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-19
Client ID: DUP-14
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 11:01
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0050	0.00081	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/20/21 11:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-18 Batch: WG1525736-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/22/21 05:31
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,08,13 Batch: WG1526522-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,08,10,12-14 Batch: WG1526522-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05-06,09,11,15 Batch: WG1526523-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:46
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1526647-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/22/21 05:31
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,07,19 Batch: WG1526784-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138358

Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-18 Batch: WG1525736-2									
1,2-Dibromoethane	96		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,08,10,12-14 Batch: WG1526522-3 WG1526522-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,08,13 Batch: WG1526522-8 WG1526522-9								
Methyl tert butyl ether	84		86		66-130	2		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	76		77		70-130	1		30
Toluene	85		86		70-130	1		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	90		89		70-130	1		30
o-Xylene	91		92		70-130	1		30
Isopropylbenzene	85		85		70-130	0		30
1,3,5-Trimethylbenzene	84		84		70-130	0		30
1,2,4-Trimethylbenzene	85		84		70-130	1		30
Naphthalene	82		85		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05-06,09,11,15 Batch: WG1526523-3 WG1526523-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1526647-3 WG1526647-4								
Methyl tert butyl ether	96		100		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	98		99		70-130	1		20
Toluene	96		100		70-130	4		20
1,2-Dibromoethane	86		90		70-130	5		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	97		100		70-130	3		20
1,3,5-Trimethylbenzene	90		92		64-130	2		20
1,2,4-Trimethylbenzene	97		94		70-130	3		20
Naphthalene	90		96		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	107		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,07,19 Batch: WG1526784-3 WG1526784-4								
Methyl tert butyl ether	84		86		66-130	2		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	76		77		70-130	1		30
Toluene	85		86		70-130	1		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	90		89		70-130	1		30
o-Xylene	91		92		70-130	1		30
Isopropylbenzene	85		85		70-130	0		30
1,3,5-Trimethylbenzene	84		84		70-130	0		30
1,2,4-Trimethylbenzene	85		84		70-130	1		30
Naphthalene	82		85		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-01
Date Collected: 07/16/21 09:05
Client ID: PB38-01-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-02
Client ID: PB38-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 09:15
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03
Date Collected: 07/16/21 09:30
Client ID: PB38-03-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-04
Date Collected: 07/16/21 09:35
Client ID: PB38-04-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-05
Client ID: PB38-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 09:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-06
Date Collected: 07/16/21 10:05
Client ID: PB38-06-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-07
Client ID: PB38-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:35
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 Date Collected: 07/16/21 10:45
Client ID: PB38-08-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-09
Client ID: PB38-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 10:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-10
Client ID: PB38-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138358
Project Number: 200.00135.005.03 | **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11
Client ID: PB38-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:35
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12
Date Collected: 07/16/21 11:45
Client ID: PB38-12-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13
Date Collected: 07/16/21 11:55
Client ID: PB38-13-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-14	Date Collected:	07/16/21 12:05
Client ID:	PB38-14-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-15	Date Collected:	07/16/21 12:10
Client ID:	PB85-12-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138358
Project Number: 200.00135.005.03 | **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-19
Client ID: DUP-14
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,19 QC Batch ID: WG1525654-1 QC Sample: L2138358-01 Client ID: PB38-01-SS01						
Solids, Total	81.3	80.9	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2138358-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-01B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-02B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-03B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-04B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-05B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-05C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-05D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-06B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-07B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-08A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-08B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-09A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-09B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-10B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-11A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-11B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-12A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-12B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-13A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-13B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-14A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-14B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-15A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-15B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-16A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-16E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-16F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-17A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-18A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18C	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-18D	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-19A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-19B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2138358-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-22A	Vial MeOH preserved	B	NA		4.5	Y	Absent		ARCHIVE()
L2138358-22B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF COUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/17/21

ALPHA Job #: L2138358

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38358-01	PB38-01-SS01	7/16	0905	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
02	PB38-02-SS01		0915			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
03	PB38-03-SS01		0930			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
04	PB38-04-SS01		0935			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
05	PB38-05-SS01		0945			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
06	PB38-06-SS01		1005			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
07	PB38-07-SS01		1035			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
08	PB38-08-SS01		1045			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
09	PB38-09-SS01		1055			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
10	PB38-10-SS01		1105			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	7/16 1336	Tom [illegible] AAL	7-16 1336
[illegible] AAL	7-16 1900	[illegible] AAL	7-16 1901
[illegible] AAL	7-16 2230	[illegible] AAL	7/16/21 2230
[illegible] AAL	7/17/21 0405	[illegible]	7/17/21 04:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/17/21

ALPHA Job #: L2138358

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

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Trenton, NJ 08619

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Email: William.Schmidt@ransomenv.com

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Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

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Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
38358-11	PB38-11-SS01	7/16	1135	S	TS	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
12	PB38-12-SS01	↓	1145	S	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
13	PB38-13-SS01		1155	S		☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
14	PB38-14-SS01		1205	S		☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
15	PB85-12-SS01		1210	S		☐	~~☒~~ TS	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
	PB85-11-SS01		1220	S		☐	~~☒~~ TS	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
16	FB-210716-1		11:00	W		☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
17	FB-210716-2		13:00	W		☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
18	TB-210716			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐		4
19	Dup-14	↓	-	S	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/16 1336	Tom Ald AAL	7-16 1336
Tom Ald AAL	7-16 1500	[signature] AAL	7-16 1500
[signature] AAL	7-16 2200	[signature] AAL	7/16/21 2230
[signature] AAL	7/17/21 0405	[signature]	7/17/21 0405

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

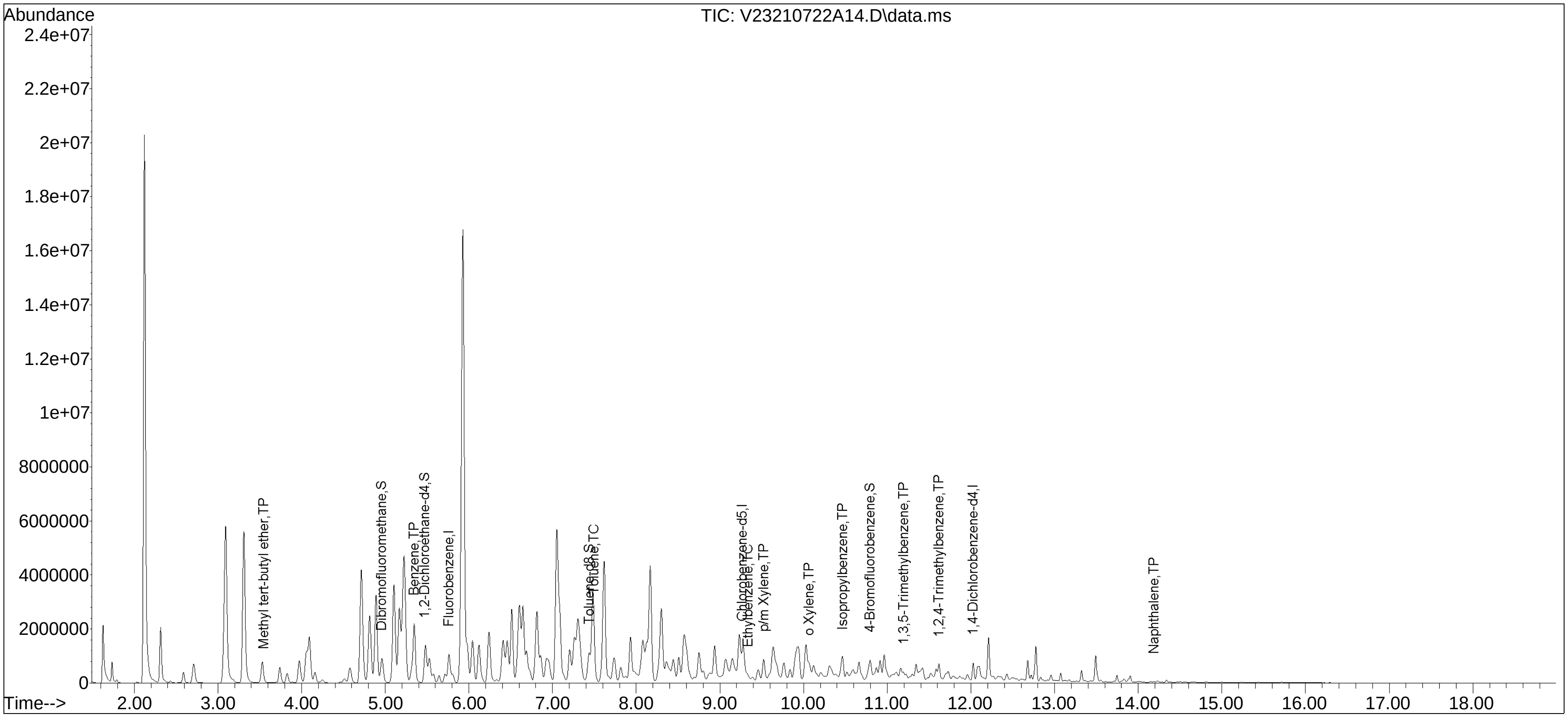
FORM NO: 01-01(I) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210722A\
Data File : V23210722A14.D
Acq On : 22 Jul 2021 11:51 am
Operator : VOA123:JC
Sample : l2138358-01,31,5.02,5,,b
Misc : WG1526784,ICAL18108
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jul 22 12:59:24 2021
Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•

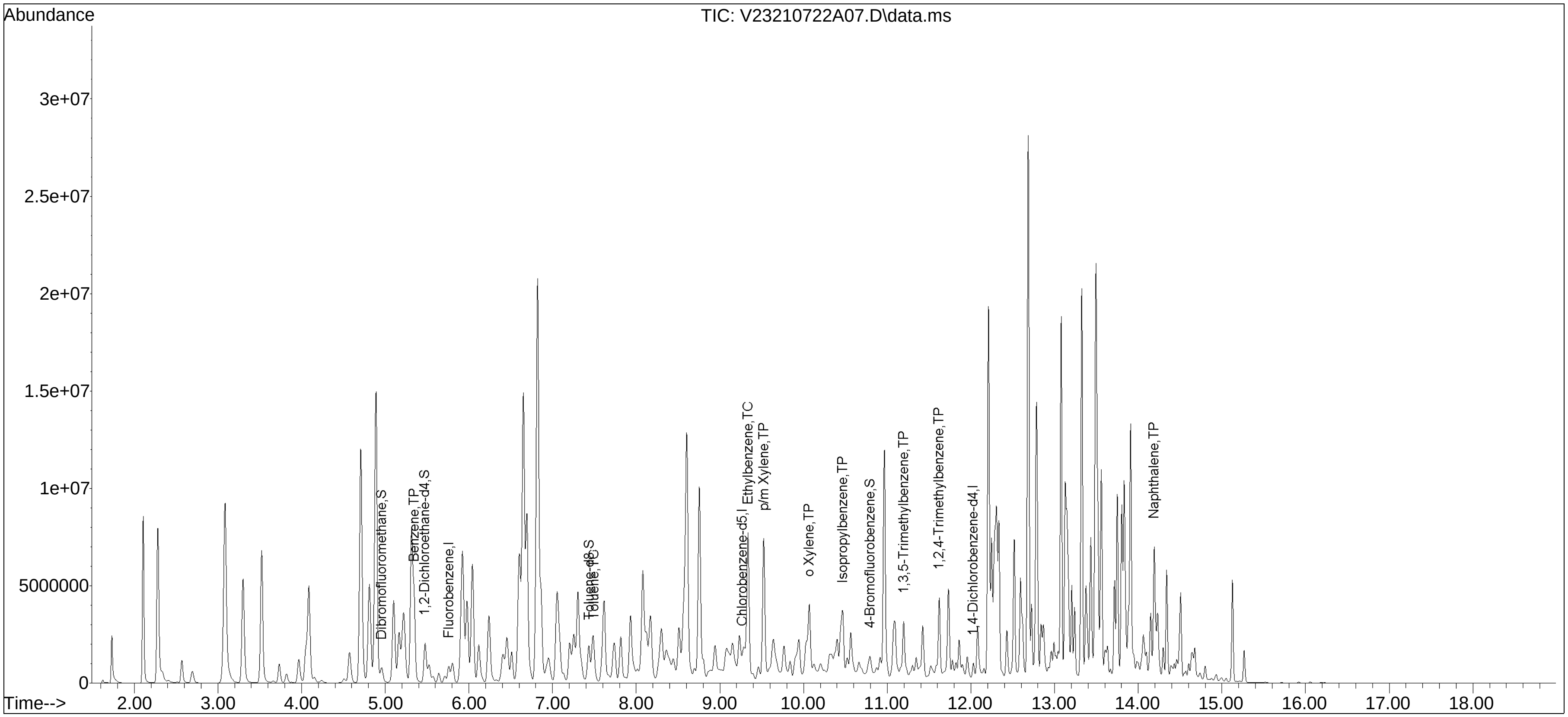


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210722A\
Data File : V23210722A07.D
Acq On : 22 Jul 2021 08:56 am
Operator : VOA123:JC
Sample : l2138358-04,31h,6.18,5,0.100,,a
Misc : WG1526522,ICAL18108
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 22 11:55:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•

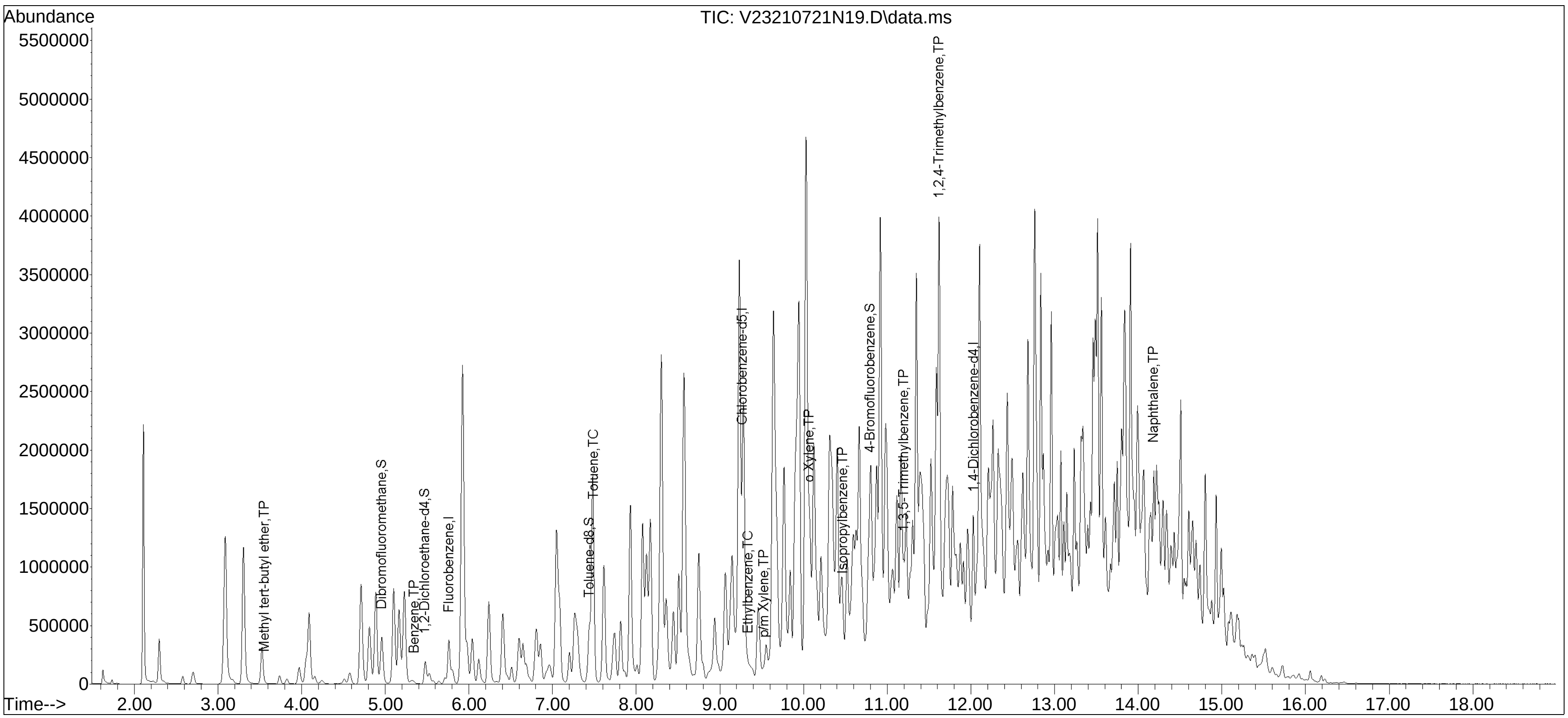


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N19.D
Acq On : 21 Jul 2021 11:41 pm
Operator : VOA123:MV
Sample : L2138358-12D,31H,5.61,5,0.050,,A
Misc : WG1526522,ICAL18108
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 22 04:07:51 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•

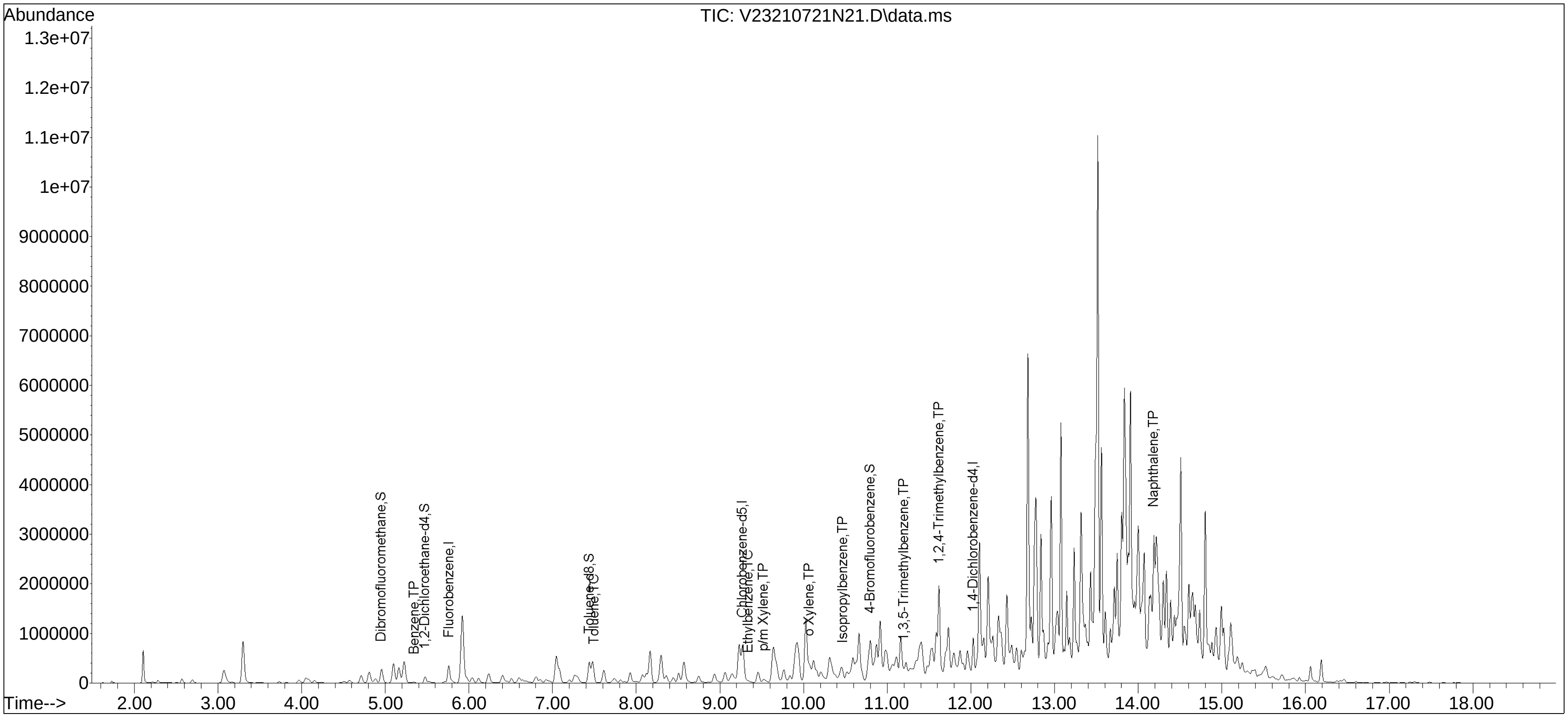


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N21.D
Acq On : 22 Jul 2021 12:31 am
Operator : VOA123:MV
Sample : L2138358-14,31H,5.41,5,0.100,,A
Misc : WG1526522,ICAL18108
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 22 04:04:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•



SGS

Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138358

SGS Job Number: JD28614

Sampling Date: 07/16/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walku Drive
Westborough, MA 01581

ATTN: Ellen Collins

Total number of pages in report: **190**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Table of Contents

-1-

SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD28614-1	07/16/21	09:05		07/20/21	SO	Soil	PB38-01-SS01
JD28614-2	07/16/21	09:15		07/20/21	SO	Soil	PB38-02-SS01
JD28614-3	07/16/21	09:30		07/20/21	SO	Soil	PB38-03-SS01
JD28614-4	07/16/21	09:35		07/20/21	SO	Soil	PB38-04-SS01
JD28614-5	07/16/21	09:45		07/20/21	SO	Soil	PB38-05-SS01
JD28614-6	07/16/21	10:05		07/20/21	SO	Soil	PB38-06-SS01
JD28614-7	07/16/21	10:35		07/20/21	SO	Soil	PB38-07-SS01
JD28614-8	07/16/21	10:45		07/20/21	SO	Soil	PB38-08-SS01
JD28614-9	07/16/21	10:55		07/20/21	SO	Soil	PB38-09-SS01
JD28614-10	07/16/21	11:05		07/20/21	SO	Soil	PB38-10-SS01
JD28614-11	07/16/21	11:35		07/20/21	SO	Soil	PB38-11-SS01
JD28614-12	07/16/21	11:45		07/20/21	SO	Soil	PB38-12-SS01
JD28614-13	07/16/21	11:55		07/20/21	SO	Soil	PB38-13-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

1

SGS North America Inc.

Sample Summary
(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD28614-14	07/16/21	12:05		07/20/21	SO	Soil	PB38-14-SS01
JD28614-15	07/16/21	11:00		07/20/21	AQ	Field Blank Soil	FB-210716-1
JD28614-16	07/16/21	13:00		07/20/21	AQ	Field Blank Soil	FB-210716-2
JD28614-17	07/16/21	00:00		07/20/21	SO	Soil	DUP-14

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Alpha Analytical Laboratories, Inc.	Job No	JD28614
Site:	Alpha Analytical, PA	Report Date	7/29/2021 8:54:51 AM

On 07/20/2021, 15 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28614 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix:	AQ	Batch ID:	MP27687

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix:	SO	Batch ID:	MP27576

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-1	**PB38-01-SS01**					
Lead		110	2.6		mg/kg	SW846 6010D
JD28614-2	**PB38-02-SS01**					
Lead		22.9	2.4		mg/kg	SW846 6010D
JD28614-3	**PB38-03-SS01**					
Lead		96.7	2.4		mg/kg	SW846 6010D
JD28614-4	**PB38-04-SS01**					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-5	**PB38-05-SS01**					
Lead		13.6	2.4		mg/kg	SW846 6010D
JD28614-6	**PB38-06-SS01**					
Lead		17.8	2.5		mg/kg	SW846 6010D
JD28614-7	**PB38-07-SS01**					
Lead		81.7	2.4		mg/kg	SW846 6010D
JD28614-8	**PB38-08-SS01**					
Lead		30.3	2.3		mg/kg	SW846 6010D
JD28614-9	**PB38-09-SS01**					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-10	**PB38-10-SS01**					
Lead		464	2.5		mg/kg	SW846 6010D
JD28614-11	**PB38-11-SS01**					
Lead		780	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

3

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-12	**PB38-12-SS01**					
Lead		31.6	3.3		mg/kg	SW846 6010D
JD28614-13	**PB38-13-SS01**					
Lead		12.7	2.4		mg/kg	SW846 6010D
JD28614-14	**PB38-14-SS01**					
Lead		36.6	2.8		mg/kg	SW846 6010D
JD28614-15	**FB-210716-1**					
No hits reported in this sample.						
JD28614-16	**FB-210716-2**					
No hits reported in this sample.						
JD28614-17	**DUP-14**					
Lead		179	2.2		mg/kg	SW846 6010D

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-01-SS01		
Lab Sample ID:	JD28614-1	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	110	2.6	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-02-SS01			
Lab Sample ID:	JD28614-2		**Date Sampled:**	07/16/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	80.1
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	22.9	2.4	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-03-SS01		
Lab Sample ID:	JD28614-3	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	96.7	2.4	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-04-SS01		
Lab Sample ID:	JD28614-4	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-05-SS01		
Lab Sample ID:	JD28614-5	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	79.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.6	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-06-SS01		
Lab Sample ID:	JD28614-6	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	17.8	2.5	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-07-SS01		
Lab Sample ID:	JD28614-7	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	81.7	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PB38-08-SS01		
Lab Sample ID:	JD28614-8	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	30.3	2.3	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-09-SS01		
Lab Sample ID:	JD28614-9	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PB38-10-SS01		
Lab Sample ID:	JD28614-10	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	85.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	464	2.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PB38-11-SS01			
Lab Sample ID:	JD28614-11		**Date Sampled:**	07/16/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	84.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	780	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-12-SS01		
Lab Sample ID:	JD28614-12	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	31.6	3.3	mg/kg	2	07/23/21	07/28/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50902
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID:	PB38-13-SS01		
Lab Sample ID:	JD28614-13	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	12.7	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-14-SS01		
Lab Sample ID:	JD28614-14	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	74.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	36.6	2.8	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210716-1			
Lab Sample ID:	JD28614-15		**Date Sampled:**	07/16/21
Matrix:	AQ - Field Blank Soil		**Date Received:**	07/20/21
			Percent Solids:	n/a
Project:	Alpha Analytical, PA			

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210716-2		
Lab Sample ID:	JD28614-16	**Date Sampled:**	07/16/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-14		
Lab Sample ID:	JD28614-17	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	88.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	179	2.2	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ALPHA ANALYTICAL

SO
FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28614

Alpha Job Number
L2138358

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138358

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB38-01-SS01	07-16-21 09:05	SOIL	Total Lead	E37
2	PB38-02-SS01	07-16-21 09:15	SOIL	Total Lead	T2
3	PB38-03-SS01	07-16-21 09:30	SOIL	Total Lead	A29
4	PB38-04-SS01	07-16-21 09:35	SOIL	Total Lead	
5	PB38-05-SS01	07-16-21 09:45	SOIL	Total Lead	
6	PB38-06-SS01	07-16-21 10:05	SOIL	Total Lead	
7	PB38-07-SS01	07-16-21 10:35	SOIL	Total Lead	
8	PB38-08-SS01	07-16-21 10:45	SOIL	Total Lead	
9	PB38-09-SS01	07-16-21 10:55	SOIL	Total Lead	

INITIAL ASESSMENT TS-213

LABEL VERIFICATION

Relinquished By:	Date/Time:	Received By:	Date/Time:
[illegible] AAL	7/19/21	7/19/21 1650	
Paul Mazzella 7/19/21	2005	Paul Mazzella	7/19/21 2005
Paul Mazzella	7/19/21 2235	Don DAAL	7/20/21 830
Don DAAL	7/20/21 1035	Paul [illegible]	7/20/21 1035

Form No: AL_subcoc

JR-5

On ice
4.1°C IP

JD28614: Chain of Custody
Page 1 of 3

SGS

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JD28614

ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

Alpha Job Number
L2138358

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138358

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB38-10-SS01	07-16-21 11:05	SOIL	Total Lead	
11	PB38-11-SS01	07-16-21 11:35	SOIL	Total Lead	
12	PB38-12-SS01	07-16-21 11:45	SOIL	Total Lead	
13	PB38-13-SS01	07-16-21 11:55	SOIL	Total Lead	
14	PB38-14-SS01	07-16-21 12:05	SOIL	Total Lead	
15	FB-210716-1	07-16-21 11:00	WATER	Total Lead	
16	FB-210716-2	07-16-21 13:00	WATER	Total Lead	
17	DUP-14	07-16-21 00:00	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[illegible] AAL	7/19/21	[illegible]	1530
[illegible] 7/19	2030	Paul Mazzella	7/19/21 2030
Paul Mazzella	7/19/21 22:35	Don D. AAL	7/20/21 830
Don D AAL	7/20/21 1035	John Yuen	7/20/21 10:35

Form No: AL_subcoc

IR5 On ice 4.1°C IP

JD28614: Chain of Custody
Page 2 of 3

5.1
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SGS Sample Receipt Summary

Job Number: JD28614 **Client:** ALPHA ANALYTICAL **Project:** L2138358

Date / Time Received: 7/20/2021 10:35:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (4.1);

Cooler Temps (Corrected) °C: Cooler 1: (4.1);

Cooler Security

	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature

	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation

	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation

	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition

	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions

	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD28614: Chain of Custody
Page 3 of 3

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA
Project No: L2138358

Job No: JD28614

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-1 PB38-01-SS01	Collected: 16-JUL-21 09:05 By:		Received: 20-JUL-21 By: MK			
JD28614-1	SW846 6010D	24-JUL-21 02:56	ND	23-JUL-21	MS	PB
JD28614-2 PB38-02-SS01	Collected: 16-JUL-21 09:15 By:		Received: 20-JUL-21 By: MK			
JD28614-2	SW846 6010D	24-JUL-21 03:01	ND	23-JUL-21	MS	PB
JD28614-3 PB38-03-SS01	Collected: 16-JUL-21 09:30 By:		Received: 20-JUL-21 By: MK			
JD28614-3	SW846 6010D	24-JUL-21 03:06	ND	23-JUL-21	MS	PB
JD28614-4 PB38-04-SS01	Collected: 16-JUL-21 09:35 By:		Received: 20-JUL-21 By: MK			
JD28614-4	SW846 6010D	26-JUL-21 16:58	ND	23-JUL-21	MS	PB
JD28614-5 PB38-05-SS01	Collected: 16-JUL-21 09:45 By:		Received: 20-JUL-21 By: MK			
JD28614-5	SW846 6010D	26-JUL-21 17:03	ND	23-JUL-21	MS	PB
JD28614-6 PB38-06-SS01	Collected: 16-JUL-21 10:05 By:		Received: 20-JUL-21 By: MK			
JD28614-6	SW846 6010D	24-JUL-21 02:46	ND	23-JUL-21	MS	PB
JD28614-7 PB38-07-SS01	Collected: 16-JUL-21 10:35 By:		Received: 20-JUL-21 By: MK			
JD28614-7	SW846 6010D	26-JUL-21 17:08	ND	23-JUL-21	MS	PB
JD28614-8 PB38-08-SS01	Collected: 16-JUL-21 10:45 By:		Received: 20-JUL-21 By: MK			
JD28614-8	SW846 6010D	26-JUL-21 17:13	ND	23-JUL-21	MS	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-9	Collected: 16-JUL-21 10:55 By:		Received: 20-JUL-21 By: MK			
PB38-09-SS01						
JD28614-9	SW846 6010D	26-JUL-21 17:18	ND	23-JUL-21	MS	PB
JD28614-10	Collected: 16-JUL-21 11:05 By:		Received: 20-JUL-21 By: MK			
PB38-10-SS01						
JD28614-10	SW846 6010D	26-JUL-21 17:23	ND	23-JUL-21	MS	PB
JD28614-11	Collected: 16-JUL-21 11:35 By:		Received: 20-JUL-21 By: MK			
PB38-11-SS01						
JD28614-11	SW846 6010D	26-JUL-21 17:38	ND	23-JUL-21	MS	PB
JD28614-12	Collected: 16-JUL-21 11:45 By:		Received: 20-JUL-21 By: MK			
PB38-12-SS01						
JD28614-12	SW846 6010D	28-JUL-21 13:43	ND	23-JUL-21	MS	PB
JD28614-13	Collected: 16-JUL-21 11:55 By:		Received: 20-JUL-21 By: MK			
PB38-13-SS01						
JD28614-13	SW846 6010D	26-JUL-21 17:49	ND	23-JUL-21	MS	PB
JD28614-14	Collected: 16-JUL-21 12:05 By:		Received: 20-JUL-21 By: MK			
PB38-14-SS01						
JD28614-14	SW846 6010D	26-JUL-21 17:53	ND	23-JUL-21	MS	PB
JD28614-15	Collected: 16-JUL-21 11:00 By:		Received: 20-JUL-21 By: MK			
FB-210716-1						
JD28614-15	SW846 6010D	27-JUL-21 21:56	ND	27-JUL-21	AK	PB
JD28614-16	Collected: 16-JUL-21 13:00 By:		Received: 20-JUL-21 By: MK			
FB-210716-2						
JD28614-16	SW846 6010D	27-JUL-21 22:02	ND	27-JUL-21	AK	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-17 DUP-14	Collected: 16-JUL-21 00:00 By:			Received: 20-JUL-21 By: MK		
JD28614-17	SW846 6010D	26-JUL-21 17:58	ND	23-JUL-21	MS	PB

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-1.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-1.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-1.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-1.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-1.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-1.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-2.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-2.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-2.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-2.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-2.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-2.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-3.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-3.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-3.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-3.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-3.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-3.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-4.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-4.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-4.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-4.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-4.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-4.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-5.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-5.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-5.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-5.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-5.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-5.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-6.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-6.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-6.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-6.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-6.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-6.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-7.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-7.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-7.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-7.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-7.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-7.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-8.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-8.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-8.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-8.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-8.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-8.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-9.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-9.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-9.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-9.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-9.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-9.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-9.1
JD28614-9.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-9.1

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-9.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-10.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-10.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-10.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-10.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-10.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-10.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-11.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-11.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-11.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-11.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-11.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-11.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-12.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-12.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-12.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-12.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-12.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-12.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-13.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-13.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-13.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-13.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-13.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-13.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-14.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-14.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-14.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-14.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-14.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-14.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-15.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-15.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-15.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-15.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-15.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-15.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-16.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-16.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-16.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-16.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-16.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-16.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-17.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-17.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-17.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-17.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-17.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-17.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP　Date Analyzed: 07/23/21　Methods: SW846 6010D
Analyst: ND　Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:21	MA50885-STD1	1		STDA
17:26	MA50885-STD2	1		STDB
17:31	ZZZZZZ	1		
17:36	ZZZZZZ	1		
17:41	MA50885-ICV1	1		
17:46	MA50885-ICB1	1		
17:51	MA50885-CCV1	1		
17:56	MA50885-CCB1	1		
18:01	MA50885-CRI1	1		
18:06	MA50885-CRID1	1		
18:11	MA50885-ICSA1	1		
18:16	MA50885-ICSAB1	1		
18:21	MA50885-HSTD1	1		
18:26	MA50885-HSTD2	1		
18:31	ZZZZZZ	1		
18:37	ZZZZZZ	1		
18:42	ZZZZZZ	1		
18:47	MA50885-CCV2	1		
18:52	MA50885-CCB2	1		
18:57	ZZZZZZ	5		
19:02	ZZZZZZ	5		
19:07	MA50885-HSTD3	1		
19:12	MA50885-CCV3	1		
19:17	MA50885-CCB3	1		
19:22	MP27580-S1	5		
19:27	MP27580-S2	5		
19:32	JD28370-6A	5		(sample used for QC only; not part of login JD28614)
19:37	MP27580-SD1	25		
19:42	ZZZZZZ	5		
19:48	ZZZZZZ	5		
19:53	ZZZZZZ	5		
19:58	ZZZZZZ	5		
20:03	ZZZZZZ	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:09	MA50885-CCV4	1		
20:13	MA50885-CCB4	1		
20:18	ZZZZZZ	5		
20:24	ZZZZZZ	5		
20:29	ZZZZZZ	5		
20:34	ZZZZZZ	5		
20:39	ZZZZZZ	5		
20:44	ZZZZZZ	5		
20:50	ZZZZZZ	5		
20:55	MP27581-MB1	5		
21:00	MP27581-B1	5		
21:05	MP27581-S1	5		
21:10	MA50885-CCV5	1		
21:15	MA50885-CCB5	1		
21:20	MP27581-S2	5		
21:25	JD28602-1A	5		(sample used for QC only; not part of login JD28614)
21:30	MP27581-SD1	25		
21:35	ZZZZZZ	5		
21:41	ZZZZZZ	5		
21:46	ZZZZZZ	5		
21:51	MP27582-MB1	5		
21:56	MP27582-B1	5		
22:01	MP27582-S1	5		
22:06	MP27582-S2	5		
22:11	MA50885-CCV6	1		
22:16	MA50885-CCB6	1		
22:21	JD28385-50	5		(sample used for QC only; not part of login JD28614)
22:26	MP27582-SD1	25		
22:31	ZZZZZZ	5		
22:36	ZZZZZZ	5		
22:41	ZZZZZZ	5		
22:46	MP27583-MB1	5		
22:51	MP27583-B1	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:56	MP27583-S1	5		
23:01	MP27583-S2	5		
23:06	JD28385-42	5		(sample used for QC only; not part of login JD28614)
23:11	MA50885-CCV7	1		
23:16	MA50885-CCB7	1		
23:21	MP27583-SD1	25		
23:26	ZZZZZZ	5		
23:32	ZZZZZZ	5		
23:37	ZZZZZZ	5		
23:42	ZZZZZZ	5		
23:47	ZZZZZZ	5		
23:52	MP27578-MB1	1		
23:58	MP27578-B1	1		
00:02	MP27578-S1	1		
00:07	MP27578-S2	1		
00:12	MA50885-CCV8	1		
00:17	MA50885-CCB8	1		
00:22	JD28643-11	1		(sample used for QC only; not part of login JD28614)
00:27	MP27578-SD1	5		
00:32	ZZZZZZ	1		
00:37	ZZZZZZ	1		
00:42	ZZZZZZ	1		
00:47	ZZZZZZ	1		
00:52	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:02	ZZZZZZ	1		
01:07	ZZZZZZ	1		
01:12	MA50885-CCV9	1		
01:17	MA50885-CCB9	1		
01:22	ZZZZZZ	1		
01:27	ZZZZZZ	1		
01:32	ZZZZZZ	1		
01:37	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
01:42	ZZZZZZ	1		
01:47	ZZZZZZ	1		
01:51	ZZZZZZ	1		
01:56	ZZZZZZ	1		
02:01	ZZZZZZ	1		
02:06	ZZZZZZ	1		
02:11	MA50885-CCV10	1		
02:16	MA50885-CCB10	1		
02:21	ZZZZZZ	1		
02:26	MP27576-B1	1		
02:31	MP27576-MB1	1		
02:36	MP27576-S1	1		
02:41	MP27576-S2	1		
02:46	JD28614-6	1		
02:51	MP27576-SD1	5		
02:56	JD28614-1	1		
03:01	JD28614-2	1		
03:06	JD28614-3	1		
----------->	Last reportable sample/prep for job JD28614			
03:11	MA50885-CCV11	1		
03:16	MA50885-CCB11	1		
----------->	Last reportable CCB for job JD28614			
03:21	JD28614-4	1		instrument stopped
03:26	JD28614-5	1		instrument stopped
03:31	JD28614-7	1		instrument stopped
03:36	JD28614-8	1		instrument stopped
03:41	JD28614-9	1		instrument stopped
03:46	JD28614-10	1		instrument stopped
03:51	JD28614-11	1		instrument stopped
03:56	JD28614-12	1		instrument stopped
04:01	JD28614-13	1		instrument stopped

Refer to raw data for calibration curve and standards.

6.1

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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
17:31	ZZZZZZ	1	
17:36	ZZZZZZ	1	
17:41	MA50885-ICV1	1	X
17:46	MA50885-ICB1	1	X
17:51	MA50885-CCV1	1	X
17:56	MA50885-CCB1	1	X
18:01	MA50885-CRI1	1	X
18:06	MA50885-CRID1	1	X
18:11	MA50885-ICSA1	1	X
18:16	MA50885-ICSAB1	1	X
18:21	MA50885-HSTD1	1	X
18:26	MA50885-HSTD2	1	X
18:31	ZZZZZZ	1	
18:37	ZZZZZZ	1	
18:42	ZZZZZZ	1	
18:47	MA50885-CCV2	1	X
18:52	MA50885-CCB2	1	X
18:57	ZZZZZZ	5	
19:02	ZZZZZZ	5	
19:07	MA50885-HSTD3	1	X
19:12	MA50885-CCV3	1	X
19:17	MA50885-CCB3	1	X
19:22	MP27580-S1	5	X
19:27	MP27580-S2	5	X
19:32	JD28370-6A	5	X (a)
19:37	MP27580-SD1	25	X
19:42	ZZZZZZ	5	
19:48	ZZZZZZ	5	
19:53	ZZZZZZ	5	
19:58	ZZZZZZ	5	
20:03	ZZZZZZ	5	
20:09	MA50885-CCV4	1	X
20:13	MA50885-CCB4	1	X
		Element:	Pb

6.1.1
6

SGS

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
20:18	ZZZZZZ	5	
20:24	ZZZZZZ	5	
20:29	ZZZZZZ	5	
20:34	ZZZZZZ	5	
20:39	ZZZZZZ	5	
20:44	ZZZZZZ	5	
20:50	ZZZZZZ	5	
20:55	MP27581-MB1	5	X
21:00	MP27581-B1	5	X
21:05	MP27581-S1	5	X
21:10	MA50885-CCV5	1	X
21:15	MA50885-CCB5	1	X
21:20	MP27581-S2	5	X
21:25	JD28602-1A	5	X (a)
21:30	MP27581-SD1	25	X
21:35	ZZZZZZ	5	
21:41	ZZZZZZ	5	
21:46	ZZZZZZ	5	
21:51	MP27582-MB1	5	X
21:56	MP27582-B1	5	X
22:01	MP27582-S1	5	X
22:06	MP27582-S2	5	X
22:11	MA50885-CCV6	1	X
22:16	MA50885-CCB6	1	X
22:21	JD28385-50	5	X (a)
22:26	MP27582-SD1	25	X
22:31	ZZZZZZ	5	
22:36	ZZZZZZ	5	
22:41	ZZZZZZ	5	
22:46	MP27583-MB1	5	X
22:51	MP27583-B1	5	X
22:56	MP27583-S1	5	X
23:01	MP27583-S2	5	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:06	JD28385-42	5	X (a)
23:11	MA50885-CCV7	1	X
23:16	MA50885-CCB7	1	X
23:21	MP27583-SD1	25	X
23:26	ZZZZZZ	5	
23:32	ZZZZZZ	5	
23:37	ZZZZZZ	5	
23:42	ZZZZZZ	5	
23:47	ZZZZZZ	5	
23:52	MP27578-MB1	1	X
23:58	MP27578-B1	1	X
00:02	MP27578-S1	1	X
00:07	MP27578-S2	1	X
00:12	MA50885-CCV8	1	X
00:17	MA50885-CCB8	1	X
00:22	JD28643-11	1	X (a)
00:27	MP27578-SD1	5	X
00:32	ZZZZZZ	1	
00:37	ZZZZZZ	1	
00:42	ZZZZZZ	1	
00:47	ZZZZZZ	1	
00:52	ZZZZZZ	1	
00:57	ZZZZZZ	1	
01:02	ZZZZZZ	1	
01:07	ZZZZZZ	1	
01:12	MA50885-CCV9	1	X
01:17	MA50885-CCB9	1	X
01:22	ZZZZZZ	1	
01:27	ZZZZZZ	1	
01:32	ZZZZZZ	1	
01:37	ZZZZZZ	1	
01:42	ZZZZZZ	1	
01:47	ZZZZZZ	1	
		Element:	Pb

6.1.1

6

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
01:51	ZZZZZZ	1	
01:56	ZZZZZZ	1	
02:01	ZZZZZZ	1	
02:06	ZZZZZZ	1	
02:11	MA50885-CCV10	1	X
02:16	MA50885-CCB10	1	X
02:21	ZZZZZZ	1	
02:26	MP27576-B1	1	X
02:31	MP27576-MB1	1	X
02:36	MP27576-S1	1	X
02:41	MP27576-S2	1	X
02:46	JD28614-6	1	X
02:51	MP27576-SD1	5	X
02:56	JD28614-1	1	X
03:01	JD28614-2	1	X
03:06	JD28614-3	1	X
03:11	MA50885-CCV11	1	X
03:16	MA50885-CCB11	1	X
03:21	JD28614-4	1	instrument stopped
03:26	JD28614-5	1	instrument stopped
03:31	JD28614-7	1	instrument stopped
03:36	JD28614-8	1	instrument stopped
03:41	JD28614-9	1	instrument stopped
03:46	JD28614-10	1	instrument stopped
03:51	JD28614-11	1	instrument stopped
03:56	JD28614-12	1	instrument stopped
04:01	JD28614-13	1	instrument stopped

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:21	MA50885-STD1	3196 R	86341 R	8580 R	8763 R
17:26	MA50885-STD2	3025	82681	8425	7660
17:31	ZZZZZZ	3134	85064	8466	8047
17:36	ZZZZZZ	3223	88231	8582	8836
17:41	MA50885-ICV1	3119	84261	8598	7963
17:46	MA50885-ICB1	3243	87818	8688	8885
17:51	MA50885-CCV1	3157	84247	8583	8035
17:56	MA50885-CCB1	3262	87517	8625	8879
18:01	MA50885-CRI1	3237	86363	8704	8706
18:06	MA50885-CRID1	3246	86469	8614	8793
18:11	MA50885-ICSA1	2957	76774	8297	7158
18:16	MA50885-ICSAB1	2995	77179	8226	7228
18:21	MA50885-HSTD1	3263	85857	8631	8706
18:26	MA50885-HSTD2	3012	77648	8251	7232
18:31	ZZZZZZ	3274	85348	8557	8875
18:37	ZZZZZZ	3273	87085	8662	8984
18:42	ZZZZZZ	3352	87383	8559	9022
18:47	MA50885-CCV2	3237	83353	8444	8127
18:52	MA50885-CCB2	3321	86703	8597	8941
18:57	ZZZZZZ	3236	83554	8607	8319
19:02	ZZZZZZ	3239	83816	8604	8261
19:07	MA50885-HSTD3	3030	77601	8256	7269
19:12	MA50885-CCV3	3260	83828	8468	8173
19:17	MA50885-CCB3	3366	87325	8545	9038
19:22	MP27580-S1	3216	81256	8583	7914
19:27	MP27580-S2	3175	81200	8438	7842
19:32	JD28370-6A	3169	80971	8555	7866
19:37	MP27580-SD1	3283	84651	8558	8500
19:42	ZZZZZZ	3128	80115	8443	7747
19:48	ZZZZZZ	3150	80568	8460	7793
19:53	ZZZZZZ	3151	80596	8481	7813
19:58	ZZZZZZ	3132	80493	8486	7753
20:03	ZZZZZZ	3169	81166	8489	7901

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:09	MA50885-CCV4	3302	85288	8827	8254
20:13	MA50885-CCB4	3339	87964	8883	8974
20:18	ZZZZZZ	3122	79405	8309	7732
20:24	ZZZZZZ	3078	79827	8187	7641
20:29	ZZZZZZ	3055	79116	8399	7576
20:34	ZZZZZZ	3059	79272	8394	7611
20:39	ZZZZZZ	3071	79746	8499	7654
20:44	ZZZZZZ	3050	79811	8471	7611
20:50	ZZZZZZ	3075	79860	8465	7655
20:55	MP27581-MB1	3118	80458	8534	7826
21:00	MP27581-B1	3157	81248	8528	7834
21:05	MP27581-S1	3078	80119	8440	7634
21:10	MA50885-CCV5	3205	83274	8515	8090
21:15	MA50885-CCB5	3323	86915	8632	8978
21:20	MP27581-S2	3065	79509	8402	7586
21:25	JD28602-1A	3045	79192	8380	7569
21:30	MP27581-SD1	3218	83640	8491	8348
21:35	ZZZZZZ	3126	79685	8540	7781
21:41	ZZZZZZ	3041	77480	7819	7594
21:46	ZZZZZZ	3026	76562	7670	7599
21:51	MP27582-MB1	3196	82959	7825	8641
21:56	MP27582-B1	3172	82757	7823	8431
22:01	MP27582-S1	2975	77507	7675	7601
22:06	MP27582-S2	2964	76941	7581	7564
22:11	MA50885-CCV6	3085	78962	7673	7808
22:16	MA50885-CCB6	3180	82307	7679	8573
22:21	JD28385-50	2910	75836	7444	7501
22:26	MP27582-SD1	3070	79944	7515	8160
22:31	ZZZZZZ	2870	75508	7409	7450
22:36	ZZZZZZ	2969	77396	7561	7729
22:41	ZZZZZZ	2984	78273	7677	7789
22:46	MP27583-MB1	2964	76293	7504	7512
22:51	MP27583-B1	2985	76840	7550	7476

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:56	MP27583-S1	2913	75478	7456	7287
23:01	MP27583-S2	2916	75375	7415	7300
23:06	JD28385-42	2882	74628	7252	7232
23:11	MA50885-CCV7	3036	78509	7514	7731
23:16	MA50885-CCB7	3158	82029	7664	8570
23:21	MP27583-SD1	3067	79390	7577	7991
23:26	ZZZZZZ	2926	75750	7496	7355
23:32	ZZZZZZ	2904	74763	7286	7312
23:37	ZZZZZZ	2896	75034	7431	7323
23:42	ZZZZZZ	2895	74878	7366	7299
23:47	ZZZZZZ	2956	76300	7548	7419
23:52	MP27578-MB1	3096	81312	7615	8430
23:58	MP27578-B1	3007	78625	7592	7809
00:02	MP27578-S1	3203	83529	8178	7890
00:07	MP27578-S2	3276	84035	8298	8093
00:12	MA50885-CCV8	3125	80545	7853	7938
00:17	MA50885-CCB8	3174	82816	7666	8606
00:22	JD28643-11	3367	86860	8430	8487
00:27	MP27578-SD1	3270	85056	8011	8614
00:32	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:37	ZZZZZZ	3354	85091	8272	8103
00:42	ZZZZZZ	3315	83804	8123	8340
00:47	ZZZZZZ	3380	85216	8465	8082
00:52	ZZZZZZ	3405	87268	8551	8321
00:57	ZZZZZZ	3360	86306	8490	8332
01:02	ZZZZZZ	3377	86896	8534	8242
01:07	ZZZZZZ	3404	86625	8499	8209
01:12	MA50885-CCV9	3115	80358	7806	7906
01:17	MA50885-CCB9	3218	83271	7811	8710
01:22	ZZZZZZ	3407	86636	8520	8244
01:27	ZZZZZZ	3395	86598	8500	8344
01:32	ZZZZZZ	3371	86642	8547	8230
01:37	ZZZZZZ	3329	85332	8406	8157

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
01:42	ZZZZZZ	3365	86068	8472	8268
01:47	ZZZZZZ	3358	86167	8348	8461
01:51	ZZZZZZ	3325	85600	8294	8604
01:56	ZZZZZZ	3458	88656	8689	8341
02:01	ZZZZZZ	3331	85030	8446	8237
02:06	ZZZZZZ	3334	86081	8352	8603
02:11	MA50885-CCV10	3127	80105	7778	7921
02:16	MA50885-CCB10	3237	83788	7903	8746
02:21	ZZZZZZ	3384	87023	8536	8409
02:26	MP27576-B1	3089	79787	7789	7966
02:31	MP27576-MB1	3230	83978	8030	8743
02:36	MP27576-S1	3222	82529	8295	7873
02:41	MP27576-S2	3236	82607	8264	7856
02:46	JD28614-6	3348	85376	8428	8235
02:51	MP27576-SD1	3299	84094	8098	8498
02:56	JD28614-1	3391	85978	8458	8411
03:01	JD28614-2	3373	84749	8314	8367
03:06	JD28614-3	3338	85011	8260	8353
03:11	MA50885-CCV11	3149	80157	7811	7968
03:16	MA50885-CCB11	3268	83642	7891	8808
03:21	JD28614-4	No results reported for the elements associated with this internal standard.			
03:26	JD28614-5	No results reported for the elements associated with this internal standard.			
03:31	JD28614-7	No results reported for the elements associated with this internal standard.			
03:36	JD28614-8	No results reported for the elements associated with this internal standard.			
03:41	JD28614-9	No results reported for the elements associated with this internal standard.			
03:46	JD28614-10	No results reported for the elements associated with this internal standard.			
03:51	JD28614-11	No results reported for the elements associated with this internal standard.			
03:56	JD28614-12	No results reported for the elements associated with this internal standard.			
04:01	JD28614-13	No results reported for the elements associated with this internal standard.			

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			17:46		17:56		18:52		19:17	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.500	<20	0.400	<20	1.50	<20	0.200	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

6.1.3

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BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: result < RL   Run ID: MA50885   Units: ug/l

Time:			17:46		17:56		18:52		19:17	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: result < RL   Run ID: MA50885   Units: ug/l

Time:			20:13		21:15		22:16		23:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.400	<20	0.400	<20	0.100	<20	-0.300	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			20:13		21:15		22:16		23:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			00:17		01:17		02:16		03:16	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.100	<20	-0.200	<20	0.100	<20	0.300	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			00:17		01:17		02:16		03:16	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		17:41			17:51			18:47	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2030	101.5	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		17:41			17:51			18:47	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:		19:12			20:09			21:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2060	103.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		19:12			20:09			21:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time: / Sample ID: / Metal	CCV True	22:11 CCV6 Results	% Rec	CCV True	23:11 CCV7 Results	% Rec	CCV True	00:12 CCV8 Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2160	108.0	2000	2140	107.0	2000	2080	104.0
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		22:11			23:11			00:12	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:		01:12			02:11			03:11	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2090	104.5	2000	2080	104.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:		01:12			02:11			03:11	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 90 to 110 % Recovery   Run ID: MA50885   Units: ug/l

Time:		18:21			18:26			19:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2		HSTD	HSTD3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	8000	8170	102.1						
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.5

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HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50885 Units: ug/l

Time:		18:21			18:26			19:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2		HSTD	HSTD3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50885 Units: ug/l

Time: / Sample ID: / Metal	CRI True	CRIA True	CRID True	18:01 CRI1 Results	% Rec	18:06 CRID1 Results	% Rec
Aluminum	200	500	100				
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000				
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500					
Lead	3.0	20	2.5	3.00	100.0		
Lithium	50						
Magnesium	5000	2000	100				
Manganese	15		3.0				
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000				
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000				
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				
Zinc	20		10				

6.1.6

6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50885 Units: ug/l

Time:				18:01		18:06	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50885 Units: ug/l

Time:			18:11		18:16	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	501000	100.2	488000	97.6
Antimony		1000	-3.20		973	97.3
Arsenic		1000	0.700		972	97.2
Barium		500	1.30		487	97.4
Beryllium		500	0.200		489	97.8
Bismuth		500	7.10		489	97.8
Boron		500	-4.00		471	94.2
Cadmium		1000	0.00		1010	101.0
Calcium	400000	400000	382000	95.5	372000	93.0
Chromium		500	-3.80		478	95.6
Cobalt		500	-0.100		491	98.2
Copper		500	5.40		506	101.2
Iron	200000	200000	200000	100.0	191000	95.5
Lead		1000	-0.800		999	99.9
Lithium		500	-15.4		488	97.6
Magnesium	500000	500000	489000	97.8	482000	96.4
Manganese		500	0.500		520	104.0
Molybdenum		500	-1.50		451	90.2
Nickel		1000	-0.900		975	97.5
Phosphorus		500	18.9		443	88.6
Potassium			167		180	
Selenium		1000	-5.30		901	90.1
Silicon		500	-4.40		500	100.0
Silver		1000	-1.10		1000	100.0
Sodium			-22.3		43.6	
Strontium		500	0.700		470	94.0
Sulfur		500	23.7		479	95.8
Thallium		1000	-4.40		1030	103.0
Tin		500	-3.20		473	94.6
Titanium		500	-1.10		490	98.0
Tungsten		500	8.20		472	94.4
Vanadium		500	-0.400		499	99.8
Zinc		1000	2.00		995	99.5

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50885 Units: ug/l

Time:			18:11		18:16	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zirconium		500	0.100		455	91.0

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:30	MA50891-STD1	1		STDA
11:35	MA50891-STD2	1		STDB
11:40	ZZZZZZ	1		
11:45	ZZZZZZ	1		
11:50	MA50891-ICV1	1		
12:02	MA50891-ICB1	1		
12:09	MA50891-ICCV1	1		
12:22	MA50891-CCB1	1		
12:42	MA50891-CRI1	1		
12:47	MA50891-CRID1	1		
13:03	ZZZZZZ	1		
13:09	ZZZZZZ	1		
13:14	MA50891-ICSA1	1		
13:19	MA50891-ICSAB1	1		
13:24	MA50891-HSTD1	1		
13:29	MA50891-HSTD2	1		
13:34	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:45	MA50891-CCV1	1		
13:50	MA50891-CCB2	1		
13:55	MP27569-MB1	1		
14:00	MP27569-B1	1		
14:05	MP27569-S1	1		Mg high
14:10	MP27569-S2	1		Mg high
14:15	JD28454-12	1		(sample used for QC only; not part of login JD28614)
14:20	MP27569-SD1	5		Mg high
14:25	ZZZZZZ	1		
14:30	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:40	MA50891-CCV2	1		
14:45	MA50891-CCB3	1		
14:51	ZZZZZZ	1		
14:56	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:01	ZZZZZZ	1		
15:06	ZZZZZZ	1		
15:11	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:21	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:36	MA50891-CCV3	1		
15:41	MA50891-CCB4	1		
15:47	ZZZZZZ	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	ZZZZZZ	1		
16:07	ZZZZZZ	1		
16:12	ZZZZZZ	1		
16:17	ZZZZZZ	1		
16:22	ZZZZZZ	1		
16:28	ZZZZZZ	1		
16:33	MA50891-CCV4	1		
16:38	MA50891-CCB5	1		
16:43	ZZZZZZ	5		
16:48	ZZZZZZ	1		
16:53	ZZZZZZ	1		
16:58	JD28614-4	1		
17:03	JD28614-5	1		
17:08	JD28614-7	1		
17:13	JD28614-8	1		
17:18	JD28614-9	1		
17:23	JD28614-10	1		
17:28	MA50891-CCV5	1		
17:33	MA50891-CCB6	1		
17:38	JD28614-11	1		
17:43	JD28614-12	1		FE high

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:49	JD28614-13	1		
17:53	JD28614-14	1		
17:58	JD28614-17	1		
----------->	Last reportable sample/prep for job JD28614			
18:03	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:23	MA50891-CCV6	1		
18:28	MA50891-CCB7	1		
----------->	Last reportable CCB for job JD28614			
18:34	ZZZZZZ	1		
18:39	MP27589-B1	1		
18:44	MP27589-S1	1		
18:48	MP27589-S2	1		
18:53	JD27825-1R	1		(sample used for QC only; not part of login JD28614)
18:58	MP27589-SD1	5		
19:04	MP27592-MB1	1		
19:09	MP27592-B1	1		
19:14	MP27592-S1	1		
19:19	MP27592-S2	1		
19:23	MA50891-CCV7	1		
19:28	MA50891-CCB8	1		
19:33	JD28584-1	1		(sample used for QC only; not part of login JD28614)
19:39	MP27592-SD1	5		
19:44	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
20:00	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	MA50891-CCV8	1		
20:31	MA50891-CCB9	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:36	ZZZZZZ	1		
20:42	ZZZZZZ	1		
20:47	ZZZZZZ	1		
20:52	ZZZZZZ	1		
20:58	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:08	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:18	ZZZZZZ	1		
21:23	ZZZZZZ	1		
21:28	MA50891-CCV9	1		
21:33	MA50891-CCB10	1		
21:39	MP27662-MB1	1		
21:44	MP27662-B1	1		
21:49	MP27662-S1	1		
21:54	MP27662-S2	1		high rsd
21:59	JD28714-4	1		(sample used for QC only; not part of login JD28614)
22:04	MP27662-SD1	5		
22:09	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:25	MA50891-CCV10	1		
22:29	MA50891-CCB11	1		
22:35	ZZZZZZ	1		
22:40	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:11	MP27589-MB1	1		
23:16	ZZZZZZ	1		
23:21	MA50891-CCV11	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:26	MA50891-CCB12	1		
23:31	ZZZZZZ	1		
23:37	ZZZZZZ	1		
23:42	ZZZZZZ	1		
23:47	ZZZZZZ	1		
23:53	ZZZZZZ	1		
23:58	ZZZZZZ	1		
00:03	MA50891-CCV12	1		
00:08	MA50891-CCB13	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
11:40	ZZZZZZ	1	
11:45	ZZZZZZ	1	
11:50	MA50891-ICV1	1	X
12:02	MA50891-ICB1	1	X
12:09	MA50891-ICCV1	1	X
12:22	MA50891-CCB1	1	X
12:42	MA50891-CRI1	1	X
12:47	MA50891-CRID1	1	X
13:03	ZZZZZZ	1	
13:09	ZZZZZZ	1	
13:14	MA50891-ICSA1	1	X
13:19	MA50891-ICSAB1	1	X
13:24	MA50891-HSTD1	1	X
13:29	MA50891-HSTD2	1	X
13:34	ZZZZZZ	1	
13:39	ZZZZZZ	1	
13:45	MA50891-CCV1	1	X
13:50	MA50891-CCB2	1	X
13:55	MP27569-MB1	1	X
14:00	MP27569-B1	1	X
14:05	MP27569-S1	1	Mg high
14:10	MP27569-S2	1	Mg high
14:15	JD28454-12	1	Mg high
14:20	MP27569-SD1	5	Mg high
14:25	ZZZZZZ	1	
14:30	ZZZZZZ	1	
14:35	ZZZZZZ	1	
14:40	MA50891-CCV2	1	X
14:45	MA50891-CCB3	1	X
14:51	ZZZZZZ	1	
14:56	ZZZZZZ	1	
15:01	ZZZZZZ	1	
15:06	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
15:11	ZZZZZZ	1	
15:16	ZZZZZZ	1	
15:21	ZZZZZZ	1	
15:26	ZZZZZZ	1	
15:31	ZZZZZZ	1	
15:36	MA50891-CCV3	1	X
15:41	MA50891-CCB4	1	X
15:47	ZZZZZZ	1	
15:52	ZZZZZZ	1	
15:57	ZZZZZZ	1	
16:02	ZZZZZZ	1	
16:07	ZZZZZZ	1	
16:12	ZZZZZZ	1	
16:17	ZZZZZZ	1	
16:22	ZZZZZZ	1	
16:28	ZZZZZZ	1	
16:33	MA50891-CCV4	1	X
16:38	MA50891-CCB5	1	X
16:43	ZZZZZZ	5	
16:48	ZZZZZZ	1	
16:53	ZZZZZZ	1	
16:58	JD28614-4	1	X
17:03	JD28614-5	1	X
17:08	JD28614-7	1	X
17:13	JD28614-8	1	X
17:18	JD28614-9	1	X
17:23	JD28614-10	1	X
17:28	MA50891-CCV5	1	X
17:33	MA50891-CCB6	1	X
17:38	JD28614-11	1	X
17:43	JD28614-12	1	
17:49	JD28614-13	1	X
17:53	JD28614-14	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb	
17:58	JD28614-17	1	X	
18:03	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:23	MA50891-CCV6	1	X	
18:28	MA50891-CCB7	1	X	
18:34	ZZZZZZ	1		
18:39	MP27589-B1	1		
18:44	MP27589-S1	1		
18:48	MP27589-S2	1		
18:53	JD27825-1R	1		(a)
18:58	MP27589-SD1	5		
19:04	MP27592-MB1	1	X	
19:09	MP27592-B1	1	X	
19:14	MP27592-S1	1		
19:19	MP27592-S2	1		
19:23	MA50891-CCV7	1	X	
19:28	MA50891-CCB8	1	X	
19:33	JD28584-1	1		(a)
19:39	MP27592-SD1	5		
19:44	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
20:00	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	MA50891-CCV8	1	X	
20:31	MA50891-CCB9	1	X	
20:36	ZZZZZZ	1		
20:42	ZZZZZZ	1		
		Element:	Pb	

6.2.1

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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb	
20:47	ZZZZZZ	1		
20:52	ZZZZZZ	1		
20:58	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:08	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:18	ZZZZZZ	1		
21:23	ZZZZZZ	1		
21:28	MA50891-CCV9	1	X	
21:33	MA50891-CCB10	1	X	
21:39	MP27662-MB1	1		
21:44	MP27662-B1	1		
21:49	MP27662-S1	1		
21:54	MP27662-S2	1		
21:59	JD28714-4	1		(a)
22:04	MP27662-SD1	5		
22:09	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:25	MA50891-CCV10	1	X	
22:29	MA50891-CCB11	1	X	
22:35	ZZZZZZ	1		
22:40	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:11	MP27589-MB1	1		
23:16	ZZZZZZ	1		
23:21	MA50891-CCV11	1	X	
23:26	MA50891-CCB12	1	X	
23:31	ZZZZZZ	1		
		Element:	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:37	ZZZZZZ	1	
23:42	ZZZZZZ	1	
23:47	ZZZZZZ	1	
23:53	ZZZZZZ	1	
23:58	ZZZZZZ	1	
00:03	MA50891-CCV12	1	X
00:08	MA50891-CCB13	1	X

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:30	MA50891-STD1	1772 R	56545 R	2111 R	5756 R
11:35	MA50891-STD2	1679	53298	2055	5441
11:40	ZZZZZZ	1739	55341	2130	5571
11:45	ZZZZZZ	1763	56508	2122	5719
11:50	MA50891-ICV1	1723	55031	2105	5533
12:02	MA50891-ICB1	1787	57433	2136	5784
12:09	MA50891-ICCV1	1706	55387	2112	5482
12:22	MA50891-CCB1	1767	56406	2096	5730
12:42	MA50891-CRI1	1773	56803	2117	5718
12:47	MA50891-CRID1	1766	56594	2111	5716
13:03	ZZZZZZ	1760	56650	2096	5676
13:09	ZZZZZZ	1745	56440	2094	5629
13:14	MA50891-ICSA1	1571	50959	2013	5123
13:19	MA50891-ICSAB1	1579	51179	2017	5155
13:24	MA50891-HSTD1	1744	55876	2122	5765
13:29	MA50891-HSTD2	1626	53109	2028	5215
13:34	ZZZZZZ	1750	56674	2087	5839
13:39	ZZZZZZ	1711	56184	2080	5700
13:45	MA50891-CCV1	1732	55561	2073	5533
13:50	MA50891-CCB2	1770	56866	2091	5719
13:55	MP27569-MB1	1796	57110	2125	5796
14:00	MP27569-B1	1740	55765	2107	5582
14:05	MP27569-S1	No results reported for the elements associated with this internal standard.			
14:10	MP27569-S2	No results reported for the elements associated with this internal standard.			
14:15	JD28454-12	No results reported for the elements associated with this internal standard.			
14:20	MP27569-SD1	No results reported for the elements associated with this internal standard.			
14:25	ZZZZZZ	1897	59425	2212	5864
14:30	ZZZZZZ	1947	61087	2277	5819
14:35	ZZZZZZ	1846	57897	2179	5721
14:40	MA50891-CCV2	1725	54867	2024	5500
14:45	MA50891-CCB3	1773	56440	2038	5697
14:51	ZZZZZZ	1866	58631	2218	5761
14:56	ZZZZZZ	1631	54148	2046	4909

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:01	ZZZZZZ	1572	52768	1994	4824
15:06	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:11	ZZZZZZ	1662	54951	2046	4954
15:16	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:21	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:26	ZZZZZZ	1588	52336	1968	4818
15:31	ZZZZZZ	1612	54243	2001	4856
15:36	MA50891-CCV3	1728	54695	1931	5497
15:41	MA50891-CCB4	1783	56456	1963	5734
15:47	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:52	ZZZZZZ	1578	52988	1930	4799
15:57	ZZZZZZ	1732	57440	2083	4994
16:02	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:07	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:12	ZZZZZZ	1856	57563	2063	5751
16:17	ZZZZZZ	1588	53382	1895	4903
16:22	ZZZZZZ	1785	56209	1903	5794
16:28	ZZZZZZ	1749	55570	1892	5643
16:33	MA50891-CCV4	1728	54719	1894	5520
16:38	MA50891-CCB5	1783	56259	1915	5763
16:43	ZZZZZZ	1744	56167	1935	5616
16:48	ZZZZZZ	1758	56111	1917	5665
16:53	ZZZZZZ	1707	54612	1905	5482
16:58	JD28614-4	1815	58521	2060	5653
17:03	JD28614-5	1878	59067	2083	5715
17:08	JD28614-7	1838	58437	2066	5635
17:13	JD28614-8	1887	60558	2116	5654
17:18	JD28614-9	1828	58886	2049	5622
17:23	JD28614-10	1811	57931	2032	5608
17:28	MA50891-CCV5	1726	54933	1894	5504
17:33	MA50891-CCB6	1756	55594	1862	5667
17:38	JD28614-11	1810	57852	2001	5732
17:43	JD28614-12	1910	60863	2097	5795

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:49	JD28614-13	1853	58025	2014	5893
17:53	JD28614-14	1901	60345	2102	5705
17:58	JD28614-17	1800	57591	2013	5556
18:03	ZZZZZZ	1914	60727	2109	5687
18:08	ZZZZZZ	1871	59127	2037	5768
18:13	ZZZZZZ	1933	61050	2133	5755
18:18	ZZZZZZ	1886	59451	2055	5653
18:23	MA50891-CCV6	1713	54572	1869	5472
18:28	MA50891-CCB7	1773	56681	1874	5718
18:34	ZZZZZZ	1764	55813	1891	5686
18:39	MP27589-B1	1725	54597	1874	5525
18:44	MP27589-S1	1715	55084	1891	5484
18:48	MP27589-S2	1709	54672	1892	5469
18:53	JD27825-1R	1741	55538	1884	5586
18:58	MP27589-SD1	1795	56831	1872	5797
19:04	MP27592-MB1	1785	56206	1904	5805
19:09	MP27592-B1	1713	53707	1877	5523
19:14	MP27592-S1	1675	53818	1862	5331
19:19	MP27592-S2	1665	53452	1862	5306
19:23	MA50891-CCV7	1718	54261	1868	5497
19:28	MA50891-CCB8	1778	56141	1902	5747
19:33	JD28584-1	1689	54694	1864	5357
19:39	MP27592-SD1	1751	55911	1879	5621
19:44	ZZZZZZ	1422	47278	1774	4262
19:49	ZZZZZZ	1392	46926	1758	4183
19:54	ZZZZZZ	1350	46258	1747	4064
20:00	ZZZZZZ	1346	45791	1731	4041
20:05	ZZZZZZ	1602	52310	1836	4913
20:10	ZZZZZZ	1580	51444	1834	4838
20:16	ZZZZZZ	1327	44305	1723	3921 !a
20:21	ZZZZZZ	1383	46449	1753	4086
20:26	MA50891-CCV8	1722	54837	1852	5520
20:31	MA50891-CCB9	1782	55385	1879	5778

6.2.2

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INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:36	ZZZZZZ	1441	47877	1767	4345
20:42	ZZZZZZ	1474	48592	1754	4460
20:47	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:52	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:58	ZZZZZZ	1694	55115	1863	5439
21:03	ZZZZZZ	1715	54564	1855	5478
21:08	ZZZZZZ	1723	54369	1818	5506
21:13	ZZZZZZ	1708	54021	1827	5471
21:18	ZZZZZZ	1670	54429	1821	5356
21:23	ZZZZZZ	1714	54286	1848	5470
21:28	MA50891-CCV9	1725	53825	1845	5587
21:33	MA50891-CCB10	1772	54938	1847	5764
21:39	MP27662-MB1	1764	56255	1843	5761
21:44	MP27662-B1	1711	54008	1846	5540
21:49	MP27662-S1	1674	53360	1824	5374
21:54	MP27662-S2	1786	54335	1824	5684
21:59	JD28714-4	1818	60119	2099	5792
22:04	MP27662-SD1	1859	60806	2115	5983
22:09	ZZZZZZ	1840	59685	2116	5844
22:14	ZZZZZZ	1853	59782	2133	5944
22:19	ZZZZZZ	1843	60092	2122	5899
22:25	MA50891-CCV10	1815	58208	2083	5809
22:29	MA50891-CCB11	1870	59995	2096	6048
22:35	ZZZZZZ	1819	59834	2086	5824
22:40	ZZZZZZ	1842	59817	2121	5897
22:45	ZZZZZZ	1834	59468	2101	5897
22:50	ZZZZZZ	1813	59846	2091	5833
22:55	ZZZZZZ	1847	59827	2132	5927
23:00	ZZZZZZ	1818	58709	2109	5790
23:05	ZZZZZZ	1873	60710	2107	6074
23:11	MP27589-MB1	1864	60326	2103	6039
23:16	ZZZZZZ	1850	59104	2099	5998
23:21	MA50891-CCV11	1795	58021	2066	5743

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP　Date Analyzed: 07/26/21　Methods: EPA 200.7, SW846 6010D
Analyst: ND　Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:26	MA50891-CCB12	1826	59699	2065	5928
23:31	ZZZZZZ	1862	59462	2086	6019
23:37	ZZZZZZ	1703	57739	2047	5432
23:42	ZZZZZZ	1825	58700	2041	5943
23:47	ZZZZZZ	1844	55406	2165	5697
23:53	ZZZZZZ	1823	58691	2079	5973
23:58	ZZZZZZ	1829	58277	2083	5961
00:03	MA50891-CCV12	1752	56769	2035	5681
00:08	MA50891-CCB13	1793	57801	2085	5895

R = Reference for ISTD limits.　! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50891   Units: ug/l

Time: Sample ID: Metal	RL	IDL	12:02 ICB1 raw	final	12:22 CCB1 raw	final	13:50 CCB2 raw	final	14:45 CCB3 raw	final
Aluminum	200	9.2								
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13	anr							
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7								
Iron	100	3.3	anr							
Lead	3.0	2	0.300	<3.0	0.600	<3.0	0.200	<3.0	2.60	<3.0
Lithium	50	1.5								
Magnesium	5000	25	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35	anr							
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			12:02		12:22		13:50		14:45	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			15:41		16:38		17:33		18:28	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2								
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13	anr							
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7								
Iron	100	3.3	anr							
Lead	3.0	2	1.40	<3.0	1.10	<3.0	2.10	<3.0	0.500	<3.0
Lithium	50	1.5								
Magnesium	5000	25	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35	anr							
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50891   Units: ug/l

Time:			15:41		16:38		17:33		18:28	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

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CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA50891 Units: ug/l

Time:		12:09	
Sample ID:	**ICCV**	**ICCV1**	
Metal	**True**	**Results**	**% Rec**
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2080	104.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery Run ID: MA50891 Units: ug/l

Time:		12:09	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zinc	anr		
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:		11:50			13:45			14:40	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	2000	2100	105.0	2000	2060	103.0	2000	2080	104.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		11:50			13:45			14:40	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP　Date Analyzed: 07/26/21　Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery　Run ID: MA50891　Units: ug/l

Time:		15:36			16:33			17:28	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	2000	2110	105.5	2000	2080	104.0	2000	2090	104.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP　Date Analyzed: 07/26/21　Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery　Run ID: MA50891　Units: ug/l

Time:		15:36			16:33			17:28	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:		18:23	
Sample ID:	CCV	CCV6	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2120	106.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		18:23	
Sample ID:	CCV	CCV6	
Metal	True	Results	% Rec
Zinc	anr		
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery   Run ID: MA50891   Units: ug/l

Time:		13:24			13:29	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper						
Iron						
Lead	8000	8260	103.3			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50891 Units: ug/l

Time:		13:24			13:29	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50891 Units: ug/l

Time:				12:42		12:47	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100				
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000	anr			
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500		anr			
Lead	3.0	20	2.5	3.20	106.7		
Lithium	50						
Magnesium	5000	2000	100	anr			
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000	anr			
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50891   Units: ug/l

Time:				12:42		12:47	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50891   Units: ug/l

Time:			13:14		13:19	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	522000	104.4	511000	102.2
Antimony		1000	-2.50		1030	103.0
Arsenic		1000	0.00		1020	102.0
Barium		500	3.50		520	104.0
Beryllium		500	-0.700		518	103.6
Bismuth		500	-16.7		502	100.4
Boron		500	0.800		521	104.2
Cadmium		1000	-1.10		1080	108.0
Calcium	400000	400000	400000	100.0	393000	98.3
Cerium			78.3		573*	
Chromium		500	-0.100		498	99.6
Cobalt		500	1.40		503	100.6
Copper		500	-2.70		551	110.2
Iron	200000	200000	211000	105.5	203000	101.5
Lead		1000	2.20		1020	102.0
Lithium		500	-4.50		507	101.4
Magnesium	500000	500000	517000	103.4	510000	102.0
Manganese		500	-6.90		525	105.0
Molybdenum		500	3.90		483	96.6
Nickel		1000	1.70		1010	101.0
Phosphorus		500	10.3		513	102.6
Potassium			-14.9		1.30	
Selenium		1000	-2.80		962	96.2
Silicon		500	-7.70		525	105.0
Silver		1000	1.40		1030	103.0
Sodium			39.3		110	
Strontium		500	-1.60		512	102.4
Sulfur		500	7.10		509	101.8
Thallium		1000	7.10		968	96.8
Tin		500	-0.400		500	100.0
Titanium		500	-2.10		500	100.0
Tungsten		500	2.30		503	100.6
Vanadium		500	2.20		513	102.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50891 Units: ug/l

Time: Sample ID: Metal	ICSA True	ICSAB True	13:14 ICSA1 Results	% Rec	13:19 ICSAB1 Results	% Rec
Zinc		1000	5.50		1030	103.0
Zirconium		500	-0.900		457	91.4

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:30	MA50895-STD1	1		STDA
12:35	MA50895-STD2	1		STDB
12:40	ZZZZZZ	1		
12:45	ZZZZZZ	1		
12:51	MA50895-ICV1	1		
12:58	MA50895-ICB1	1		
13:03	MA50895-CCV1	1		
13:08	MA50895-CCB1	1		
13:13	MA50895-CRI1	1		
13:18	MA50895-CRID1	1		
13:24	MA50895-ICSA1	1		
13:29	MA50895-ICSAB1	1		
13:33	MA50895-HSTD1	1		
13:39	MA50895-HSTD2	1		
13:44	ZZZZZZ	1		
13:49	ZZZZZZ	1		
13:54	ZZZZZZ	1		
13:59	MA50895-CCV2	1		
14:04	MA50895-CCB2	1		
14:10	MA50895-CRI2	1		
14:16	MA50895-CRI3	1		
14:21	ZZZZZZ	1		
14:26	ZZZZZZ	2		
14:31	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:41	MP27569-S1	5		
14:46	MP27569-S2	5		
14:51	MA50895-CCV3	1		
14:56	MA50895-CCB3	1		
15:01	JD28454-12	5		(sample used for QC only; not part of login JD28614)
15:06	MP27569-SD1	25		
15:11	ZZZZZZ	5		
15:17	ZZZZZZ	10		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:22	ZZZZZZ	5		
15:27	ZZZZZZ	5		
15:32	ZZZZZZ	5		
15:37	ZZZZZZ	10		
15:42	MA50895-CCV4	1		
15:47	MA50895-CCB4	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	MP27592-S1	5		
16:07	MP27592-S2	5		
16:12	JD28584-1	5		(sample used for QC only; not part of login JD28614)
16:17	MP27592-SD1	25		
16:23	ZZZZZZ	50		
16:28	ZZZZZZ	50		
16:33	ZZZZZZ	50		
16:38	MA50895-CCV5	1		
16:43	MA50895-CCB5	1		
16:48	ZZZZZZ	1		
16:54	ZZZZZZ	50		
16:59	ZZZZZZ	10		
17:04	ZZZZZZ	10		
17:09	ZZZZZZ	50		
17:14	ZZZZZZ	50		
17:19	ZZZZZZ	50		
17:25	ZZZZZZ	50		
17:30	ZZZZZZ	100		
17:35	MA50895-CCV6	1		
17:40	MA50895-CCB6	1		
17:45	ZZZZZZ	100		
17:50	ZZZZZZ	2		
17:55	ZZZZZZ	2		
18:00	ZZZZZZ	200		
18:06	ZZZZZZ	2		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:11	MA50895-CCV7	1		
18:16	MA50895-CCB7	1		
18:21	MP27688-MB1	1		rerun with sunocco
18:26	MP27688-B1	1		rerun with sunocco
18:31	ZZZZZZ	1		
18:36	ZZZZZZ	1		
18:41	ZZZZZZ	1		
18:46	ZZZZZZ	1		
18:51	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:07	MA50895-CCV8	1		
19:12	MA50895-CCB8	1		
19:17	ZZZZZZ	1		
19:22	ZZZZZZ	1		
19:28	ZZZZZZ	1		
19:33	ZZZZZZ	1		
19:38	ZZZZZZ	1		
19:43	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
19:59	MP27687-MB1	1		ZN raised to 60ppb for the batch
20:04	MP27687-B1	1		
20:09	MA50895-CCV9	1		
20:14	MA50895-CCB9	1		
20:19	MP27687-S1	1		CCV out
20:24	MP27687-S2	1		CCV out
20:29	JD28597-4	1		(sample used for QC only; not part of login JD28614)
20:34	MP27687-SD1	5		CCV out
20:39	ZZZZZZ	1		
20:45	ZZZZZZ	5		
20:50	ZZZZZZ	1		
20:55	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:00	ZZZZZZ	1		
21:05	ZZZZZZ	1		
21:10	MA50895-CCV10	1		
21:15	MA50895-CCB10	1		
21:21	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:31	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:41	ZZZZZZ	1		
21:46	ZZZZZZ	1		
21:51	ZZZZZZ	1		
21:56	JD28614-15	1		
22:02	JD28614-16	1		
----------->	Last reportable sample/prep for job JD28614			
22:07	MA50895-CCV11	1		
22:12	MA50895-CCB11	1		
----------->	Last reportable CCB for job JD28614			
22:17	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:27	ZZZZZZ	1		
22:33	ZZZZZZ	1		
22:38	MP27685-MB1	1		
22:43	MP27685-B1	1		
22:48	MP27685-S1	1		
22:53	MP27685-S2	1		
22:57	JD28870-2	1		(sample used for QC only; not part of login JD28614)
23:03	MP27685-SD1	5		
23:08	MA50895-CCV12	1		
23:13	MA50895-CCB12	1		
23:18	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:33	ZZZZZZ	1		
23:38	ZZZZZZ	1		
23:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:48	ZZZZZZ	1		
23:54	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:04	ZZZZZZ	1		
00:09	MA50895-CCV13	1		
00:14	MA50895-CCB13	1		
00:19	ZZZZZZ	1		
00:24	ZZZZZZ	1		
00:29	ZZZZZZ	1		
00:34	ZZZZZZ	1		
00:40	ZZZZZZ	1		
00:45	ZZZZZZ	1		
00:50	ZZZZZZ	1		
00:55	ZZZZZZ	1		
01:00	MA50895-CCV14	1		
01:05	MA50895-CCB14	1		
01:10	MP27686-MB1	1		
01:15	MP27686-B1	1		
01:20	MP27686-S1	1		
01:25	MP27686-S2	1		needs post spike for As, ba, Cr, SE
01:30	JD28868-1	1		(sample used for QC only; not part of login JD28614)
01:35	MP27686-SD1	5		
01:40	ZZZZZZ	1		
01:45	ZZZZZZ	1		
01:50	ZZZZZZ	1		
01:55	ZZZZZZ	1		
02:01	MA50895-CCV15	1		
02:06	MA50895-CCB15	1		
02:11	ZZZZZZ	1		
02:16	ZZZZZZ	1		
02:21	ZZZZZZ	1		
02:26	ZZZZZZ	1		
02:31	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:36	ZZZZZZ	1		
02:41	ZZZZZZ	1		
02:46	ZZZZZZ	1		
02:51	ZZZZZZ	1		
02:56	MA50895-CCV16	1		
03:01	MA50895-CCB16	1		
03:06	ZZZZZZ	1		
03:11	ZZZZZZ	1		
03:16	ZZZZZZ	1		
03:21	ZZZZZZ	1		
03:26	ZZZZZZ	1		
03:31	ZZZZZZ	1		
03:36	ZZZZZZ	1		
03:42	ZZZZZZ	1		
03:47	MA50895-CCV17	1		
03:52	MA50895-CCB17	1		
03:57	ZZZZZZ	1		
04:02	ZZZZZZ	1		
04:08	ZZZZZZ	1		
04:13	ZZZZZZ	1		
04:18	ZZZZZZ	1		
04:23	ZZZZZZ	1		
04:29	MA50895-CCV18	1		
04:34	MA50895-CCB18	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
12:40	ZZZZZZ	1	
12:45	ZZZZZZ	1	
12:51	MA50895-ICV1	1	X
12:58	MA50895-ICB1	1	X
13:03	MA50895-CCV1	1	X
13:08	MA50895-CCB1	1	X
13:13	MA50895-CRI1	1	
13:18	MA50895-CRID1	1	X
13:24	MA50895-ICSA1	1	X
13:29	MA50895-ICSAB1	1	X
13:33	MA50895-HSTD1	1	X
13:39	MA50895-HSTD2	1	X
13:44	ZZZZZZ	1	
13:49	ZZZZZZ	1	
13:54	ZZZZZZ	1	
13:59	MA50895-CCV2	1	X
14:04	MA50895-CCB2	1	X
14:10	MA50895-CRI2	1	
14:16	MA50895-CRI3	1	X
14:21	ZZZZZZ	1	
14:26	ZZZZZZ	2	
14:31	ZZZZZZ	1	
14:36	ZZZZZZ	1	
14:41	MP27569-S1	5	X
14:46	MP27569-S2	5	X
14:51	MA50895-CCV3	1	X
14:56	MA50895-CCB3	1	X
15:01	JD28454-12	5	X (a)
15:06	MP27569-SD1	25	X
15:11	ZZZZZZ	5	
15:17	ZZZZZZ	10	
15:22	ZZZZZZ	5	
15:27	ZZZZZZ	5	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
15:32	ZZZZZZ	5	
15:37	ZZZZZZ	10	
15:42	MA50895-CCV4	1	X
15:47	MA50895-CCB4	1	X
15:52	ZZZZZZ	1	
15:57	ZZZZZZ	1	
16:02	MP27592-S1	5	X
16:07	MP27592-S2	5	X
16:12	JD28584-1	5	(a)
16:17	MP27592-SD1	25	X
16:23	ZZZZZZ	50	
16:28	ZZZZZZ	50	
16:33	ZZZZZZ	50	
16:38	MA50895-CCV5	1	X
16:43	MA50895-CCB5	1	X
16:48	ZZZZZZ	1	
16:54	ZZZZZZ	50	
16:59	ZZZZZZ	10	
17:04	ZZZZZZ	10	
17:09	ZZZZZZ	50	
17:14	ZZZZZZ	50	
17:19	ZZZZZZ	50	
17:25	ZZZZZZ	50	
17:30	ZZZZZZ	100	
17:35	MA50895-CCV6	1	X
17:40	MA50895-CCB6	1	X
17:45	ZZZZZZ	100	
17:50	ZZZZZZ	2	
17:55	ZZZZZZ	2	
18:00	ZZZZZZ	200	
18:06	ZZZZZZ	2	
18:11	MA50895-CCV7	1	X
18:16	MA50895-CCB7	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
18:21	MP27688-MB1	1	
18:26	MP27688-B1	1	
18:31	ZZZZZZ	1	
18:36	ZZZZZZ	1	
18:41	ZZZZZZ	1	
18:46	ZZZZZZ	1	
18:51	ZZZZZZ	1	
18:57	ZZZZZZ	1	
19:02	ZZZZZZ	1	
19:07	MA50895-CCV8	1	X
19:12	MA50895-CCB8	1	X
19:17	ZZZZZZ	1	
19:22	ZZZZZZ	1	
19:28	ZZZZZZ	1	
19:33	ZZZZZZ	1	
19:38	ZZZZZZ	1	
19:43	ZZZZZZ	1	
19:49	ZZZZZZ	1	
19:54	ZZZZZZ	1	
19:59	MP27687-MB1	1	X
20:04	MP27687-B1	1	X
20:09	MA50895-CCV9	1	X
20:14	MA50895-CCB9	1	X
20:19	MP27687-S1	1	X
20:24	MP27687-S2	1	X
20:29	JD28597-4	1	X (a)
20:34	MP27687-SD1	5	X
20:39	ZZZZZZ	1	
20:45	ZZZZZZ	5	
20:50	ZZZZZZ	1	
20:55	ZZZZZZ	1	
21:00	ZZZZZZ	1	
21:05	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
21:10	MA50895-CCV10	1	X
21:15	MA50895-CCB10	1	X
21:21	ZZZZZZ	1	
21:26	ZZZZZZ	1	
21:31	ZZZZZZ	1	
21:36	ZZZZZZ	1	
21:41	ZZZZZZ	1	
21:46	ZZZZZZ	1	
21:51	ZZZZZZ	1	
21:56	JD28614-15	1	X
22:02	JD28614-16	1	X
22:07	MA50895-CCV11	1	X
22:12	MA50895-CCB11	1	X
22:17	ZZZZZZ	1	
22:22	ZZZZZZ	1	
22:27	ZZZZZZ	1	
22:33	ZZZZZZ	1	
22:38	MP27685-MB1	1	
22:43	MP27685-B1	1	
22:48	MP27685-S1	1	
22:53	MP27685-S2	1	
22:57	JD28870-2	1	(a)
23:03	MP27685-SD1	5	
23:08	MA50895-CCV12	1	X
23:13	MA50895-CCB12	1	X
23:18	ZZZZZZ	1	
23:23	ZZZZZZ	1	
23:28	ZZZZZZ	1	
23:33	ZZZZZZ	1	
23:38	ZZZZZZ	1	
23:43	ZZZZZZ	1	
23:48	ZZZZZZ	1	
23:54	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:59	ZZZZZZ	1	
00:04	ZZZZZZ	1	
00:09	MA50895-CCV13	1	X
00:14	MA50895-CCB13	1	X
00:19	ZZZZZZ	1	
00:24	ZZZZZZ	1	
00:29	ZZZZZZ	1	
00:34	ZZZZZZ	1	
00:40	ZZZZZZ	1	
00:45	ZZZZZZ	1	
00:50	ZZZZZZ	1	
00:55	ZZZZZZ	1	
01:00	MA50895-CCV14	1	X
01:05	MA50895-CCB14	1	X
01:10	MP27686-MB1	1	X
01:15	MP27686-B1	1	X
01:20	MP27686-S1	1	X
01:25	MP27686-S2	1	X
01:30	JD28868-1	1	X (a)
01:35	MP27686-SD1	5	X
01:40	ZZZZZZ	1	
01:45	ZZZZZZ	1	
01:50	ZZZZZZ	1	
01:55	ZZZZZZ	1	
02:01	MA50895-CCV15	1	X
02:06	MA50895-CCB15	1	X
02:11	ZZZZZZ	1	
02:16	ZZZZZZ	1	
02:21	ZZZZZZ	1	
02:26	ZZZZZZ	1	
02:31	ZZZZZZ	1	
02:36	ZZZZZZ	1	
02:41	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
02:46	ZZZZZZ	1	
02:51	ZZZZZZ	1	
02:56	MA50895-CCV16	1	X
03:01	MA50895-CCB16	1	X
03:06	ZZZZZZ	1	
03:11	ZZZZZZ	1	
03:16	ZZZZZZ	1	
03:21	ZZZZZZ	1	
03:26	ZZZZZZ	1	
03:31	ZZZZZZ	1	
03:36	ZZZZZZ	1	
03:42	ZZZZZZ	1	
03:47	MA50895-CCV17	1	X
03:52	MA50895-CCB17	1	X
03:57	ZZZZZZ	1	
04:02	ZZZZZZ	1	
04:08	ZZZZZZ	1	
04:13	ZZZZZZ	1	
04:18	ZZZZZZ	1	
04:23	ZZZZZZ	1	
04:29	MA50895-CCV18	1	X
04:34	MA50895-CCB18	1	X

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:30	MA50895-STD1	1623 R	51950 R	1799 R	4876 R
12:35	MA50895-STD2	1541	50618	1788	4663
12:40	ZZZZZZ	1593	51463	1818	4749
12:45	ZZZZZZ	1637	52540	1839	4895
12:51	MA50895-ICV1	1582	51852	1828	4713
12:58	MA50895-ICB1	1633	51927	1826	4884
13:03	MA50895-CCV1	1597	51685	1822	4742
13:08	MA50895-CCB1	1639	52313	1842	4892
13:13	MA50895-CRI1	No results reported for the elements associated with this internal standard.			
13:18	MA50895-CRID1	1633	52521	1845	4860
13:24	MA50895-ICSA1	1497	48854	1825	4539
13:29	MA50895-ICSAB1	1500	48683	1814	4550
13:33	MA50895-HSTD1	1606	51986	1842	4933
13:39	MA50895-HSTD2	1514	49314	1804	4515
13:44	ZZZZZZ	1634	52142	1829	5043
13:49	ZZZZZZ	1594	51881	1839	4881
13:54	ZZZZZZ	1665	52626	1834	4929
13:59	MA50895-CCV2	1599	50552	1804	4730
14:04	MA50895-CCB2	1655	52297	1837	4919
14:10	MA50895-CRI2	No results reported for the elements associated with this internal standard.			
14:16	MA50895-CRI3	1648	52128	1838	4876
14:21	ZZZZZZ	1669	52978	1879	4933
14:26	ZZZZZZ	1731	54609	1904	4973
14:31	ZZZZZZ	1671	52110	1834	4970
14:36	ZZZZZZ	1636	51020	1823	4869
14:41	MP27569-S1	1563	50404	1780	4569
14:46	MP27569-S2	1598	50810	1802	4644
14:51	MA50895-CCV3	1603	50339	1822	4719
14:56	MA50895-CCB3	1676	51427	1809	4940
15:01	JD28454-12	1575	50205	1785	4573
15:06	MP27569-SD1	1625	50840	1800	4793
15:11	ZZZZZZ	1584	50517	1783	4540
15:17	ZZZZZZ	1539	49700	1774	4482

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:22	ZZZZZZ	1516	49343	1771	4417
15:27	ZZZZZZ	1552	49576	1762	4529
15:32	ZZZZZZ	1566	50385	1793	4522
15:37	ZZZZZZ	1561	50004	1775	4585
15:42	MA50895-CCV4	1620	50686	1799	4782
15:47	MA50895-CCB4	1651	50880	1798	4868
15:52	ZZZZZZ	1663	51443	1814	4887
15:57	ZZZZZZ	1636	51326	1839	4807
16:02	MP27592-S1	1637	50833	1830	4775
16:07	MP27592-S2	1635	51181	1810	4771
16:12	JD28584-1	1636	50896	1808	4786
16:17	MP27592-SD1	1651	51246	1811	4862
16:23	ZZZZZZ	1629	51029	1798	4733
16:28	ZZZZZZ	1651	51387	1795	4795
16:33	ZZZZZZ	1655	52126	1819	4824
16:38	MA50895-CCV5	1605	50128	1783	4729
16:43	MA50895-CCB5	1648	50889	1789	4869
16:48	ZZZZZZ	1658	51441	1817	4903
16:54	ZZZZZZ	1602	50674	1794	4655
16:59	ZZZZZZ	1613	50766	1807	4686
17:04	ZZZZZZ	1611	52028	1814	4673
17:09	ZZZZZZ	1604	51074	1806	4670
17:14	ZZZZZZ	1616	51266	1784	4702
17:19	ZZZZZZ	1622	51598	1794	4733
17:25	ZZZZZZ	1631	51503	1797	4778
17:30	ZZZZZZ	1593	50370	1767	4585
17:35	MA50895-CCV6	1591	50154	1785	4689
17:40	MA50895-CCB6	1652	51031	1802	4879
17:45	ZZZZZZ	1604	50625	1771	4628
17:50	ZZZZZZ	1658	51779	1817	4835
17:55	ZZZZZZ	1636	51367	1792	4761
18:00	ZZZZZZ	1620	50693	1782	4696
18:06	ZZZZZZ	1651	51764	1802	4812

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:11	MA50895-CCV7	1621	50768	1787	4783
18:16	MA50895-CCB7	1652	51688	1788	4891
18:21	MP27688-MB1	1673	52525	1825	4933
18:26	MP27688-B1	1623	51167	1784	4793
18:31	ZZZZZZ	1720	54435	1934	4674
18:36	ZZZZZZ	1673	52540	1851	4836
18:41	ZZZZZZ	1650	52243	1843	4808
18:46	ZZZZZZ	1657	51854	1832	4807
18:51	ZZZZZZ	1656	52115	1837	4806
18:57	ZZZZZZ	1622	51248	1808	4666
19:02	ZZZZZZ	1626	51740	1804	4740
19:07	MA50895-CCV8	1604	50566	1788	4725
19:12	MA50895-CCB8	1658	51024	1790	4898
19:17	ZZZZZZ	1638	52160	1844	4710
19:22	ZZZZZZ	1619	49682	1797	4686
19:28	ZZZZZZ	1640	52187	1839	4698
19:33	ZZZZZZ	1648	52509	1851	4717
19:38	ZZZZZZ	1623	50721	1810	4640
19:43	ZZZZZZ	1647	51905	1819	4830
19:49	ZZZZZZ	1655	52590	1835	4901
19:54	ZZZZZZ	1664	51180	1780	4913
19:59	MP27687-MB1	1676	51865	1818	4946
20:04	MP27687-B1	1647	51770	1874	4846
20:09	MA50895-CCV9	1637	51346	1792	4806
20:14	MA50895-CCB9	1683	52415	1805	4962
20:19	MP27687-S1	1649	51690	1834	4834
20:24	MP27687-S2	1641	51518	1869	4816
20:29	JD28597-4	1647	52550	1820	4834
20:34	MP27687-SD1	1680	51602	1807	4947
20:39	ZZZZZZ	3915 !a	125390 !a	4442 !a	5394
20:45	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:50	ZZZZZZ	1891	62331	2250	5426
20:55	ZZZZZZ	1817	59855	2209	5248

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INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:00	ZZZZZZ	1917	61543	2232	5529
21:05	ZZZZZZ	1928	61946	2250	5606
21:10	MA50895-CCV10	1828	57840	2112	5300
21:15	MA50895-CCB10	1819	57621	2030	5329
21:21	ZZZZZZ	1824	59508	2142	5311
21:26	ZZZZZZ	1881	61620	2207	5442
21:31	ZZZZZZ	1890	61960	2223	5471
21:36	ZZZZZZ	1790	59693	2171	5079
21:41	ZZZZZZ	1826	58227	2130	5266
21:46	ZZZZZZ	1796	59243	2109	5153
21:51	ZZZZZZ	1824	59204	2176	5215
21:56	JD28614-15	1903	59682	2194	5553
22:02	JD28614-16	1885	60617	2081	5500
22:07	MA50895-CCV11	1774	57290	2076	5175
22:12	MA50895-CCB11	1819	57350	2047	5366
22:17	ZZZZZZ	1774	58502	2181	5118
22:22	ZZZZZZ	1800	59846	2226	5166
22:27	ZZZZZZ	1924	59583	2166	5606
22:33	ZZZZZZ	1815	58361	2202	5331
22:38	MP27685-MB1	1796	57044	2021	5274
22:43	MP27685-B1	1752	56262	2020	5139
22:48	MP27685-S1	1772	55470	2032	5168
22:53	MP27685-S2	1773	56188	2028	5165
22:57	JD28870-2	1816	56017	1999	5274
23:03	MP27685-SD1	1794	55498	1976	5233
23:08	MA50895-CCV12	1707	54569	1932	5001
23:13	MA50895-CCB12	1801	56538	1992	5273
23:18	ZZZZZZ	1808	55830	2030	5233
23:23	ZZZZZZ	1803	56511	2029	5198
23:28	ZZZZZZ	1836	56916	2091	5205
23:33	ZZZZZZ	1671	55202	1974	4669
23:38	ZZZZZZ	1864	58837	2134	5190
23:43	ZZZZZZ	1807	57003	2047	5194

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:48	ZZZZZZ	1848	57943	2091	5195
23:54	ZZZZZZ	1841	57856	2085	5220
23:59	ZZZZZZ	1827	57307	2079	5196
00:04	ZZZZZZ	1855	58438	2124	5173
00:09	MA50895-CCV13	1742	54749	1944	5099
00:14	MA50895-CCB13	1800	56587	1988	5279
00:19	ZZZZZZ	1820	57206	2070	5193
00:24	ZZZZZZ	1828	57130	2082	5227
00:29	ZZZZZZ	1831	57258	2054	5222
00:34	ZZZZZZ	1811	56257	2032	5225
00:40	ZZZZZZ	1838	57415	2055	5234
00:45	ZZZZZZ	1683	54317	1981	4756
00:50	ZZZZZZ	1815	57120	2068	5220
00:55	ZZZZZZ	1662	55151	1959	4670
01:00	MA50895-CCV14	1710	56655	1954	5015
01:05	MA50895-CCB14	1773	55554	1913	5229
01:10	MP27686-MB1	1790	56735	1977	5253
01:15	MP27686-B1	1767	55826	1953	5190
01:20	MP27686-S1	1808	57642	2062	5133
01:25	MP27686-S2	1807	57976	2057	5123
01:30	JD28868-1	1838	57401	2061	5172
01:35	MP27686-SD1	1792	57361	2001	5199
01:40	ZZZZZZ	1886	59362	2113	5189
01:45	ZZZZZZ	1909	60626	2177	5256
01:50	ZZZZZZ	1903	61094	2161	5196
01:55	ZZZZZZ	1915	60858	2177	5179
02:01	MA50895-CCV15	1743	55770	1938	5099
02:06	MA50895-CCB15	1789	56304	1932	5263
02:11	ZZZZZZ	1914	60214	2141	5239
02:16	ZZZZZZ	1868	59162	2114	5176
02:21	ZZZZZZ	1906	59372	2130	5204
02:26	ZZZZZZ	1772	57242	2026	5241
02:31	ZZZZZZ	1871	59269	2113	5147

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:36	ZZZZZZ	1860	58831	2069	5194
02:41	ZZZZZZ	1864	58835	2093	5199
02:46	ZZZZZZ	1812	58036	1996	5116
02:51	ZZZZZZ	1842	58810	2071	5179
02:56	MA50895-CCV16	1733	55194	1917	5073
03:01	MA50895-CCB16	1792	57272	1936	5273
03:06	ZZZZZZ	1886	59709	2116	5209
03:11	ZZZZZZ	1872	61042	2075	5286
03:16	ZZZZZZ	1930	61102	2200	5379
03:21	ZZZZZZ	1938	61212	2203	5401
03:26	ZZZZZZ	1926	62167	2157	5225
03:31	ZZZZZZ	1927	62355	2170	5313
03:36	ZZZZZZ	1802	57842	2008	5301
03:42	ZZZZZZ	1785	58032	1981	5253
03:47	MA50895-CCV17	1741	55939	1939	5111
03:52	MA50895-CCB17	1811	57680	1963	5340
03:57	ZZZZZZ	1815	58051	1962	5352
04:02	ZZZZZZ	1793	57918	1953	5285
04:08	ZZZZZZ	1786	55330	2068	5070
04:13	ZZZZZZ	1795	58206	1968	5331
04:18	ZZZZZZ	1774	58039	1990	5258
04:23	ZZZZZZ	1659	57194	1918	4869
04:29	MA50895-CCV18	1722	57160	1944	5105
04:34	MA50895-CCB18	1787	58512	1986	5316

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			12:58		13:08		14:04		14:56	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.00	<3.0	-0.100	<3.0	0.300	<3.0	0.400	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			12:58		13:08		14:04		14:56	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

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SGS

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time: / Sample ID: Metal	RL	IDL	15:47 CCB4 raw	final	16:43 CCB5 raw	final	17:40 CCB6 raw	final	18:16 CCB7 raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	-0.900	<3.0	-0.500	<3.0	-1.30	<3.0	-0.300	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			15:47		16:43		17:40		18:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

6.3.3

6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			19:12		20:14		21:15		22:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.800	<3.0	0.500	<3.0	0.200	<3.0	0.500	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			19:12		20:14		21:15		22:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

6.3.3
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50895   Units: ug/l

Time:		12:51			13:03			13:59	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1990	99.5	2000	1980	99.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		12:51			13:03			13:59	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time: / Sample ID: / Metal	CCV True	14:51 CCV3 Results	% Rec	CCV True	15:42 CCV4 Results	% Rec	CCV True	16:38 CCV5 Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2040	102.0	2000	2030	101.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		14:51			15:42			16:38	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50895   Units: ug/l

Time:		17:35			18:11			19:07	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2010	100.5	2000	1990	99.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		17:35			18:11			19:07	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		20:09			21:10			22:07	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1920	96.0	2000	2000	100.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50895   Units: ug/l

Time:		20:09			21:10			22:07	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery   Run ID: MA50895   Units: ug/l

Time:		13:33			13:39	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	8000	8010	100.1			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50895 Units: ug/l

Time:		13:33			13:39	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50895 Units: ug/l

Time:				13:18		14:16	
Sample ID:	CRI	CRIA	CRID	CRID1		CRI3	
Metal	True	True	True	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr			
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000				
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500					
Lead	3.0	20	2.5			2.70	90.0
Lithium	50						
Magnesium	5000	2000	100				
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000				
Selenium	10	20	5.0				
Silicon	200						
Silver	5.0		2.0				
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50895   Units: ug/l

Time:				13:18		14:16	
Sample ID:	CRI	CRIA	CRID	CRID1		CRI3	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50895 Units: ug/l

Time:			13:24		13:29	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	489000	97.8	478000	95.6
Antimony		1000	2.10		963	96.3
Arsenic		1000	2.10		947	94.7
Barium		500	2.60		489	97.8
Beryllium		500	-0.500		483	96.6
Bismuth		500	-11.0		473	94.6
Boron		500	0.800		490	98.0
Cadmium		1000	-1.10		1010	101.0
Calcium	400000	400000	371000	92.8	364000	91.0
Cerium			74.1		536*	
Chromium		500	0.400		470	94.0
Cobalt		500	1.50		473	94.6
Copper		500	-4.30		522	104.4
Iron	200000	200000	199000	99.5	190000	95.0
Lead		1000	1.90		958	95.8
Lithium		500	-4.70		470	94.0
Magnesium	500000	500000	484000	96.8	477000	95.4
Manganese		500	-6.30		503	100.6
Molybdenum		500	4.00		451	90.2
Nickel		1000	1.60		947	94.7
Phosphorus		500	9.80		479	95.8
Potassium			-49.2		-56.1	
Selenium		1000	-5.50		893	89.3
Silicon		500	-16.0		472	94.4
Silver		1000	3.80		982	98.2
Sodium			-33.8		21.7	
Strontium		500	-1.40		478	95.6
Sulfur		500	9.50		472	94.4
Thallium		1000	5.90		908	90.8
Tin		500	-0.100		469	93.8
Titanium		500	-2.10		473	94.6
Tungsten		500	2.20		474	94.8
Vanadium		500	2.20		487	97.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP　Date Analyzed: 07/27/21　Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery　Run ID: MA50895　Units: ug/l

Time:			13:24		13:29	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	6.00		961	96.1
Zirconium		500	-0.800		436	87.2

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:28	MA50902-STD1	1		STDA
08:33	MA50902-STD2	1		STDB
08:38	ZZZZZZ	1		
08:43	ZZZZZZ	1		
08:48	MA50902-ICV1	1		
08:53	MA50902-ICB1	1		
08:58	MA50902-CCV1	1		
09:03	MA50902-CCB1	1		
09:08	MA50902-CRI1	1		
09:13	MA50902-CRID1	1		
09:18	MA50902-ICSA1	1		
09:23	MA50902-ICSAB1	1		
09:28	MA50902-HSTD1	1		
09:33	MA50902-HSTD2	1		
09:38	ZZZZZZ	1		
09:43	ZZZZZZ	1		
09:49	ZZZZZZ	1		
09:54	MA50902-CCV2	1		
09:59	MA50902-CCB2	1		
10:04	MP27688-MB1	1		
10:09	MP27688-B1	1		
10:14	MP27688-S1	1		
10:18	MP27688-S2	1		
10:23	JD28553-1	1		(sample used for QC only; not part of login JD28614)
10:28	MP27688-SD1	5		
10:33	ZZZZZZ	1		
10:39	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:49	MA50902-CCV3	1		
10:54	MA50902-CCB3	1		
10:59	ZZZZZZ	5		
11:04	ZZZZZZ	5		
11:09	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:14	MP27681-MB1	5		
11:19	MP27681-B1	5		
11:25	MP27681-S1	5		
11:29	MP27681-S2	5		
11:34	MP27681-D1	5		
11:40	JD28603-2	5		(sample used for QC only; not part of login JD28614)
11:45	MA50902-CCV4	1		
11:50	MA50902-CCB4	1		
11:55	MP27681-SD1	25		
12:00	ZZZZZZ	5		
12:05	ZZZZZZ	5		
12:11	ZZZZZZ	5		
12:16	ZZZZZZ	5		
12:21	ZZZZZZ	1		
12:26	ZZZZZZ	1		
12:31	ZZZZZZ	5		
12:37	ZZZZZZ	1		
12:42	MA50902-CCV5	1		
12:47	MA50902-CCB5	1		
12:52	MA50902-CRID2	1		
12:57	MA50902-CRI2	1		
13:02	MA50902-ICSA2	1		
13:07	MA50902-ICSAB2	1		
13:12	MA50902-CCV6	1		
13:17	MA50902-CCB6	1		
13:22	ZZZZZZ	5		
13:27	ZZZZZZ	5		
13:32	ZZZZZZ	5		
13:38	ZZZZZZ	1		
13:43	JD28614-12	2		
----------->	Last reportable sample/prep for job JD28614			
13:48	ZZZZZZ	25		
13:53	ZZZZZZ	50		
13:58	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:03	ZZZZZZ	1		
14:08	MA50902-CCV7	1		
14:13	MA50902-CCB7	1		
----------->	Last reportable CCB for job JD28614			
14:18	MP27593-S3	1		
14:23	MP27593-S4	1		
14:28	ZZZZZZ	5		
14:33	ZZZZZZ	5		
14:38	ZZZZZZ	5		
14:43	ZZZZZZ	50		
14:49	ZZZZZZ	5		
14:54	ZZZZZZ	5		
14:59	MA50902-CCV8	1		
15:04	MA50902-CCB8	1		
15:09	ZZZZZZ	5		
15:14	MP27680-S1	5		
15:19	MP27680-S2	5		
15:24	ZZZZZZ	100		
15:29	MP27689-MB1	1		
15:34	MP27689-B1	1		
15:39	MP27689-S1	1		
15:43	MP27689-S2	1		
15:48	JD28662-1	1		(sample used for QC only; not part of login JD28614)
15:53	MA50902-CCV9	1		
15:58	MA50902-CCB9	1		
16:03	MP27689-SD1	5		
16:08	MP27689-S1	5		
16:13	MP27689-S2	5		
16:18	JD28662-1	5		(sample used for QC only; not part of login JD28614)
16:23	MP27689-SD1	25		
16:28	ZZZZZZ	1		
16:33	ZZZZZZ	10		
16:38	ZZZZZZ	1		
16:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:48	MA50902-CCV10	1		
16:53	MA50902-CCB10	1		
16:58	ZZZZZZ	1		
17:04	ZZZZZZ	2		
17:09	ZZZZZZ	2		
17:14	ZZZZZZ	5		
17:19	ZZZZZZ	1		
17:24	ZZZZZZ	2		
17:29	ZZZZZZ	2		
17:34	ZZZZZZ	1		
17:39	MA50902-CCV11	1		
17:44	MA50902-CCB11	1		
17:49	ZZZZZZ	1		
17:54	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
08:38	ZZZZZZ	1	
08:43	ZZZZZZ	1	
08:48	MA50902-ICV1	1	X
08:53	MA50902-ICB1	1	X
08:58	MA50902-CCV1	1	X
09:03	MA50902-CCB1	1	X
09:08	MA50902-CRI1	1	X
09:13	MA50902-CRID1	1	X
09:18	MA50902-ICSA1	1	X
09:23	MA50902-ICSAB1	1	X
09:28	MA50902-HSTD1	1	X
09:33	MA50902-HSTD2	1	X
09:38	ZZZZZZ	1	
09:43	ZZZZZZ	1	
09:49	ZZZZZZ	1	
09:54	MA50902-CCV2	1	X
09:59	MA50902-CCB2	1	X
10:04	MP27688-MB1	1	
10:09	MP27688-B1	1	
10:14	MP27688-S1	1	
10:18	MP27688-S2	1	
10:23	JD28553-1	1	(a)
10:28	MP27688-SD1	5	
10:33	ZZZZZZ	1	
10:39	ZZZZZZ	1	
10:44	ZZZZZZ	1	
10:49	MA50902-CCV3	1	X
10:54	MA50902-CCB3	1	X
10:59	ZZZZZZ	5	
11:04	ZZZZZZ	5	
11:09	ZZZZZZ	1	
11:14	MP27681-MB1	5	X
11:19	MP27681-B1	5	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
11:25	MP27681-S1	5	X
11:29	MP27681-S2	5	X
11:34	MP27681-D1	5	X
11:40	JD28603-2	5	X (a)
11:45	MA50902-CCV4	1	X
11:50	MA50902-CCB4	1	X
11:55	MP27681-SD1	25	X
12:00	ZZZZZZ	5	
12:05	ZZZZZZ	5	
12:11	ZZZZZZ	5	
12:16	ZZZZZZ	5	
12:21	ZZZZZZ	1	
12:26	ZZZZZZ	1	
12:31	ZZZZZZ	5	
12:37	ZZZZZZ	1	
12:42	MA50902-CCV5	1	X
12:47	MA50902-CCB5	1	X
12:52	MA50902-CRID2	1	X
12:57	MA50902-CRI2	1	X
13:02	MA50902-ICSA2	1	X
13:07	MA50902-ICSAB2	1	X
13:12	MA50902-CCV6	1	X
13:17	MA50902-CCB6	1	X
13:22	ZZZZZZ	5	
13:27	ZZZZZZ	5	
13:32	ZZZZZZ	5	
13:38	ZZZZZZ	1	
13:43	JD28614-12	2	X
13:48	ZZZZZZ	25	
13:53	ZZZZZZ	50	
13:58	ZZZZZZ	1	
14:03	ZZZZZZ	1	
14:08	MA50902-CCV7	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
14:13	MA50902-CCB7	1	X
14:18	MP27593-S3	1	
14:23	MP27593-S4	1	
14:28	ZZZZZZ	5	
14:33	ZZZZZZ	5	
14:38	ZZZZZZ	5	
14:43	ZZZZZZ	50	
14:49	ZZZZZZ	5	
14:54	ZZZZZZ	5	
14:59	MA50902-CCV8	1	X
15:04	MA50902-CCB8	1	X
15:09	ZZZZZZ	5	
15:14	MP27680-S1	5	
15:19	MP27680-S2	5	
15:24	ZZZZZZ	100	
15:29	MP27689-MB1	1	
15:34	MP27689-B1	1	
15:39	MP27689-S1	1	X
15:43	MP27689-S2	1	X
15:48	JD28662-1	1	X (a)
15:53	MA50902-CCV9	1	X
15:58	MA50902-CCB9	1	X
16:03	MP27689-SD1	5	X
16:08	MP27689-S1	5	
16:13	MP27689-S2	5	
16:18	JD28662-1	5	
16:23	MP27689-SD1	25	
16:28	ZZZZZZ	1	
16:33	ZZZZZZ	10	
16:38	ZZZZZZ	1	
16:43	ZZZZZZ	1	
16:48	MA50902-CCV10	1	X
16:53	MA50902-CCB10	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
16:58	ZZZZZZ	1	
17:04	ZZZZZZ	2	
17:09	ZZZZZZ	2	
17:14	ZZZZZZ	5	
17:19	ZZZZZZ	1	
17:24	ZZZZZZ	2	
17:29	ZZZZZZ	2	
17:34	ZZZZZZ	1	
17:39	MA50902-CCV11	1	X
17:44	MA50902-CCB11	1	X
17:49	ZZZZZZ	1	
17:54	ZZZZZZ	1	

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP　Date Analyzed: 07/28/21　Methods: EPA 200.7, SW846 6010D
Analyst: ND　Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:28	MA50902-STD1	3121 R	82184 R	7606 R	8365 R
08:33	MA50902-STD2	3014	77898	7505	7416
08:38	ZZZZZZ	3094	80300	7583	7701
08:43	ZZZZZZ	3166	82575	7646	8451
08:48	MA50902-ICV1	3102	80657	7595	7725
08:53	MA50902-ICB1	3178	83155	7592	8468
08:58	MA50902-CCV1	3110	80641	7627	7728
09:03	MA50902-CCB1	3196	83567	7624	8511
09:08	MA50902-CRI1	3167	82523	7582	8335
09:13	MA50902-CRID1	3187	83028	7497	8462
09:18	MA50902-ICSA1	2957	73716	7230	7005
09:23	MA50902-ICSAB1	2959	74169	7203	7004
09:28	MA50902-HSTD1	3167	81119	7284	8305
09:33	MA50902-HSTD2	2954	73899	7026	6962
09:38	ZZZZZZ	3177	80923	7232	8481
09:43	ZZZZZZ	3162	82267	7273	8524
09:49	ZZZZZZ	3221	81940	7211	8540
09:54	MA50902-CCV2	3139	78935	7193	7770
09:59	MA50902-CCB2	3226	81718	7177	8554
10:04	MP27688-MB1	3240	82616	7307	8602
10:09	MP27688-B1	3182	80311	7271	7989
10:14	MP27688-S1	3165	79959	7283	7859
10:18	MP27688-S2	3163	80082	7301	7862
10:23	JD28553-1	3214	81390	7386	8267
10:28	MP27688-SD1	3232	82364	7287	8503
10:33	ZZZZZZ	3015	76458	7230	7339
10:39	ZZZZZZ	3107	78624	7311	7522
10:44	ZZZZZZ	3136	79793	7370	7635
10:49	MA50902-CCV3	3153	79034	7147	7790
10:54	MA50902-CCB3	3228	81877	7230	8567
10:59	ZZZZZZ	3147	79508	7221	8007
11:04	ZZZZZZ	3171	80167	7265	8126
11:09	ZZZZZZ	3341	84272	7464	8932

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:14	MP27681-MB1	3046	75672	7139	7485
11:19	MP27681-B1	3122	77174	7165	7586
11:25	MP27681-S1	3096	77332	7234	7495
11:29	MP27681-S2	3104	77772	7196	7526
11:34	MP27681-D1	3072	77014	7229	7515
11:40	JD28603-2	3075	76733	7183	7526
11:45	MA50902-CCV4	3142	79109	7210	7763
11:50	MA50902-CCB4	3225	81512	7192	8557
11:55	MP27681-SD1	3154	79511	7191	8071
12:00	ZZZZZZ	3073	76586	7140	7527
12:05	ZZZZZZ	3073	76607	6944	7513
12:11	ZZZZZZ	3078	76779	7126	7531
12:16	ZZZZZZ	3063	76637	7164	7487
12:21	ZZZZZZ	3102	77707	7200	7686
12:26	ZZZZZZ	3095	77582	7265	7631
12:31	ZZZZZZ	3079	77105	7144	7565
12:37	ZZZZZZ	3086	78133	7271	7627
12:42	MA50902-CCV5	3145	79360	7240	7763
12:47	MA50902-CCB5	3225	82243	7289	8555
12:52	MA50902-CRID2	3213	82245	7317	8498
12:57	MA50902-CRI2	3206	81528	7355	8418
13:02	MA50902-ICSA2	2992	74902	7244	7060
13:07	MA50902-ICSAB2	2983	74362	7189	7038
13:12	MA50902-CCV6	3157	79488	7281	7812
13:17	MA50902-CCB6	3242	82368	7270	8597
13:22	ZZZZZZ	3094	77684	7195	7555
13:27	ZZZZZZ	3092	77313	7203	7583
13:32	ZZZZZZ	3089	77661	7150	7611
13:38	ZZZZZZ	3245	83146	7349	8604
13:43	JD28614-12	3270	82114	7519	7949
13:48	ZZZZZZ	3358	85105	7560	8495
13:53	ZZZZZZ	3282	83516	7390	8487
13:58	ZZZZZZ	3237	81876	7224	8575

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:03	ZZZZZZ	3246	82943	7304	8613
14:08	MA50902-CCV7	3150	78836	7180	7782
14:13	MA50902-CCB7	3230	81436	7169	8552
14:18	MP27593-S3	2915	72264	7089	6632
14:23	MP27593-S4	2927	71959	7111	6646
14:28	ZZZZZZ	3202	81081	7203	8368
14:33	ZZZZZZ	3205	81336	7248	8326
14:38	ZZZZZZ	3167	79103	7179	7975
14:43	ZZZZZZ	3225	81551	7283	8438
14:49	ZZZZZZ	3197	80428	7243	8267
14:54	ZZZZZZ	3200	80901	7210	8345
14:59	MA50902-CCV8	3149	78862	7187	7775
15:04	MA50902-CCB8	3231	81959	7192	8554
15:09	ZZZZZZ	3239	82156	7269	8592
15:14	MP27680-S1	3025	77128	7104	7596
15:19	MP27680-S2	3041	77455	7137	7632
15:24	ZZZZZZ	3221	81747	7191	8497
15:29	MP27689-MB1	3244	82901	7371	8604
15:34	MP27689-B1	3193	80470	7374	8002
15:39	MP27689-S1	3095	78524	7284	7550
15:43	MP27689-S2	3095	79023	7320	7559
15:48	JD28662-1	3102	78058	7273	7701
15:53	MA50902-CCV9	3148	79235	7203	7779
15:58	MA50902-CCB9	3237	82028	7240	8575
16:03	MP27689-SD1	3180	80530	7225	8227
16:08	MP27689-S1	No results reported for the elements associated with this internal standard.			
16:13	MP27689-S2	No results reported for the elements associated with this internal standard.			
16:18	JD28662-1	No results reported for the elements associated with this internal standard.			
16:23	MP27689-SD1	No results reported for the elements associated with this internal standard.			
16:28	ZZZZZZ	2944	73697	7276	6635
16:33	ZZZZZZ	3132	78884	7232	7806
16:38	ZZZZZZ	3123	79490	7363	7876
16:43	ZZZZZZ	2958	73849	7355	6674

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:48	MA50902-CCV10	3161	79559	7230	7811
16:53	MA50902-CCB10	3240	81995	7282	8577
16:58	ZZZZZZ	3140	80121	7346	7923
17:04	ZZZZZZ	3160	79195	7218	7986
17:09	ZZZZZZ	3201	80725	7422	8079
17:14	ZZZZZZ	3219	81608	7413	8327
17:19	ZZZZZZ	3156	78804	7508	7784
17:24	ZZZZZZ	3194	81314	7504	8053
17:29	ZZZZZZ	3227	82575	7695	8171
17:34	ZZZZZZ	3237	83665	7742	8309
17:39	MA50902-CCV11	3211	81545	7576	7938
17:44	MA50902-CCB11	3310	84911	7595	8782
17:49	ZZZZZZ	3322	85917	7762	8778
17:54	ZZZZZZ	3330	83571	7857	8822

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50902   Units: ug/l

Time:			08:53		09:03		09:59		10:54	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	-0.100	<3.0	-0.100	<3.0	0.400	<3.0	0.800	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50902   Units: ug/l

Time: Sample ID: Metal	RL	IDL	08:53 ICB1 raw	final	09:03 CCB1 raw	final	09:59 CCB2 raw	final	10:54 CCB3 raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50902 Units: ug/l

Time:			11:50		12:47		13:17		14:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	0.600	<3.0	0.600	<3.0	0.100	<3.0	0.00	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP
Date Analyzed: 07/28/21
Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL
Run ID: MA50902
Units: ug/l

Time:			11:50		12:47		13:17		14:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	ICV True	08:48 ICV1 Results	% Rec	CCV True	08:58 CCV1 Results	% Rec	CCV True	09:54 CCV2 Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2010	100.5	2000	2070	103.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:		08:48			08:58			09:54	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:		10:49			11:45			12:42	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2060	103.0	2000	2070	103.5	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50902   Units: ug/l

Time:		10:49			11:45			12:42	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:		13:12			14:08	
Sample ID:	CCV	CCV6		CCV	CCV7	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	anr					
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	2000	2060	103.0	2000	2060	103.0
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50902   Units: ug/l

Time:		13:12			14:08	
Sample ID:	CCV	CCV6		CCV	CCV7	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:28			09:33	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	8000	8240	103.0			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:28			09:33	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	CRI True	CRIA True	CRID True	09:08 CRI1 Results	% Rec	09:13 CRID1 Results	% Rec	12:52 CRID2 Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Cerium									
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.40	113.3				
Lithium	50								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	anr					
Phosphorus	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Strontium	10								
Sulfur	50								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					

6.4.6

6

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	CRI True	CRIA True	CRID True	09:08 CRI1 Results	% Rec	09:13 CRID1 Results	% Rec	12:52 CRID2 Results	% Rec
Zinc	20		10	anr					
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time: / Sample ID: / Metal	CRI True	CRIA True	CRID True	12:57 CRI2 Results	% Rec
Aluminum	200	500	100	anr	
Antimony	6.0	20	3.0	anr	
Arsenic	8.0	20	3.0	anr	
Barium	200		4.0	anr	
Beryllium	2.0		1.0	anr	
Bismuth	20				
Boron	100		10		
Cadmium	3.0		1.0	anr	
Calcium	5000	2000	1000	anr	
Cerium					
Chromium	10		2.0	anr	
Cobalt	50		3.0	anr	
Copper	10		2.0	anr	
Iron	100	500		anr	
Lead	3.0	20	2.5	3.10	103.3
Lithium	50				
Magnesium	5000	2000	100	anr	
Manganese	15		3.0	anr	
Molybdenum	20				
Nickel	10		4.0	anr	
Phosphorus	50				
Potassium	5000		2000	anr	
Selenium	10	20	5.0	anr	
Silicon	200				
Silver	5.0		2.0	anr	
Sodium	5000		1000	anr	
Strontium	10				
Sulfur	50				
Thallium	10		2.0		
Tin	10				
Titanium	10				
Tungsten	50				
Vanadium	50		2.0	anr	

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				12:57	
Sample ID:	CRI	CRIA	CRID	CRI2	
Metal	True	True	True	Results	% Rec
Zinc	20		10	anr	
Zirconium	10				

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	ICSA True	ICSAB True	09:18 ICSA1 Results	% Rec	09:23 ICSAB1 Results	% Rec	13:02 ICSA2 Results	% Rec	13:07 ICSAB2 Results	% Rec
Aluminum	500000	500000	510000	102.0	503000	100.6	510000	102.0	502000	100.4
Antimony		1000	2.10		937	93.7	1.50		926	92.6
Arsenic		1000	0.900		950	95.0	1.70		930	93.0
Barium		500	1.60		501	100.2	1.70		500	100.0
Beryllium		500	0.300		496	99.2	0.300		494	98.8
Bismuth		500	4.40		490	98.0	5.60		484	96.8
Boron		500	-2.40		472	94.4	-1.70		465	93.0
Cadmium		1000	-0.300		1020	102.0	-0.300		1020	102.0
Calcium	400000	400000	393000	98.3	388000	97.0	393000	98.3	388000	97.0
Cerium			121*		597*		122*		593*	
Chromium		500	-2.70		483	96.6	-2.50		483	96.6
Cobalt		500	-0.600		486	97.2	-0.600		482	96.4
Copper		500	-3.30		486	97.2	-3.80		487	97.4
Iron	200000	200000	206000	103.0	198000	99.0	206000	103.0	198000	99.0
Lead		1000	0.400		998	99.8	0.500		989	98.9
Lithium		500	-16.0		472	94.4	-15.1		470	94.0
Magnesium	500000	500000	507000	101.4	503000	100.6	508000	101.6	503000	100.6
Manganese		500	0.300		514	102.8	0.400		514	102.8
Molybdenum		500	-1.50		446	89.2	-1.30		438	87.6
Nickel		1000	-0.500		981	98.1	-0.700		979	97.9
Phosphorus		500	15.6		423	84.6	10.3		473	94.6
Potassium			188		185		245		230	
Selenium		1000	-1.30		904	90.4	8.50		882	88.2
Silicon		500	-7.60		490	98.0	-7.00		481	96.2
Silver		1000	-2.10		1020	102.0	-1.70		1010	101.0
Sodium			-117		-52.4		-43.9		28.9	
Strontium		500	0.700		480	96.0	0.700		479	95.8
Sulfur		500	19.3		478	95.6	24.8		484	96.8
Thallium		1000	-8.50		962	96.2	-5.20		865	86.5
Tin		500	-2.00		464	92.8	-0.300		458	91.6
Titanium		500	-1.60		485	97.0	-1.00		483	96.6
Tungsten		500	9.90		473	94.6	9.00		467	93.4
Vanadium		500	-0.500		491	98.2	-0.800		490	98.0

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50902   Units: ug/l

Time: Sample ID: Metal	 ICSA True	 ICSAB True	09:18 ICSA1 Results	 % Rec	09:23 ICSAB1 Results	 % Rec	13:02 ICSA2 Results	 % Rec	13:07 ICSAB2 Results	 % Rec
Zinc		1000	3.20		994	99.4	3.10		980	98.0
Zirconium		500	0.700		448	89.6	0.800		447	89.4

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Lead	17.8	258	246	97.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Tungsten					
Vanadium					
Zinc					
Zirconium					

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576 Methods: SW846 6010D
Matrix Type: SOLID Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	60	.3	6.9		
Zirconium	10	.5	4.1		

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	0.0	1950	2000	97.5	1.0	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original SDL 1:5	%DIF	QC Limits
Zinc	anr		
Zirconium			

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2140027
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/01/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140027-01	PB85-15-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:00	07/26/21
L2140027-02	PB85-17-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:25	07/26/21
L2140027-03	FB-210726	FIELD BLANK	PHILADELPHIA, PA	07/26/21 15:00	07/26/21
L2140027-04	TB-210726	TRIP BLANK (AQUEOUS)	PHILADELPHIA, PA	07/23/21 00:00	07/26/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2140027-02: The collection time was obtained from the container labels.

Volatile Organics

L2140027-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (203%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140027-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140027-02: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2140027-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (177%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Jennifer L Clements

Title: Technical Director/Representative Date: 08/01/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027

Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-01 D
Client ID: PB85-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/28/21 21:09
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	4
Benzene	ND		mg/kg	0.17	0.056	4
Toluene	ND		mg/kg	0.33	0.18	4
Ethylbenzene	ND		mg/kg	0.33	0.047	4
Isopropylbenzene	12.		mg/kg	0.33	0.036	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.67	0.065	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.67	0.11	4
Naphthalene	0.95	J	mg/kg	1.3	0.22	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**203**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-02
Client ID: PB85-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:25
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/28/21 20:18
Analyst: AJK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	ND		mg/kg	0.039	0.013	1
Toluene	ND		mg/kg	0.078	0.042	1
Ethylbenzene	ND		mg/kg	0.078	0.011	1
Isopropylbenzene	0.28		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.16	0.026	1
Naphthalene	0.28	J	mg/kg	0.31	0.050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**177**	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027

Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-03
Client ID: FB-210726
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 15:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Field Blank
Analytical Method: 1,8260C
Analytical Date: 07/29/21 10:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-04
Client ID: TB-210726
Sample Location: PHILADELPHIA, PA

Date Collected: 07/23/21 00:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Trip Blank (Aqueous)
Analytical Method: 1,8260C
Analytical Date: 07/29/21 10:53
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/21 13:37
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1529146-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/29/21 08:32
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-04 Batch: WG1529619-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.23	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1529146-3 WG1529146-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	86		85		70-130	1		30
Toluene	87		86		70-130	1		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	98		97		70-130	1		30
1,3,5-Trimethylbenzene	99		99		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30
Naphthalene	93		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	108		107		70-130
4-Bromofluorobenzene	115		114		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140027
Project Number: 200.00135.005.03
Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-04 Batch: WG1529619-3 WG1529619-4								
Methyl tert butyl ether	91		91		63-130	0		20
Benzene	99		100		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	77		81		70-130	5		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		95		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2140027
Project Number: 200.00135.005.03 | **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-01
Client ID: PB85-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/26/21 14:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/27/21 10:51	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

SAMPLE RESULTS

Lab ID:	L2140027-02	Date Collected:	07/26/21 14:25
Client ID:	PB85-17-SS01	Date Received:	07/26/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	07/27/21 10:51	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1528265-1 QC Sample: L2139980-01 Client ID: DUP Sample						
Solids, Total	81.6	82.7	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140027-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-01B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-02B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-03A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03C	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-03E	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 07/27/21

ALPHA Job #: L2140027

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
40027-01	PB85-15-5501	7/26	1400	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-02	PB85-17-5501	7/26	1420	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-03	FD-210726	7/26	1500	W	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	TB-210726	7/26		W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/26 1529	[signature] AAL	7/26/21 1529
[signature]	7/26/21 1524	[signature] AAL	7/26/21 1735
[signature] AAL	7/26/21	[signature] AAL	7/26/21 22:30
[signature] AAL	7/27/21 02:25	[signature]	7/27/21 02:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

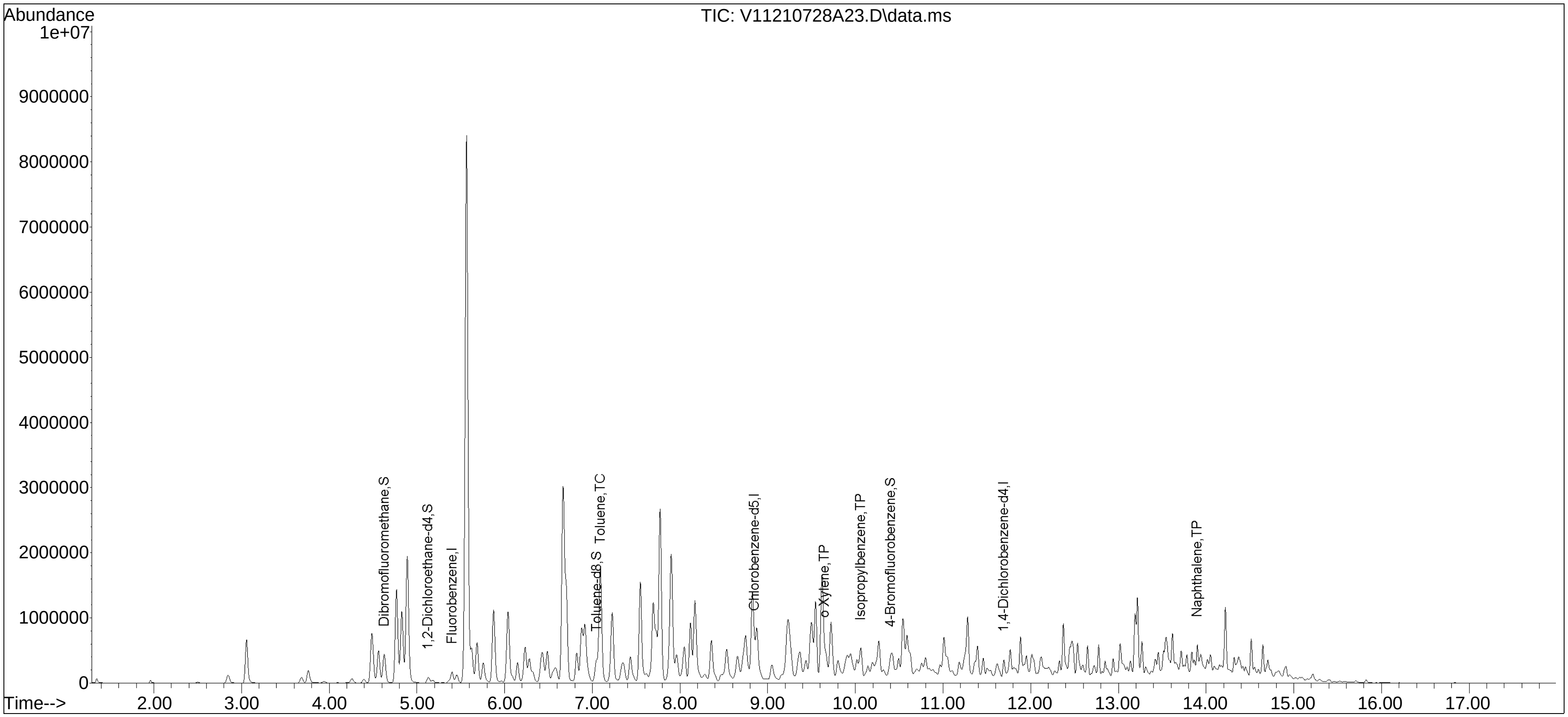
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A23.D
Acq On : 28 Jul 2021 09:09 pm
Operator : VOA111:AJK
Sample : L2140027-01D,31H,4.26,5,0.025,,A
Misc : WG1529146,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 28 21:48:24 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•

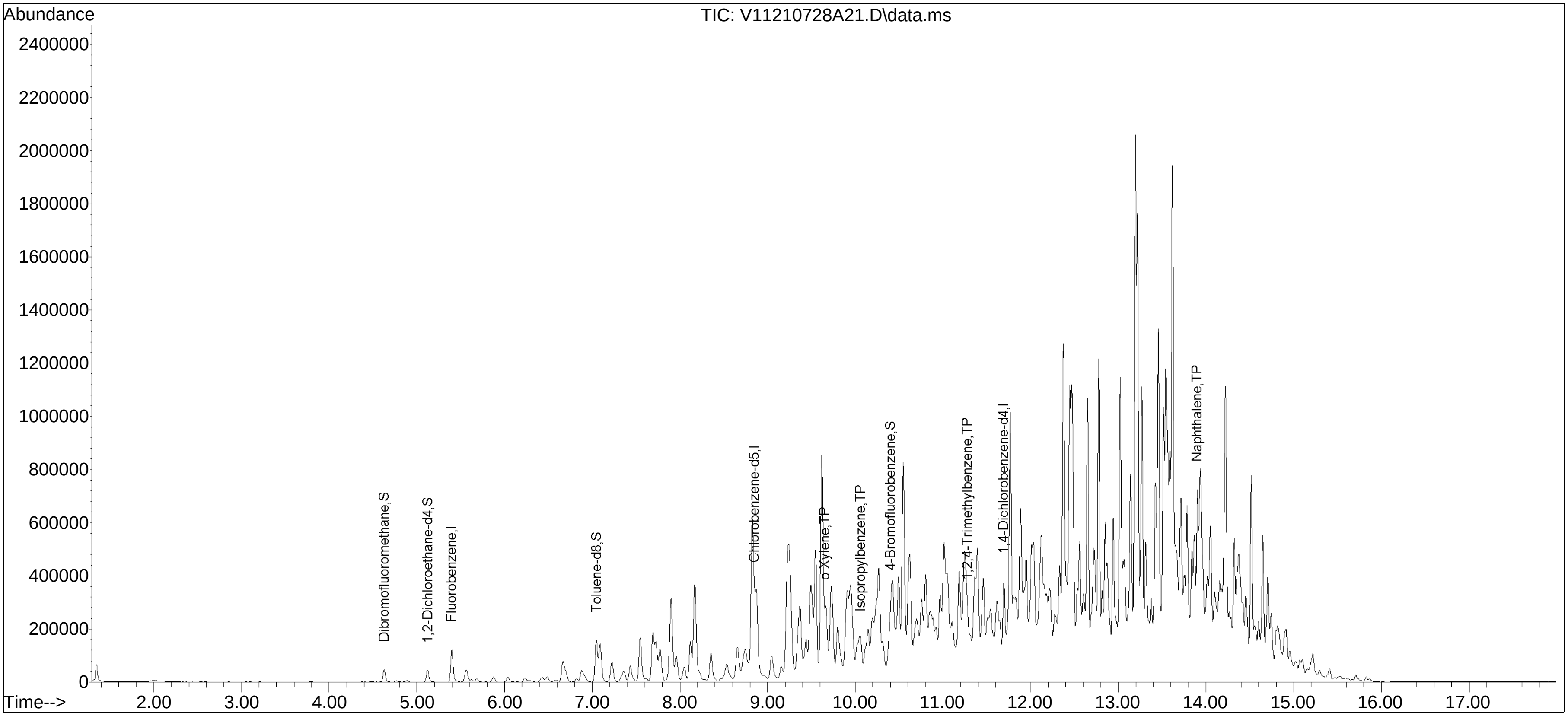


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A21.D
Acq On    : 28 Jul 2021  08:18 pm
Operator  : VOA111:AJK
Sample    : L2140027-02,31H,5.31,5,0.100,,A
Misc      : WG1529146,ICAL18049
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 28 21:47:27 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•
```



ANALYTICAL REPORT

Lab Number:	L2140301
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140301-01	PB37-17-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:05	07/27/21
L2140301-02	PB37-16-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:10	07/27/21
L2140301-03	PB37-09-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:10	07/27/21
L2140301-04	PB37-11-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:30	07/27/21
L2140301-05	PB37-10-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:45	07/27/21
L2140301-06	PB37-15-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:55	07/27/21
L2140301-07	PB37-12-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:20	07/27/21
L2140301-08	PB37-06-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:30	07/27/21
L2140301-09	PB37-03-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:50	07/27/21
L2140301-10	PB37-02-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:55	07/27/21
L2140301-11	PB37-01-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:05	07/27/21
L2140301-12	PB37-05-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:25	07/27/21
L2140301-13	FB-210727	WATER	PHILADELPHIA, PA	07/27/21 15:00	07/27/21
L2140301-14	TB-210727	WATER	PHILADELPHIA, PA	07/27/21 00:00	07/27/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

August 06, 2021: This final report includes the results of all requested analyses.

August 03, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics

L2140301-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (492%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140301-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (222%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an

attachment to this report.

L2140301-03: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

L2140301-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

Case Narrative (continued)

chromatogram is included as an attachment to this report.
L2140301-05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2140301-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2140301-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2140301-06: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.
L2140301-07: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (140%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2140301-08: The surrogate recoveries are outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.
L2140301-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2140301-09D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2140301-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (201%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2140301-10: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (163%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report.
The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2140301-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 08/06/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-01	Date Collected:	07/27/21 10:05
Client ID:	PB37-17-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 10:23
Analyst: JC
Percent Solids: 80%

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00040	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00078	J	mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0028		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0020		mg/kg	0.0020	0.00057	1
o-Xylene	0.014		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.016		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.0084		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.086		mg/kg	0.0020	0.00034	1
Naphthalene	0.0017	J	mg/kg	0.0040	0.00066	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**492**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-02 D	Date Collected:	07/27/21 10:10
Client ID:	PB37-16-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:26
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.043	J	mg/kg	0.12	0.041	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	ND		mg/kg	0.25	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.072	4
Ethylbenzene	0.18	J	mg/kg	0.25	0.035	4
p/m-Xylene	ND		mg/kg	0.50	0.14	4
o-Xylene	ND		mg/kg	0.25	0.072	4
Xylenes, Total	ND		mg/kg	0.25	0.072	4
Isopropylbenzene	6.0		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.50	0.083	4
Naphthalene	0.21	J	mg/kg	0.99	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**222**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-03	Date Collected:	07/27/21 11:10
Client ID:	PB37-09-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 10:48
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0015		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.0047		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.00056	J	mg/kg	0.0012	0.00017	1
p/m-Xylene	0.0038		mg/kg	0.0024	0.00068	1
o-Xylene	0.00052	J	mg/kg	0.0012	0.00036	1
Xylenes, Total	0.0043	J	mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.0092		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0042		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0035		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	**65**	Q	70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-04
Client ID: PB37-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 11:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:09
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.00050	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-05
Client ID: PB37-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:45
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 08:44
Analyst: MV
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.074		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.16		mg/kg	0.056	0.0079	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.037	J	mg/kg	0.056	0.016	1
Xylenes, Total	0.14	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.88		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.059	J	mg/kg	0.11	0.019	1
Naphthalene	2.1		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-06	Date Collected:	07/27/21 11:55
Client ID:	PB37-15-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:33
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00086	J	mg/kg	0.0025	0.00025	1
Benzene	0.0053		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	0.0037		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.030		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.021		mg/kg	0.0025	0.00071	1
o-Xylene	0.0020		mg/kg	0.0013	0.00037	1
Xylenes, Total	0.023		mg/kg	0.0013	0.00037	1
Isopropylbenzene	0.042		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.029		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00042	1
Naphthalene	0.22		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
Client ID: PB37-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 11:39
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.042	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.084	0.022	1
Toluene	ND		mg/kg	0.084	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.042	0.025	1
Ethylbenzene	0.046	J	mg/kg	0.084	0.012	1
p/m-Xylene	0.088	J	mg/kg	0.17	0.047	1
o-Xylene	ND		mg/kg	0.084	0.024	1
Xylenes, Total	0.088	J	mg/kg	0.084	0.024	1
Isopropylbenzene	0.027	J	mg/kg	0.084	0.0092	1
1,3,5-Trimethylbenzene	0.018	J	mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.17	0.028	1
Naphthalene	0.14	J	mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
Client ID: PB37-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:20
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 12:29
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.13		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	1.2	E	mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.22		mg/kg	0.0010	0.00014	1
p/m-Xylene	1.2	E	mg/kg	0.0020	0.00058	1
o-Xylene	0.38		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.12		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.37	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.018		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
Date Collected: 07/27/21 12:20
Client ID: PB37-12-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 12:05
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.26		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	2.0		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.23		mg/kg	0.072	0.010	1
p/m-Xylene	0.97		mg/kg	0.14	0.040	1
o-Xylene	0.29		mg/kg	0.072	0.021	1
Xylenes, Total	1.3		mg/kg	0.072	0.021	1
Isopropylbenzene	0.033	J	mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.47		mg/kg	0.14	0.024	1
Naphthalene	0.19	J	mg/kg	0.29	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-08	Date Collected:	07/27/21 12:30
Client ID:	PB37-06-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:48
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0085		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0067		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00034	1
Ethylbenzene	0.0040		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.063		mg/kg	0.0024	0.00066	1
o-Xylene	0.0058		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.069		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.018		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.027		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0091		mg/kg	0.0024	0.00039	1
Naphthalene	ND		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**133**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-09 D2	Date Collected:	07/27/21 13:50
Client ID:	PB37-03-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 11:13
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	65.		mg/kg	0.47	0.25	10
p/m-Xylene	62.		mg/kg	0.94	0.26	10
Xylenes, Total	85.		mg/kg	0.094	0.027	10
1,2,4-Trimethylbenzene	32.		mg/kg	0.94	0.16	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09 D
Client ID: PB37-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 13:50
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 08:18
Analyst: MV
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.19	0.019	2
Benzene	0.80		mg/kg	0.047	0.016	2
1,2-Dichloroethane	ND		mg/kg	0.094	0.024	2
Toluene	63.	E	mg/kg	0.094	0.051	2
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	2
Ethylbenzene	15.		mg/kg	0.094	0.013	2
p/m-Xylene	60.	E	mg/kg	0.19	0.052	2
o-Xylene	23.		mg/kg	0.094	0.027	2
Isopropylbenzene	1.4		mg/kg	0.094	0.010	2
1,3,5-Trimethylbenzene	10.		mg/kg	0.19	0.018	2
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.19	0.031	2
Naphthalene	1.8		mg/kg	0.37	0.061	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**201**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
Client ID: PB37-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 13:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 11:38
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.0023		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.0014		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.19		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.25		mg/kg	0.0022	0.00063	1
o-Xylene	0.0066		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.26		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.048		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.090		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.69	E	mg/kg	0.0022	0.00037	1
Naphthalene	0.099		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-10	Date Collected:	07/27/21 13:55
Client ID:	PB37-02-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 12:31
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.24		mg/kg	0.069	0.0098	1
p/m-Xylene	0.37		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.069	0.020	1
Xylenes, Total	0.37		mg/kg	0.069	0.020	1
Isopropylbenzene	0.071		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-11
Client ID: PB37-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 14:05
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0016	J	mg/kg	0.0022	0.00062	1
o-Xylene	0.00046	J	mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0021	J	mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0036		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.00068	J	mg/kg	0.0022	0.00037	1
Naphthalene	0.0024	J	mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**151**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
Client ID: PB37-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:25
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 14:11
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	1.3		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	9.8		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	3.8		mg/kg	0.072	0.010	1
p/m-Xylene	14.		mg/kg	0.14	0.040	1
o-Xylene	4.7		mg/kg	0.072	0.021	1
Xylenes, Total	19.		mg/kg	0.072	0.021	1
Isopropylbenzene	0.32		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	2.8		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	10.		mg/kg	0.14	0.024	1
Naphthalene	1.9		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-13
Client ID: FB-210727
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 15:00
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/29/21 16:31
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-13	Date Collected:	07/27/21 15:00
Client ID:	FB-210727	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/02/21 03:21
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-14
Client ID: TB-210727
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 00:00
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/29/21 16:37
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-14
Client ID: TB-210727
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 00:00
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/02/21 02:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/29/21 16:06
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 13-14 Batch: WG1529463-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-07,09-10 Batch: WG1530505-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,05,09,12 Batch: WG1530505-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/01/21 18:58
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 13-14 Batch: WG1530605-5					
1,2-Dichloroethane	ND		ug/l	0.50	0.13

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08 Batch: WG1530896-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2140301

Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 13-14 Batch: WG1529463-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-3 WG1530504-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,05,09,12 Batch: WG1530505-3 WG1530505-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-07,09-10 Batch: WG1530505-8 WG1530505-9								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	87		85		70-130	2		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	95		92		70-130	3		30
1,2-Dibromoethane	90		91		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	95		92		70-130	3		30
Isopropylbenzene	114		110		70-130	4		30
1,3,5-Trimethylbenzene	112		110		70-130	2		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30
Naphthalene	100		104		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2140301

Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 13-14 Batch: WG1530605-3 WG1530605-4								
1,2-Dichloroethane	95		94		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		90		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	95		98		70-130
Dibromofluoromethane	104		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08 Batch: WG1530896-3 WG1530896-4								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	87		85		70-130	2		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	95		92		70-130	3		30
1,2-Dibromoethane	90		91		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	95		92		70-130	3		30
Isopropylbenzene	114		110		70-130	4		30
1,3,5-Trimethylbenzene	112		110		70-130	2		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30
Naphthalene	100		104		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-01
Client ID: PB37-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 10:05
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-02
Date Collected: 07/27/21 10:10
Client ID: PB37-16-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-03
Client ID: PB37-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 11:10
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-04
Client ID: PB37-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 11:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-05
Date Collected: 07/27/21 11:45
Client ID: PB37-10-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
Client ID: PB37-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07
Client ID: PB37-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 12:20
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-08
Client ID: PB37-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 12:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-09	Date Collected:	07/27/21 13:50
Client ID:	PB37-03-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.6		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
Client ID: PB37-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-11
Client ID: PB37-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:05
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
Date Collected: 07/27/21 14:25
Client ID: PB37-05-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1528692-1 QC Sample: L2140301-01 Client ID: PB37-17-SS01						
Solids, Total	80.2	79.7	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-01A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-01B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-01E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-02A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-02B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-02E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-03A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-03B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-03E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-04A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-04B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-04E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-05A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-05B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-05C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-05E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-06A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-06B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-06E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-07A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-07B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-07E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-08A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-08B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-08E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-09A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-09B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-09E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-10A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-10B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-10E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-11A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-11B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 10:15	PA-8260HLW(14)
L2140301-11C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-11E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-12A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-12B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-12E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-13A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13C	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13E	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13F	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-14A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14C	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-14D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF COUSTODY

ALPHA ANALYTICAL

PAGE 1 OF 2

Date Rec'd in Lab: 7/28/21

ALPHA Job #: L2140301

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
40301-01	PB37-17-SS01	7/27	1005	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB37-16-SS01	↓	1010	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB37-09-SS01	↓	1110	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB37-11-SS01	↓	1130	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB37-10-SS01	↓	1145	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB37-15-SS01	↓	1155	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB37-12-SS01	↓	1220	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB37-06-SS01	↓	1230	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB37-03-SS01	↓	1350	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-10	PB37-02-SS01	↓	1355	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
				Container Type		G	G	G	-	-	-	-	-	-	-	-	-		
				Preservative		F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/27 1528	[signature] AAL	7/27/21 15:28
[signature] AAL	7/27/21 1526	[signature] AAL	7/27/21 1710
[signature] AAL	7/27/21	[signature]	
[signature] 7/27/21		[signature]	7/28/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/28/21

ALPHA Job #: L2140301

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

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Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
40301 -11	PB37-01-5501	7/27	1405	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB37-05-5501		1425	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	FB-210727A		1500	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		7
-14	TB-210727			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4

Container Type	G	G	G	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/27 1618	[signature] AAL	7/27/21 15:28
[signature] AAL	7/27/21 1524	[signature] AAL	7/27/21 1710
[signature]	7/27/21	[signature]	7/28/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

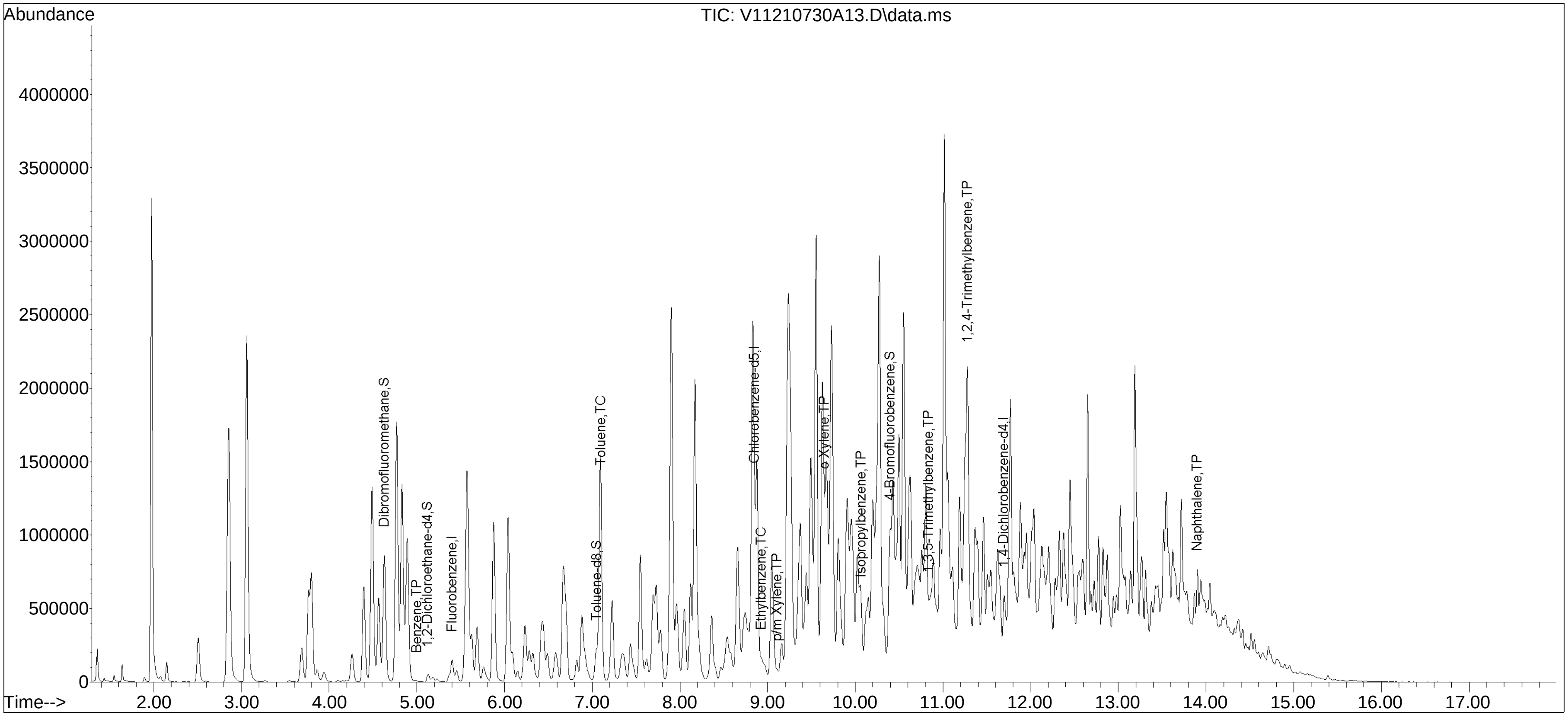
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A13.D
Acq On : 30 Jul 2021 10:23 am
Operator : VOA111:JC
Sample : L2140301-01,31,6.16,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 02 06:24:49 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

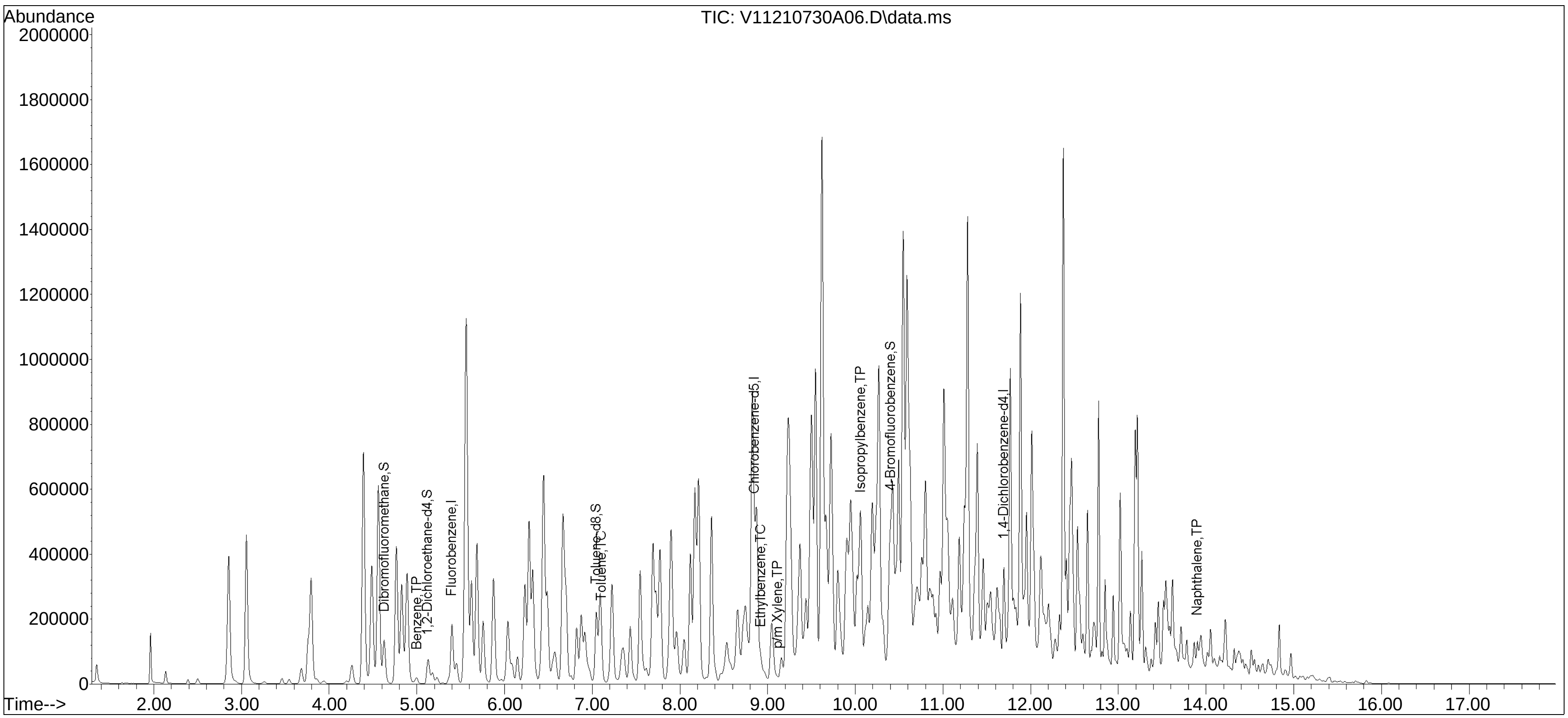


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A06.D
Acq On   : 30 Jul 2021 07:26 am
Operator : VOA111:MV
Sample   : L2140301-02D,31H,6.08,5,0.025,,A
Misc   : WG1530505,ICAL18049
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Jul 30 09:43:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

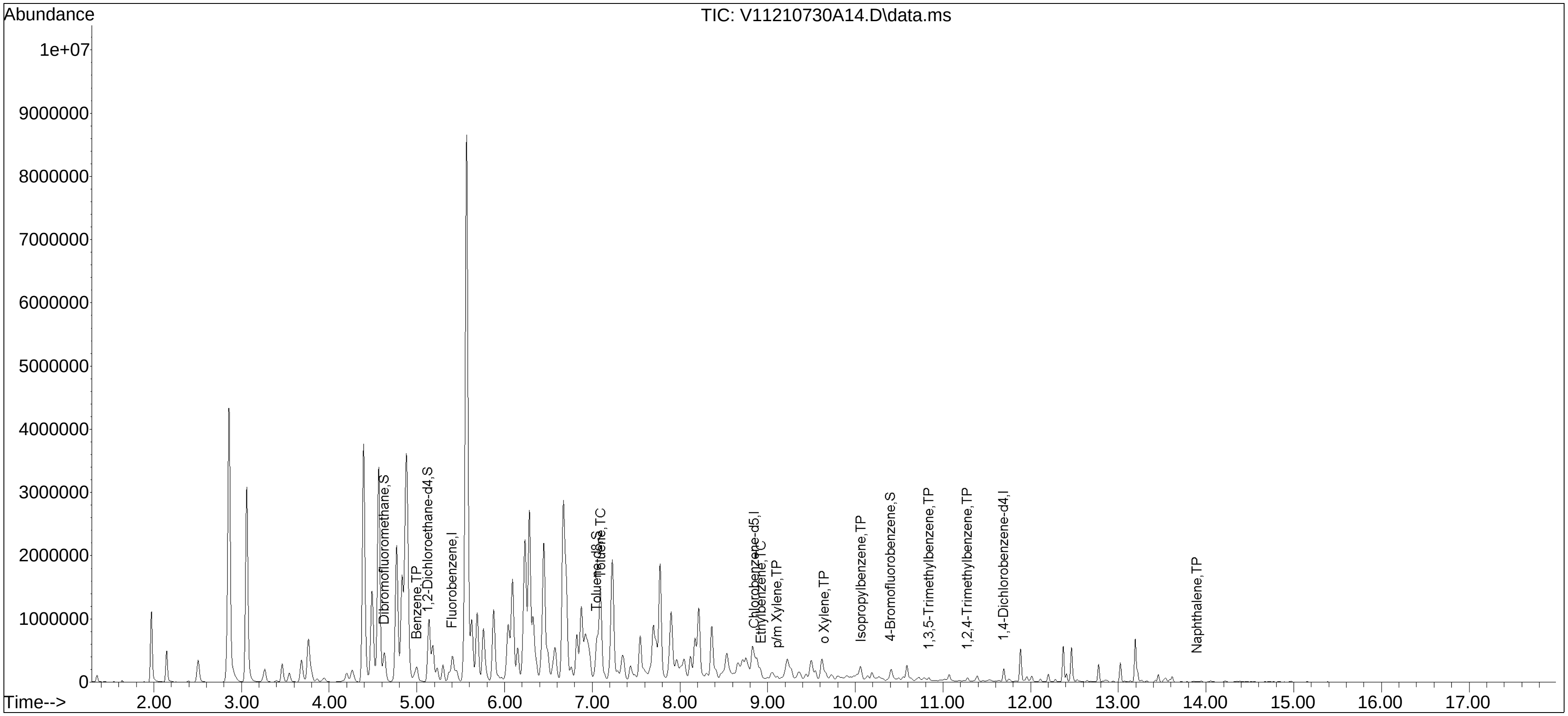


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A14.D
Acq On : 30 Jul 2021 10:48 am
Operator : VOA111:JC
Sample : L2140301-03,31,4.50,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 02 06:25:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

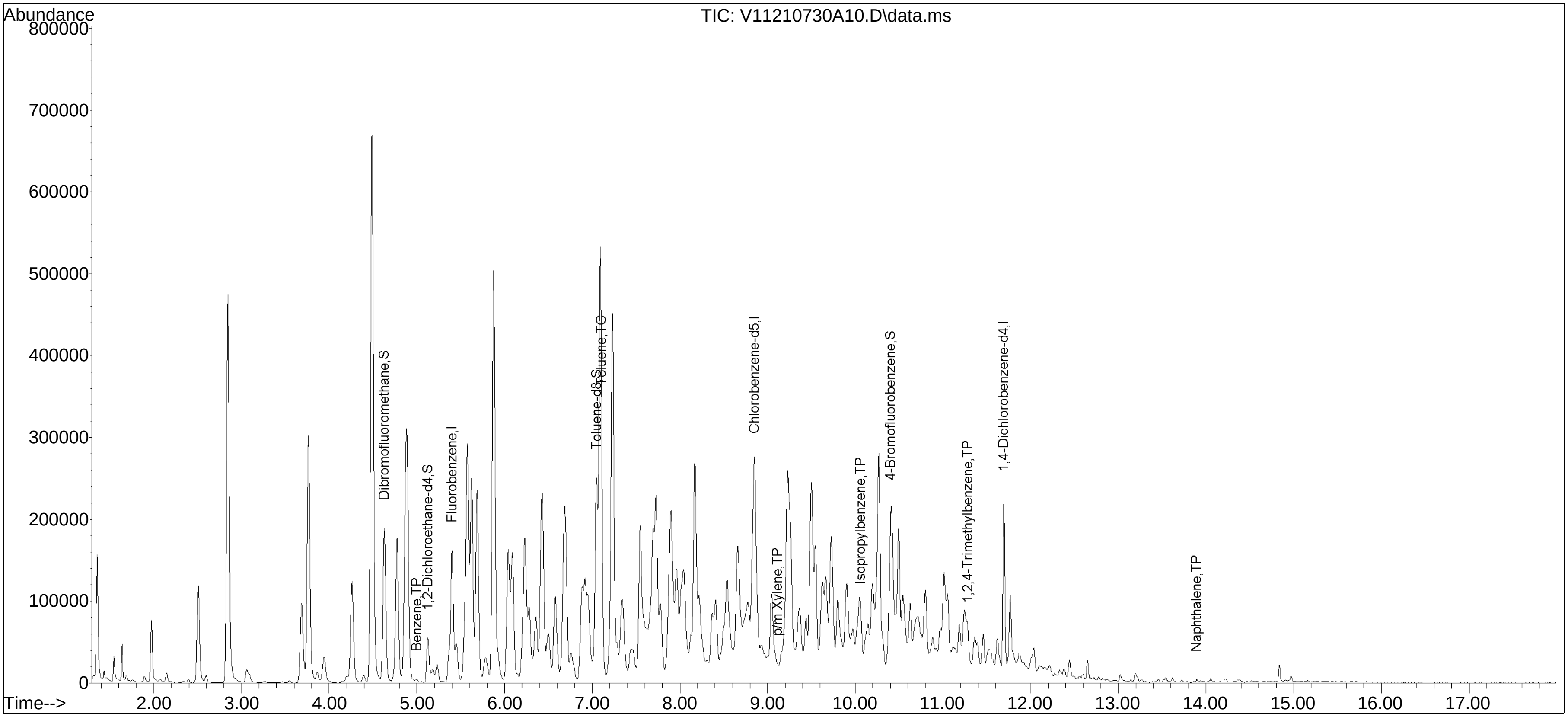


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A10.D
Acq On : 30 Jul 2021 09:09 am
Operator : VOA111:MV
Sample : L2140301-04,31,5.05,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 30 09:44:42 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

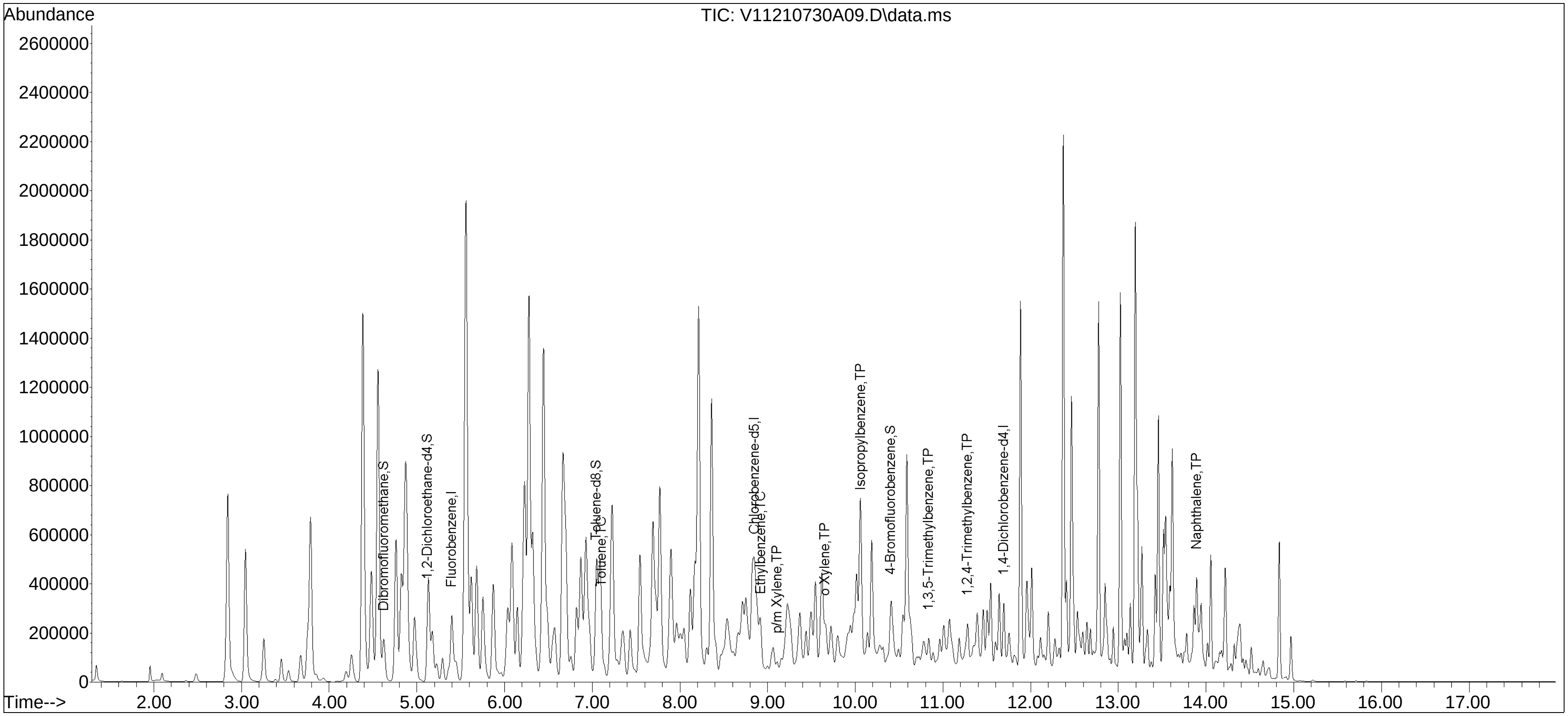


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A09.D
Acq On    : 30 Jul 2021  08:44 am
Operator  : VOA111:MV
Sample    : L2140301-05,31H,5.40,5,0.100,,A
Misc      : WG1530505,ICAL18049
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Jul 30 09:44:15 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•
```

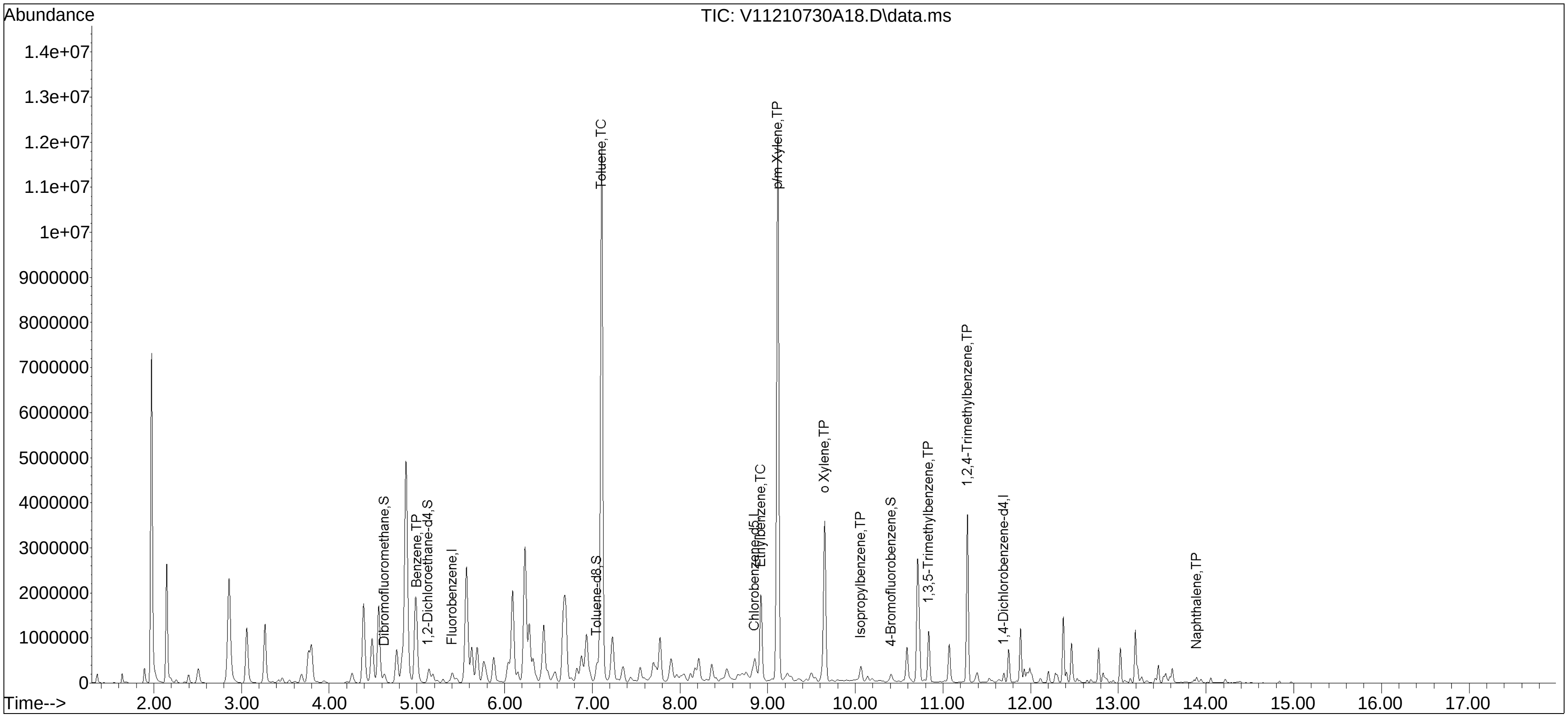


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A18.D
Acq On : 30 Jul 2021 12:29 pm
Operator : VOA111:JC
Sample : L2140301-07,31,6.05,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Aug 02 06:26:55 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

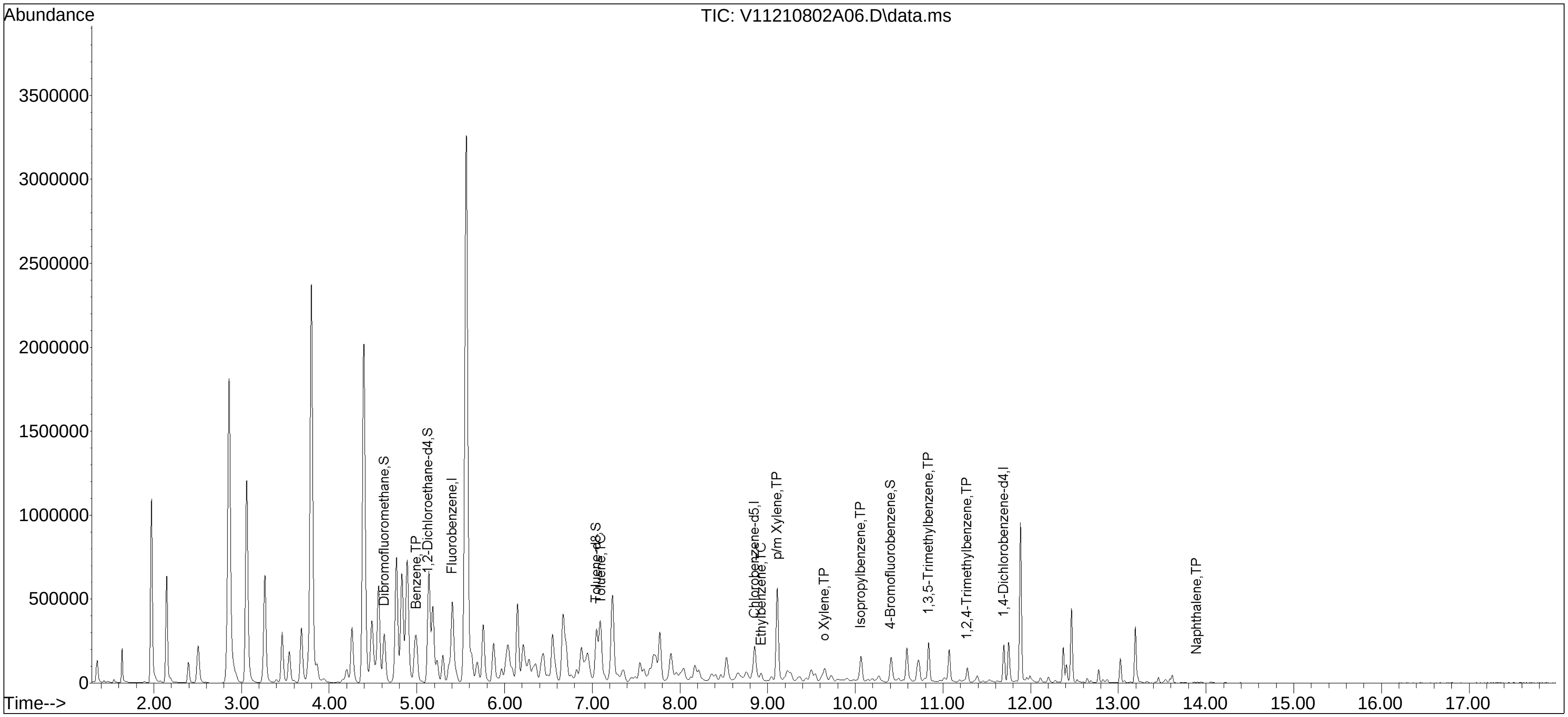


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210802A\
Data File : V11210802A06.D
Acq On    : 02 Aug 2021  10:48 am
Operator  : VOA111:JC
Sample    : L2140301-08,31,5.06,5,,C
Misc      : WG1530896,ICAL18049
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Aug 03 08:50:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•
```



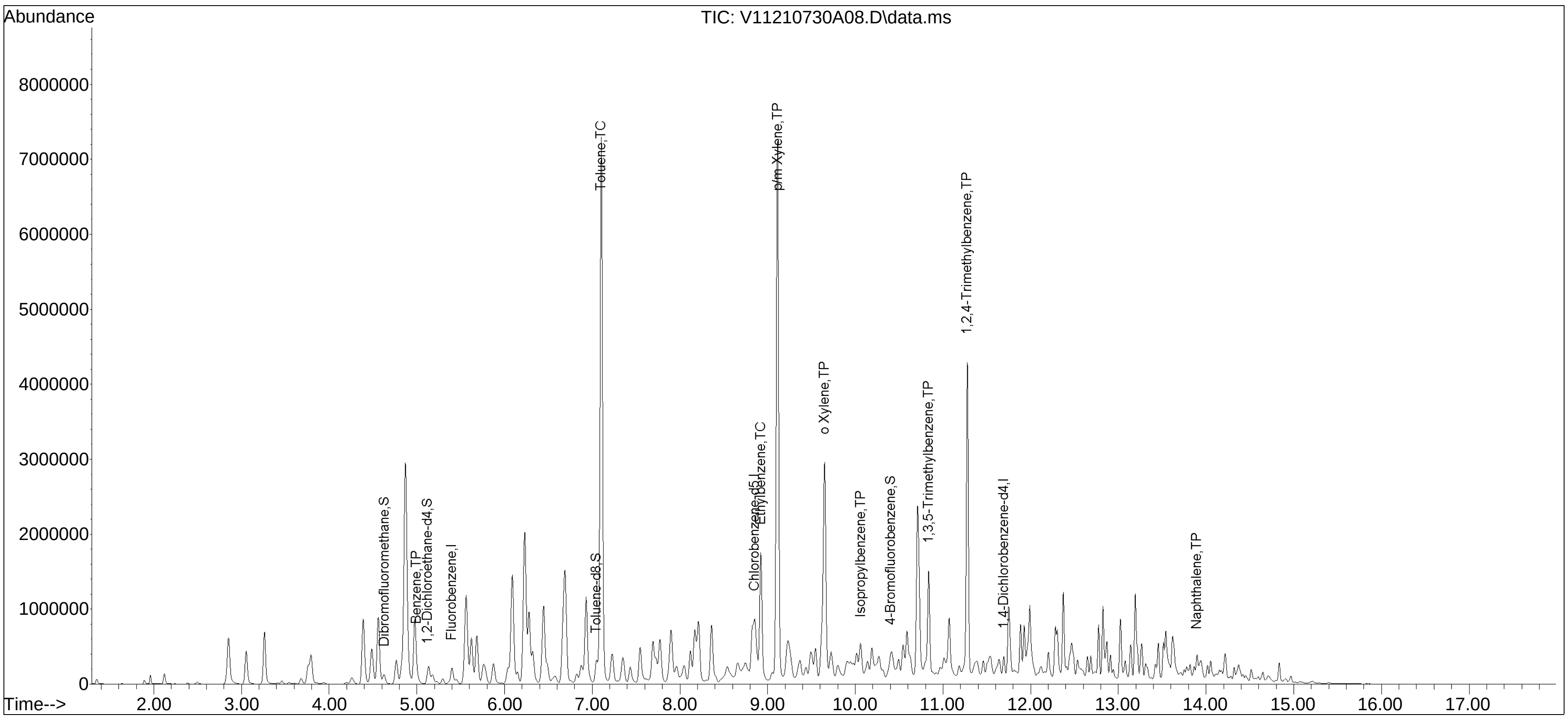
V111_210609A_8260.m Tue Aug 03 10:13:30 2021 Page: 2

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A08.D
Acq On : 30 Jul 2021 08:18 am
Operator : VOA111:MV
Sample : L2140301-09D,31H,6.02,5,0.050,,A
Misc : WG1530505,ICAL18049
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Aug 02 10:49:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

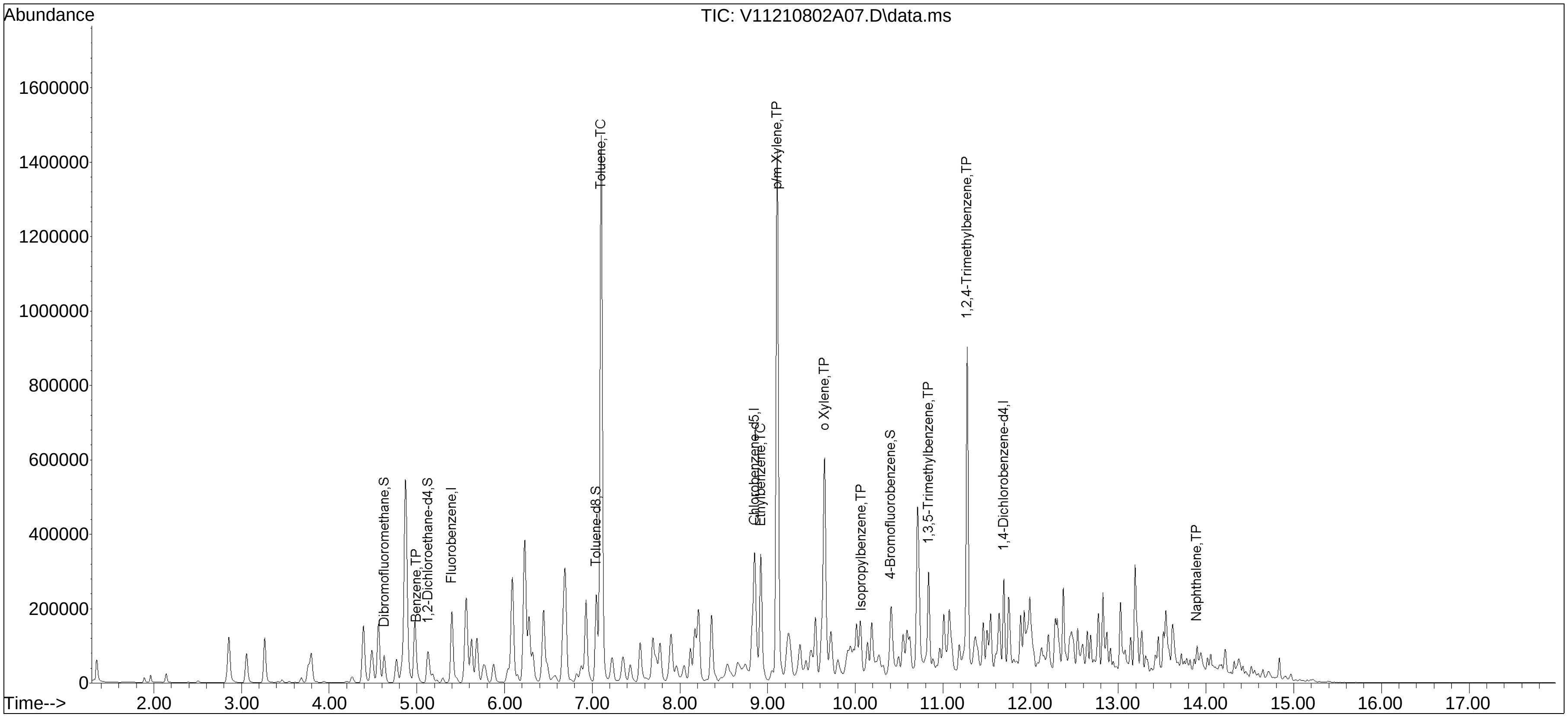


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210802A\
Data File : V11210802A07.D
Acq On    : 02 Aug 2021  11:13 am
Operator  : VOA111:JC
Sample    : L2140301-09D2,31H,6.02,5,0.010,,,A
Misc      : WG1530505,ICAL18049
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Aug 03 08:40:36 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•
```

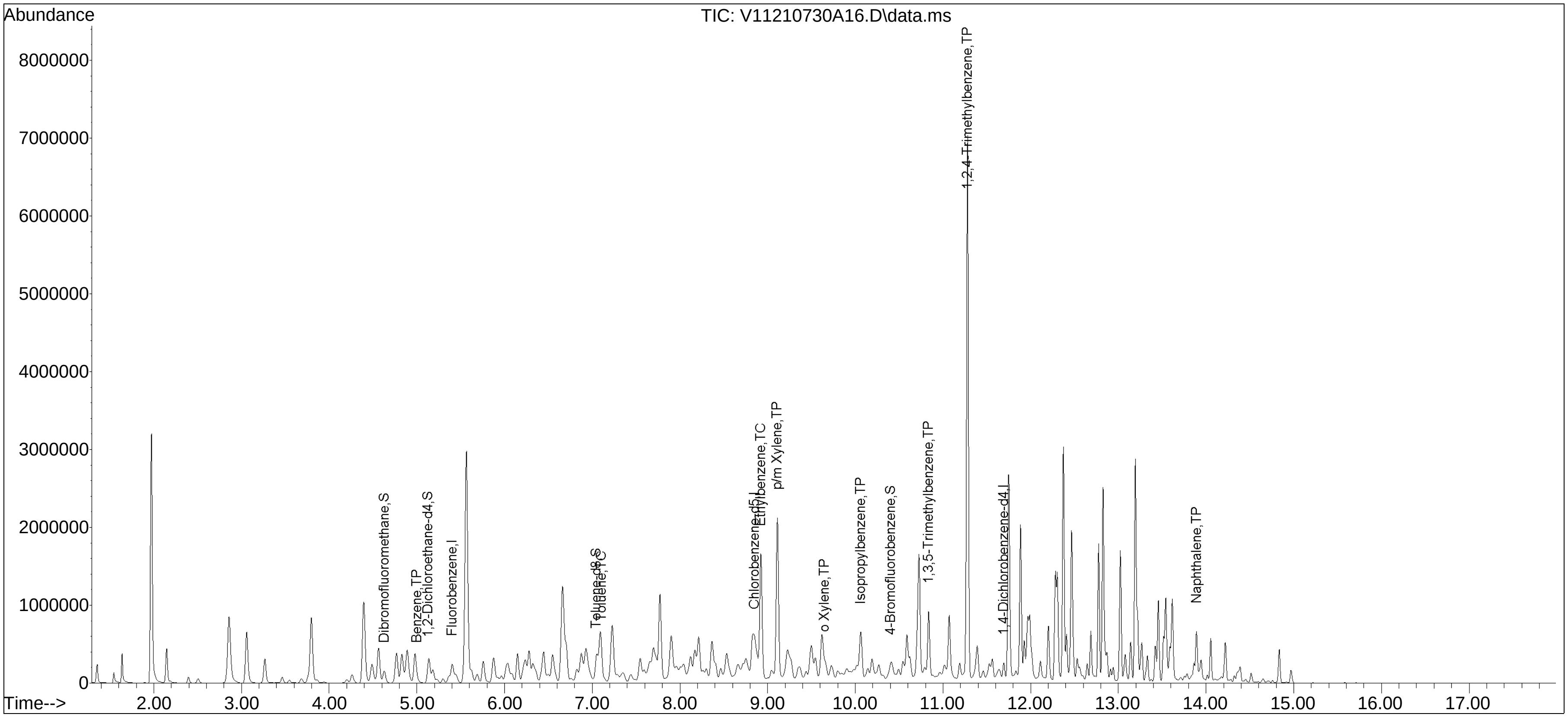


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A16.D
Acq On   : 30 Jul 2021 11:38 am
Operator : VOA111:JC
Sample   : L2140301-10,31,5.52,5,,B
Misc   : WG1530504,ICAL18049
ALS Vial : 16   Sample Multiplier: 1

Quant Time: Aug 02 06:26:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

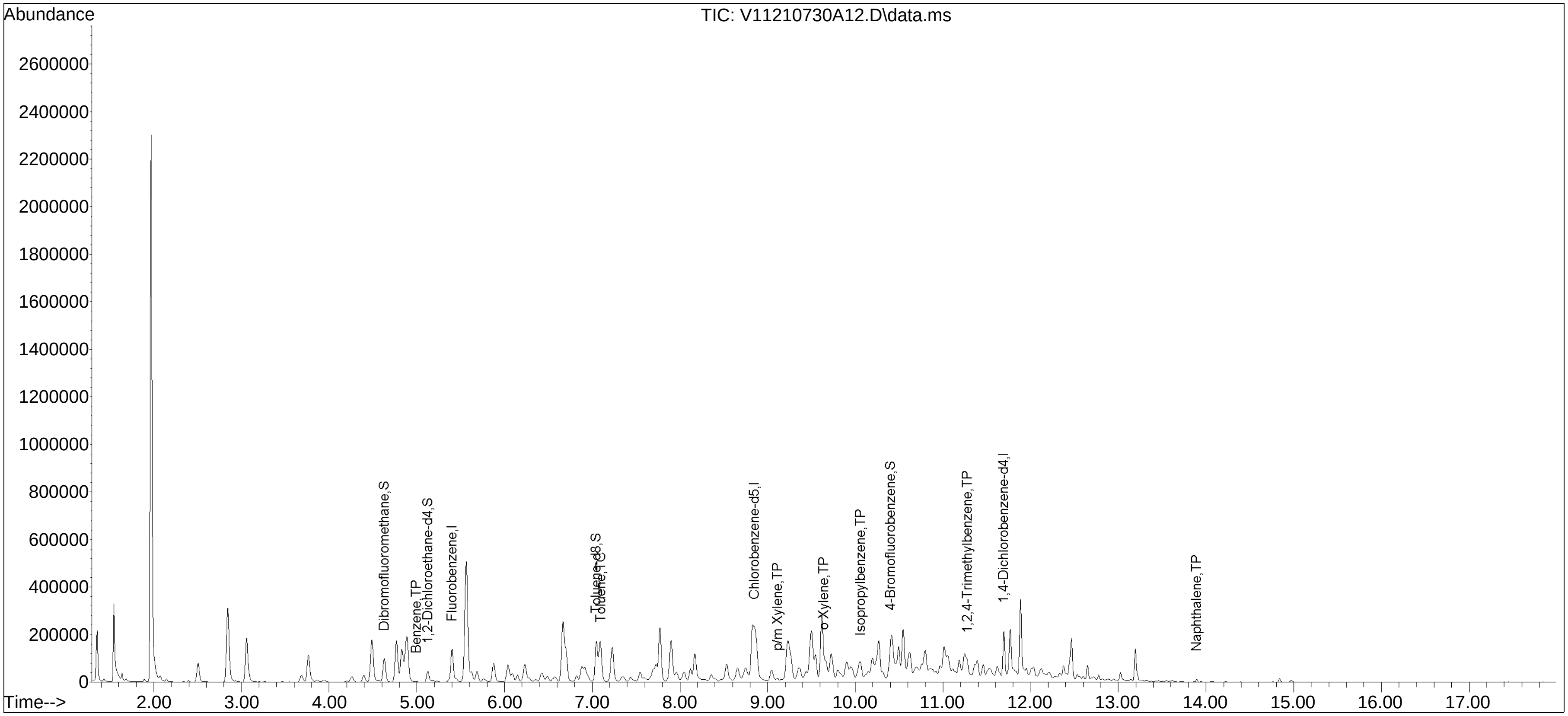


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A12.D
Acq On : 30 Jul 2021 09:58 am
Operator : VOA111:JC
Sample : L2140301-11,31,5.52,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 02 06:07:44 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•



SGS

Dayton, NJ

08/06/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2140301

SGS Job Number: JD29089

Sampling Date: 07/27/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walkup Drive
Westborough, MA 01581
subreports@alphalab.com; cromero@alphalab.com

ATTN: Cynthia Romero

Total number of pages in report: **45**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Sections: 1 2 3 4 5

Table of Contents

-1-

SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD29089

Alpha Analytical, PA
Project No: L2140301

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD29089-1	07/27/21	10:05		07/29/21	SO	Soil	PB37-17-SS01
JD29089-2	07/27/21	10:10		07/29/21	SO	Soil	PB37-16-SS01
JD29089-3	07/27/21	11:10		07/29/21	SO	Soil	PB37-09-SS01
JD29089-4	07/27/21	11:30		07/29/21	SO	Soil	PB37-11-SS01
JD29089-5	07/27/21	11:45		07/29/21	SO	Soil	PB37-10-SS01
JD29089-6	07/27/21	11:55		07/29/21	SO	Soil	PB37-15-SS01
JD29089-7	07/27/21	12:20		07/29/21	SO	Soil	PB37-12-SS01
JD29089-8	07/27/21	12:30		07/29/21	SO	Soil	PB37-06-SS01
JD29089-9	07/27/21	13:50		07/29/21	SO	Soil	PB37-03-SS01
JD29089-10	07/27/21	13:55		07/29/21	SO	Soil	PB37-02-SS01
JD29089-11	07/27/21	10:05		07/29/21	SO	Soil	PB37-01-SS01
JD29089-12	07/27/21	10:05		07/29/21	SO	Soil	PB37-05-SS01
JD29089-13	07/27/21	15:00		07/29/21	AQ	Field Blank Soil	FB-210727

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD29089-1	**PB37-17-SS01**					
Lead		1850	12		mg/kg	SW846 6010D
JD29089-2	**PB37-16-SS01**					
Lead		14.3	2.4		mg/kg	SW846 6010D
JD29089-3	**PB37-09-SS01**					
Lead		8.7	2.2		mg/kg	SW846 6010D
JD29089-4	**PB37-11-SS01**					
Lead		2740	12		mg/kg	SW846 6010D
JD29089-5	**PB37-10-SS01**					
Lead		5.8	2.3		mg/kg	SW846 6010D
JD29089-6	**PB37-15-SS01**					
Lead		647	2.8		mg/kg	SW846 6010D
JD29089-7	**PB37-12-SS01**					
Lead		119	2.6		mg/kg	SW846 6010D
JD29089-8	**PB37-06-SS01**					
Lead		9.4	2.3		mg/kg	SW846 6010D
JD29089-9	**PB37-03-SS01**					
Lead		61.2	2.2		mg/kg	SW846 6010D
JD29089-10	**PB37-02-SS01**					
Lead		131	1.6		mg/kg	SW846 6010D
JD29089-11	**PB37-01-SS01**					
Lead		449	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD29089-12	**PB37-05-SS01**					
Lead		85.0	2.4		mg/kg	SW846 6010D
JD29089-13	**FB-210727**					

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-17-SS01		
Lab Sample ID:	JD29089-1	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	80.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1850	12	mg/kg	5	08/04/21	08/05/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50942
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-16-SS01		
Lab Sample ID:	JD29089-2	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	81.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	14.3	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-09-SS01			
Lab Sample ID:	JD29089-3		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	90.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.7	2.2	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-11-SS01		
Lab Sample ID:	JD29089-4	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	82.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	2740	12	mg/kg	5	08/04/21	08/05/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50942
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-10-SS01		
Lab Sample ID:	JD29089-5	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	90.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	5.8	2.3	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-15-SS01			
Lab Sample ID:	JD29089-6		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	72.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	647	2.8	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-12-SS01		
Lab Sample ID:	JD29089-7	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	80.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	119	2.6	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-06-SS01		
Lab Sample ID:	JD29089-8	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	83.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	9.4	2.3	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-03-SS01			
Lab Sample ID:	JD29089-9		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	94.6
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	61.2	2.2	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-02-SS01			
Lab Sample ID:	JD29089-10		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	80.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	131	1.6	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-01-SS01		
Lab Sample ID:	JD29089-11	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	81.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	449	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-05-SS01			
Lab Sample ID:	JD29089-12		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	87.2
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	85.0	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210727		
Lab Sample ID:	JD29089-13	**Date Sampled:**	07/27/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/29/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	08/02/21	08/02/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50924
(2) Prep QC Batch: MP27798

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Page 1 of 2 PN

SO FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD29089

Alpha Job Number
L2140301

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019	Project Location: PA Project Manager: Nadine Yakes	State/Federal Program: Regulatory Criteria:
Phone: 201.812.9037 Email: nyakes@alphalab.com	**Turnaround & Deliverables Information** Due Date: Deliverables:	

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2140301

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB37-17-SS01	07-27-21 10:05	SOIL	Total Lead	E8S
2	PB37-16-SS01	07-27-21 10:10	SOIL	Total Lead	T2
3	PB37-09-SS01	07-27-21 11:10	SOIL	Total Lead	
4	PB37-11-SS01	07-27-21 11:30	SOIL	Total Lead	A36
5	PB37-10-SS01	07-27-21 11:45	SOIL	Total Lead	
6	PB37-15-SS01	07-27-21 11:55	SOIL	Total Lead	
7	PB37-12-SS01	07-27-21 12:20	SOIL	Total Lead	
8	PB37-06-SS01	07-27-21 12:30	SOIL	Total Lead	
9	PB37-03-SS01	07-27-21 13:50	SOIL	Total Lead	

INITIAL ASESSMENT 2A AR

LABEL VERIFICATION

Relinquished By:	Date/Time:	Received By:	Date/Time:
Kim L Bailey	7/28/21 ~~1700~~		
		Michael Terrance	7/28/21 0800
Michael Terrance	7/29/21 0800	Chris Beirish	7/29/21 8:02

Form No: AL_subcoc

2.3C

JD29089: Chain of Custody
Page 1 of 4

4.1 4

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4.1

4

ALPHA ANALYTICAL	**Subcontract Chain of Custody** SGS- North America 2235 US-130 Dayton, NJ 08810	JD29089 **Alpha Job Number** L2140301

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2140301

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB37-02-SS01	07-27-21 13:55	SOIL	Total Lead	
11	PB37-01-SS01	07-27-21 10:05	SOIL	Total Lead	
12	PB37-05-SS01	07-27-21 10:05	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
Kim L. Bailey	~~7/28/21 1700~~		
		Michael Thure	7/28/21 0630
Michael Thure	7/29/21 0800	[illegible]	7/29/21 8:02

Form No: AL_subcoc

2.3°C TP

JD29089: Chain of Custody

Page 2 of 4

SGS Sample Receipt Summary

Job Number: JD29089 **Client:** ALPHA ANALYTICAL **Project:** L2140301

Date / Time Received: 7/29/2021 8:02:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

Cooler Security	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments: Received an additional sample. It is a ~300mL HNO3 preserved water sample with client ID "FB-210727" and alpha ID "L2140301-13F". Collection date and time are 7/27 15:00. It is logged in as -13.

SM089-02 Rev. Date 12/1/16

JD29089: Chain of Custody
Page 3 of 4

Responded to by: Michelle

Response Date: 7/29

-13, please add and run for PB per Nadine Yakes

JD29089: Chain of Custody
Page 4 of 4

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	46		
Antimony	6.0	2.5	4.7		
Arsenic	3.0	2	2.8		
Barium	200	.4	13		
Beryllium	1.0	.1	.5		
Bismuth	20	3.6	4		
Boron	100	1.9	63		
Cadmium	3.0	.4	1		
Calcium	5000	5.6	99		
Cerium	100				
Chromium	10	.5	2		
Cobalt	50	.5	2.6		
Copper	10	1	5.9		
Iron	100	11	32		
Lead	3.0	1.2	1.8	0.60	<3.0
Lithium	50	2.3	7.3		
Magnesium	5000	65	140		
Manganese	15	.2	1.4		
Molybdenum	20	.4	3.6		
Nickel	10	.3	1.7		
Phosphorus	50	4.1	18		
Potassium	10000	55	200		
Selenium	10	3.5	4.9		
Silicon	200	1.6	100		
Silver	10	1.1	1.9		
Sodium	10000	11	570		
Strontium	10	.1	1		
Sulfur	50	4.4	45		
Thallium	10	2.5	1.8		
Tin	10	1	3.7		
Titanium	10	.4	2.5		
Tungsten	50	2.8	40		
Vanadium	50	.6	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	20	.1	6.9		
Zirconium	10	.4	4.1		

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Bismuth					
Boron	anr				
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	1.3	1940	2000	96.9	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

5.1.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

5.1.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron	anr					
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	1.3	1940	2000	96.9	0.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

5.1.2

5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr				
Zirconium					

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron	anr			
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			

5.1.3
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron	anr			
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1.30	0.00	100.0(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	SDL 1:5	%DIF	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.7	8.1		
Antimony	2.0	.17	.41		
Arsenic	2.0	.21	.28		
Barium	20	.08	1.9		
Beryllium	0.20	.03	.08		
Bismuth	2.0	.23	.52		
Boron	10	.23	1.5		
Cadmium	0.50	.03	.07		
Calcium	500	.66	44		
Chromium	1.0	.03	.37		
Cobalt	5.0	.04	.28		
Copper	2.5	.08	.84		
Iron	50	.53	19		
Lead	2.0	.11	.41	0.020	<2.0
Lithium	5.0	.48	.92		
Magnesium	500	3.2	14		
Manganese	1.5	.01	.41		
Molybdenum	2.0	.06	.32		
Nickel	4.0	.04	.35		
Phosphorus	20	.12	3.3		
Potassium	1000	7.7	32		
Selenium	2.0	.32	.65		
Silicon	20	.17	11		
Silver	0.50	.1	.17		
Sodium	1000	3.4	78		
Strontium	5.0	.03	.18		
Sulfur	10	.3	9.4		
Thallium	1.0	.18	.58		
Tin	20	.08	3.8		
Titanium	1.0	.05	.34		
Tungsten	5.0	.26	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date:					08/04/21
Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.03	.23		

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	2740	2460	246	-113.7(a	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium					

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	2740	3120	241	157.5(a)	23.7 (b)	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium						

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) High rpd due to possible sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	194	200	97.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

Metal	JD29089-4 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	23400	21500	8.1	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

Metal	JD29089-4 Original	SDL 5:25	%DIF	QC Limits
Zirconium				

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2153851
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	10/18/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2153851-01	PB-204-01-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:45	10/04/21
L2153851-02	PB-204-02-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:55	10/04/21
L2153851-03	PB-204-03-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:10	10/04/21
L2153851-04	PB-204-04-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:25	10/04/21
L2153851-05	PB-204-05-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:35	10/04/21
L2153851-06	PB-204-06-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:40	10/04/21
L2153851-07	PB-204-07-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:50	10/04/21
L2153851-08	PB-204-08-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:00	10/04/21
L2153851-09	PB-204-09-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:10	10/04/21
L2153851-10	PB-204-10-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:15	10/04/21
L2153851-11	PB-204-11-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:55	10/04/21
L2153851-12	PB-204-12-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:15	10/04/21
L2153851-13	PB-204-13-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:30	10/04/21
L2153851-14	FB-211004	WATER	PHILADELPHIA, PA	10/04/21 14:50	10/04/21
L2153851-15	TB-211004	WATER	PHILADELPHIA, PA	10/04/21 00:00	10/04/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

October 18, 2021: This final report includes the results of all requested analyses.

October 11, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2153851-01D, -03D, and -12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2153851-02, -04, and -05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

The following surrogate recoveries are outside the acceptance criteria; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2153851-01D: toluene-d8 (183%) and 4-bromofluorobenzene (177%)

L2153851-02: 4-bromofluorobenzene (140%)

L2153851-03D: toluene-d8 (135%)

L2153851-04: 4-bromofluorobenzene (131%)

L2153851-05: 1,2-dichloroethane-d4 (164%), 4-bromofluorobenzene (160%), and dibromofluoromethane (67%)

L2153851-07 Low Level: 4-bromofluorobenzene (139%)

L2153851-08: 1,2-dichloroethane-d4 (143%)

L2153851-09: toluene-d8 (158%)

L2153851-10: 1,2-dichloroethane-d4 (1220%), toluene-d8 (186%), and 4-bromofluorobenzene (148%)

L2153851-12D: toluene-d8 (136%)

L2153851-13: 1,2-dichloroethane-d4 (143%), toluene-d8 (200%), and 4-bromofluorobenzene (133%)

Case Narrative (continued)

L2153851-07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.
L2153851-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (42%) due to interference with the Internal Standard.
L2153851-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.
L2153851-11: The internal standard (IS) response for fluorobenzene (205%) and the surrogate recoveries for 1,2-dichloroethane-d4 (63%), 4-bromofluorobenzene (226%), and dibromofluoromethane (34%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

Semivolatile Organics by SIM
L2153851-01D: The sample has elevated detection limits due to the dilution required by the sample matrix.
L2153851-06D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%), and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Total Metals
L2153851-05: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
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Case Narrative (continued)

The WG1554856-3 MS recovery for lead (27%), performed on L2153851-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1554856-4 Laboratory Duplicate RPD for lead (53%), performed on L2153851-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 10/18/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01 D
Client ID: PB-204-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 14:26
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.089	J	mg/kg	0.55	0.056	4
Benzene	0.46		mg/kg	0.14	0.046	4
1,2-Dichloroethane	ND		mg/kg	0.28	0.071	4
Toluene	0.39		mg/kg	0.28	0.15	4
1,2-Dibromoethane	ND		mg/kg	0.14	0.081	4
Ethylbenzene	0.52		mg/kg	0.28	0.039	4
p/m-Xylene	0.81		mg/kg	0.55	0.15	4
o-Xylene	0.19	J	mg/kg	0.28	0.080	4
Xylenes, Total	1.0	J	mg/kg	0.28	0.080	4
Isopropylbenzene	38.		mg/kg	0.28	0.030	4
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.55	0.053	4
1,2,4-Trimethylbenzene	0.83		mg/kg	0.55	0.092	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	**183**	Q	70-130
4-Bromofluorobenzene	**177**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-02	Date Collected:	10/04/21 11:55
Client ID:	PB-204-02-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 08:39
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	ND		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	ND		mg/kg	0.067	0.0094	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.067	0.019	1
Xylenes, Total	ND		mg/kg	0.067	0.019	1
Isopropylbenzene	3.1		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.046	J	mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-03 D	Date Collected:	10/04/21 12:10
Client ID:	PB-204-03-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 15:16
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.12		mg/kg	0.12	0.042	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	0.24	J	mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.073	4
Ethylbenzene	0.13	J	mg/kg	0.25	0.035	4
p/m-Xylene	0.20	J	mg/kg	0.50	0.14	4
o-Xylene	0.097	J	mg/kg	0.25	0.073	4
Xylenes, Total	0.30	J	mg/kg	0.25	0.073	4
Isopropylbenzene	7.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.50	0.084	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
Client ID: PB-204-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 09:05
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	0.12		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.043	J	mg/kg	0.063	0.016	1
Toluene	0.065		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.21		mg/kg	0.063	0.0088	1
p/m-Xylene	0.21		mg/kg	0.12	0.035	1
o-Xylene	0.028	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.24	J	mg/kg	0.063	0.018	1
Isopropylbenzene	2.8		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.76		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-05	Date Collected:	10/04/21 12:35
Client ID:	PB-204-05-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 09:31
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.75		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.59		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.75		mg/kg	0.069	0.0098	1
p/m-Xylene	4.0		mg/kg	0.14	0.039	1
o-Xylene	0.41		mg/kg	0.069	0.020	1
Xylenes, Total	4.4		mg/kg	0.069	0.020	1
Isopropylbenzene	5.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	7.7		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	2.4		mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**164**	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851

Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D2
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 10:36
Analyst: MV
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.10	J	mg/kg	0.26	0.027	2
Benzene	2.3		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.072	2
1,2-Dibromoethane	0.043	J	mg/kg	0.066	0.039	2
Ethylbenzene	9.6		mg/kg	0.13	0.019	2
p/m-Xylene	4.1		mg/kg	0.26	0.074	2
o-Xylene	0.080	J	mg/kg	0.13	0.038	2
Xylenes, Total	4.2	J	mg/kg	0.13	0.038	2
Isopropylbenzene	6.7		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.67		mg/kg	0.26	0.026	2
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	83		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-06 D	Date Collected:	10/04/21 12:40
Client ID:	PB-204-06-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 16:32
Analyst: NLK
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	47.		mg/kg	0.53	0.088	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 16:57
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.19		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.022	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-07	Date Collected:	10/04/21 12:50
Client ID:	PB-204-07-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:48
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0027		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	0.0022		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.0084		mg/kg	0.00094	0.00013	1
p/m-Xylene	0.0038		mg/kg	0.0019	0.00052	1
o-Xylene	0.0026		mg/kg	0.00094	0.00027	1
Xylenes, Total	0.0064		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.56	E	mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.0085		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	**42**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-08	Date Collected:	10/04/21 13:00
Client ID:	PB-204-08-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 11:01
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0		mg/kg	0.11	0.011	1
Benzene	0.16		mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	0.063		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	0.42		mg/kg	0.057	0.0080	1
p/m-Xylene	0.42		mg/kg	0.11	0.032	1
o-Xylene	0.018	J	mg/kg	0.057	0.017	1
Xylenes, Total	0.44	J	mg/kg	0.057	0.017	1
Isopropylbenzene	2.6		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	7.6		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	5.3		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**143**	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
Client ID: PB-204-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 12:42
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.12	0.012	1
Benzene	0.058		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.046	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.11		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	0.020	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.020	J	mg/kg	0.060	0.017	1
Isopropylbenzene	2.4		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Client ID: PB-204-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 18:13
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.069		mg/kg	0.0019	0.00019	1
Benzene	0.24		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.097		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.085		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.52		mg/kg	0.0019	0.00052	1
o-Xylene	0.068		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.59		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.043		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.061		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**1220**	Q	70-130
Toluene-d8	**186**	Q	70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-11	Date Collected:	10/04/21 13:55
Client ID:	PB-204-11-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 18:39
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.42	E	mg/kg	0.0020	0.00020	1
Benzene	0.023		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0057		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.012		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.019		mg/kg	0.0020	0.00056	1
o-Xylene	0.0085		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.028		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.53	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0087		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**63**	Q	70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**226**	Q	70-130
Dibromofluoromethane	**34**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11 D
Client ID: PB-204-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 18:37
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.6		mg/kg	0.52	0.052	4
Benzene	0.23		mg/kg	0.13	0.043	4
1,2-Dichloroethane	ND		mg/kg	0.26	0.067	4
Toluene	0.20	J	mg/kg	0.26	0.14	4
1,2-Dibromoethane	0.080	J	mg/kg	0.13	0.076	4
Ethylbenzene	0.16	J	mg/kg	0.26	0.037	4
p/m-Xylene	0.27	J	mg/kg	0.52	0.14	4
o-Xylene	0.11	J	mg/kg	0.26	0.076	4
Xylenes, Total	0.38	J	mg/kg	0.26	0.076	4
Isopropylbenzene	5.1		mg/kg	0.26	0.028	4
1,3,5-Trimethylbenzene	0.065	J	mg/kg	0.52	0.050	4
1,2,4-Trimethylbenzene	0.31	J	mg/kg	0.52	0.087	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12 D
Client ID: PB-204-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 14:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 19:02
Analyst: NLK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40	J	mg/kg	0.95	0.095	4
Benzene	1.8		mg/kg	0.24	0.079	4
1,2-Dichloroethane	ND		mg/kg	0.47	0.12	4
Toluene	4.0		mg/kg	0.47	0.26	4
1,2-Dibromoethane	ND		mg/kg	0.24	0.14	4
Ethylbenzene	1.7		mg/kg	0.47	0.067	4
p/m-Xylene	4.6		mg/kg	0.95	0.26	4
o-Xylene	0.57		mg/kg	0.47	0.14	4
Xylenes, Total	5.2		mg/kg	0.47	0.14	4
Isopropylbenzene	19.		mg/kg	0.47	0.052	4
1,3,5-Trimethylbenzene	0.76	J	mg/kg	0.95	0.091	4
1,2,4-Trimethylbenzene	2.0		mg/kg	0.95	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	**136**	Q	70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13 Date Collected: 10/04/21 14:30
Client ID: PB-204-13-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 13:07
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	0.019	J	mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.061	J	mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.067	0.0095	1
p/m-Xylene	0.44		mg/kg	0.13	0.038	1
o-Xylene	0.078		mg/kg	0.067	0.020	1
Xylenes, Total	0.52		mg/kg	0.067	0.020	1
Isopropylbenzene	2.7		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.4		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.37		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**143**	Q	70-130
Toluene-d8	**200**	Q	70-130
4-Bromofluorobenzene	**133**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
Client ID: FB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/06/21 18:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14 Date Collected: 10/04/21 14:50
Client ID: FB-211004 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:21
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-15
Client ID: TB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 00:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/06/21 18:54
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-15
Client ID: TB-211004
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 00:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/06/21 17:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 14-15 Batch: WG1555315-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:12
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14-15 Batch: WG1556690-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:17
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,08-09,13 Batch: WG1556767-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:04
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06-07,11-12 Batch: WG1556767-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04-05 Batch: WG1556894-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 14:48
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10-11 Batch: WG1556923-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 14-15 Batch: WG1555315-2									
1,2-Dibromoethane	104		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14-15 Batch: WG1556690-3 WG1556690-4								
Methyl tert butyl ether	87		93		63-130	7		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	97		99		70-130	2		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		103		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06-07,11-12 Batch: WG1556767-3 WG1556767-4								
Methyl tert butyl ether	82		88		66-130	7		30
Benzene	99		98		70-130	1		30
1,2-Dichloroethane	86		90		70-130	5		30
Toluene	97		93		70-130	4		30
1,2-Dibromoethane	91		94		70-130	3		30
Ethylbenzene	94		95		70-130	1		30
p/m-Xylene	107		109		70-130	2		30
o-Xylene	97		99		70-130	2		30
Isopropylbenzene	88		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	86		86		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	100		97		70-130
4-Bromofluorobenzene	86		88		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,08-09,13 Batch: WG1556767-8 WG1556767-9								
Methyl tert butyl ether	80		80		66-130	0		30
Benzene	96		95		70-130	1		30
1,2-Dichloroethane	84		84		70-130	0		30
Toluene	89		93		70-130	4		30
1,2-Dibromoethane	80		90		70-130	12		30
Ethylbenzene	92		92		70-130	0		30
p/m-Xylene	102		106		70-130	4		30
o-Xylene	91		93		70-130	2		30
Isopropylbenzene	90		87		70-130	3		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		87		70-130
Toluene-d8	97		101		70-130
4-Bromofluorobenzene	91		88		70-130
Dibromofluoromethane	102		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		104		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1556923-3 WG1556923-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	96		97		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01 D
Client ID: PB-204-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/09/21 22:15
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.52		mg/kg	0.081	0.014	10
Fluorene	0.58		mg/kg	0.081	0.0097	10
Phenanthrene	0.88		mg/kg	0.081	0.0069	10
Anthracene	0.067	J	mg/kg	0.081	0.0065	10
Pyrene	0.18		mg/kg	0.081	0.0056	10
Benzo(a)anthracene	0.098		mg/kg	0.081	0.0077	10
Chrysene	0.11		mg/kg	0.081	0.0060	10
Benzo(b)fluoranthene	0.14		mg/kg	0.081	0.0077	10
Benzo(a)pyrene	0.097		mg/kg	0.081	0.0097	10
Indeno(1,2,3-cd)pyrene	0.096		mg/kg	0.081	0.0097	10
Benzo(ghi)perylene	0.10		mg/kg	0.081	0.0069	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**123**	Q	23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02
Client ID: PB-204-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 11:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 01:28
Analyst: DV
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0082	0.0015	1
Fluorene	0.018		mg/kg	0.0082	0.00099	1
Phenanthrene	0.021		mg/kg	0.0082	0.00070	1
Anthracene	0.0051	J	mg/kg	0.0082	0.00066	1
Pyrene	0.012		mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0053	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0056	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0040	J	mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	0.0027	J	mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	0.0025	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03
Client ID: PB-204-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 01:45
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.18		mg/kg	0.0081	0.0014	1
Fluorene	0.092		mg/kg	0.0081	0.00097	1
Phenanthrene	0.13		mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.056		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.030		mg/kg	0.0081	0.00077	1
Chrysene	0.026		mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.036		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.029		mg/kg	0.0081	0.00097	1
Indeno(1,2,3-cd)pyrene	0.022		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.024		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
Client ID: PB-204-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 02:01
Analyst: DV
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.067		mg/kg	0.0078	0.0014	1
Fluorene	0.019		mg/kg	0.0078	0.00094	1
Phenanthrene	0.021		mg/kg	0.0078	0.00067	1
Anthracene	0.0048	J	mg/kg	0.0078	0.00063	1
Pyrene	0.0093		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	0.0028	J	mg/kg	0.0078	0.00075	1
Chrysene	0.0029	J	mg/kg	0.0078	0.00059	1
Benzo(b)fluoranthene	0.0024	J	mg/kg	0.0078	0.00075	1
Benzo(a)pyrene	0.0014	J	mg/kg	0.0078	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0015	J	mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	0.0023	J	mg/kg	0.0078	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	53		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-05	Date Collected:	10/04/21 12:35
Client ID:	PB-204-05-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 02:17		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.068		mg/kg	0.0081	0.0015	1
Fluorene	0.0079	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.013		mg/kg	0.0081	0.00069	1
Anthracene	0.0019	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0031	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0014	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00098	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00098	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.00069	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/09/21 22:32
Analyst: DV
Percent Solids: 77%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	31.		mg/kg	0.42	0.076	50
Fluorene	0.34	J	mg/kg	0.42	0.051	50
Phenanthrene	0.64		mg/kg	0.42	0.036	50
Anthracene	0.083	J	mg/kg	0.42	0.034	50
Pyrene	0.19	J	mg/kg	0.42	0.030	50
Benzo(a)anthracene	0.074	J	mg/kg	0.42	0.040	50
Chrysene	0.055	J	mg/kg	0.42	0.032	50
Benzo(b)fluoranthene	0.083	J	mg/kg	0.42	0.040	50
Benzo(a)pyrene	0.062	J	mg/kg	0.42	0.051	50
Indeno(1,2,3-cd)pyrene	0.085	J	mg/kg	0.42	0.051	50
Benzo(ghi)perylene	0.089	J	mg/kg	0.42	0.036	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 02:50
Analyst: DV
Percent Solids: 83%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.043		mg/kg	0.0079	0.0014	1
Fluorene	0.0078	J	mg/kg	0.0079	0.00094	1
Phenanthrene	0.011		mg/kg	0.0079	0.00067	1
Anthracene	0.0024	J	mg/kg	0.0079	0.00063	1
Pyrene	0.0070	J	mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0043	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0057	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0046	J	mg/kg	0.0079	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0044	J	mg/kg	0.0079	0.00094	1
Benzo(ghi)perylene	0.0040	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
Client ID: PB-204-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:06
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0081	0.0015	1
Fluorene	0.018		mg/kg	0.0081	0.00098	1
Phenanthrene	0.024		mg/kg	0.0081	0.00069	1
Anthracene	0.0034	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0071	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0033	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0030	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0024	J	mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0018	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0018	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
Client ID: PB-204-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:22
Analyst: DV
Percent Solids: 83%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.026		mg/kg	0.0079	0.0014	1
Fluorene	0.019		mg/kg	0.0079	0.00095	1
Phenanthrene	0.029		mg/kg	0.0079	0.00067	1
Anthracene	0.0047	J	mg/kg	0.0079	0.00063	1
Pyrene	0.010		mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0026	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0021	J	mg/kg	0.0079	0.00095	1
Indeno(1,2,3-cd)pyrene	0.0012	J	mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.0012	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Client ID: PB-204-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:39
Analyst: DV
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0046	J	mg/kg	0.0081	0.0015	1
Fluorene	0.0022	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.0056	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0015	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0059	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0063	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0049	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.011		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.010		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0099		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0083		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
Client ID: PB-204-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:55
Analyst: DV
Percent Solids: 79%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.092		mg/kg	0.0082	0.0015	1
Fluorene	0.10		mg/kg	0.0082	0.00098	1
Phenanthrene	0.30		mg/kg	0.0082	0.00070	1
Anthracene	0.083		mg/kg	0.0082	0.00066	1
Pyrene	0.26		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.15		mg/kg	0.0082	0.00078	1
Chrysene	0.12		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.17		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.13		mg/kg	0.0082	0.00098	1
Indeno(1,2,3-cd)pyrene	0.092		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.079		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12
Client ID: PB-204-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 04:11
Analyst: DV
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.62		mg/kg	0.0085	0.0015	1
Fluorene	0.093		mg/kg	0.0085	0.0010	1
Phenanthrene	0.087		mg/kg	0.0085	0.00072	1
Anthracene	0.016		mg/kg	0.0085	0.00068	1
Pyrene	0.039		mg/kg	0.0085	0.00060	1
Benzo(a)anthracene	0.010		mg/kg	0.0085	0.00081	1
Chrysene	0.013		mg/kg	0.0085	0.00064	1
Benzo(b)fluoranthene	0.0096		mg/kg	0.0085	0.00081	1
Benzo(a)pyrene	0.0064	J	mg/kg	0.0085	0.0010	1
Indeno(1,2,3-cd)pyrene	0.0053	J	mg/kg	0.0085	0.0010	1
Benzo(ghi)perylene	0.012		mg/kg	0.0085	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	37		18-120

SAMPLE RESULTS

Lab ID:	L2153851-13	Date Collected:	10/04/21 14:30
Client ID:	PB-204-13-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 04:28		
Analyst:	DV		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0082	0.0015	1
Fluorene	0.036		mg/kg	0.0082	0.00099	1
Phenanthrene	0.057		mg/kg	0.0082	0.00070	1
Anthracene	0.0039	J	mg/kg	0.0082	0.00066	1
Pyrene	0.0043	J	mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0012	J	mg/kg	0.0082	0.00078	1
Chrysene	0.00074	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
Client ID: FB-211004
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 14:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:33
Analyst: RP
Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.07	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	79		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3546
Analytical Date:	10/07/21 00:56	Extraction Date:	10/06/21 00:05
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-13 Batch: WG1554916-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		25-120
Phenol-d6	65		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	55		30-120
2,4,6-Tribromophenol	78		10-136
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:12
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 14 Batch: WG1556643-1					
Naphthalene	0.07	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	0.01	J	ug/l	0.10	0.01
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-13 Batch: WG1554916-2 WG1554916-3								
Naphthalene	61		58		40-140	5		50
Fluorene	67		61		40-140	9		50
Phenanthrene	62		56		40-140	10		50
Anthracene	66		61		40-140	8		50
Pyrene	68		62		35-142	9		50
Benzo(a)anthracene	69		62		40-140	11		50
Chrysene	62		57		40-140	8		50
Benzo(b)fluoranthene	68		62		40-140	9		50
Benzo(a)pyrene	69		63		40-140	9		50
Indeno(1,2,3-cd)pyrene	78		70		40-140	11		50
Benzo(ghi)perylene	67		61		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	61		58		25-120
Phenol-d6	70		65		10-120
Nitrobenzene-d5	65		61		23-120
2-Fluorobiphenyl	58		54		30-120
2,4,6-Tribromophenol	89		81		10-136
4-Terphenyl-d14	62		57		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 14 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Indeno(1,2,3-cd)pyrene	77		71		40-140	8		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149

METALS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01
Client ID: PB-204-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 11:45
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	540		mg/kg	12.2	0.654	5	10/05/21 19:51	10/12/21 12:41	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02 Date Collected: 10/04/21 11:55
Client ID: PB-204-02-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.75		mg/kg	2.39	0.128	1	10/05/21 19:51	10/12/21 11:39	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-03	Date Collected:	10/04/21 12:10
Client ID:	PB-204-03-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.6		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:43	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-04	Date Collected:	10/04/21 12:25
Client ID:	PB-204-04-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.64		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 11:47	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05 Date Collected: 10/04/21 12:35
Client ID: PB-204-05-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.38		mg/kg	4.71	0.252	2	10/05/21 19:51	10/13/21 19:04	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-06	Date Collected:	10/04/21 12:40
Client ID:	PB-204-06-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	94.9		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:55	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-07	Date Collected:	10/04/21 12:50
Client ID:	PB-204-07-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	33.4		mg/kg	2.36	0.127	1	10/05/21 19:51	10/12/21 11:59	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
Client ID: PB-204-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.27		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 12:03	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09 Date Collected: 10/04/21 13:10

Client ID: PB-204-09-SS01 Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.42		mg/kg	4.79	0.257	2	10/05/21 19:51	10/13/21 19:09	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10 Date Collected: 10/04/21 13:15

Client ID: PB-204-10-SS01 Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.70		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 12:20	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-11	Date Collected:	10/04/21 13:55
Client ID:	PB-204-11-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	91.2		mg/kg	2.38	0.128	1	10/05/21 19:51	10/12/21 12:24	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12 Date Collected: 10/04/21 14:15
Client ID: PB-204-12-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	103		mg/kg	2.61	0.140	1	10/05/21 19:51	10/12/21 12:29	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-13	Date Collected:	10/04/21 14:30
Client ID:	PB-204-13-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.54		mg/kg	2.48	0.133	1	10/05/21 19:51	10/12/21 12:33	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-14	Date Collected:	10/04/21 14:50
Client ID:	FB-211004	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:22	10/07/21 21:30	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 14 Batch: WG1554465-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:22	10/07/21 18:17	1,6020B	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-13 Batch: WG1554856-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	10/05/21 19:51	10/11/21 23:56	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 Batch: WG1554465-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-13 Batch: WG1554856-2 SRM Lot Number: D109-540								
Lead, Total	85		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 QC Batch ID: WG1554465-3 WG1554465-4 QC Sample: L2154063-04 Client ID: MS Sample												
Lead, Total	0.7171J	530	536.0	101		541.7	102		75-125	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-3 QC Sample: L2153851-01 Client ID: PB-204-01-SS01												
Lead, Total	540	51.8	554	**27**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-4 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Lead, Total	540	934	mg/kg	**53**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01
Client ID: PB-204-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02
Date Collected: 10/04/21 11:55
Client ID: PB-204-02-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03
Client ID: PB-204-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
Client ID: PB-204-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
Date Collected: 10/04/21 12:35
Client ID: PB-204-05-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
Client ID: PB-204-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
Client ID: PB-204-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Client ID: PB-204-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-11	Date Collected:	10/04/21 13:55
Client ID:	PB-204-11-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12
Client ID: PB-204-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-13	Date Collected:	10/04/21 14:30
Client ID:	PB-204-13-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1554411-1 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Solids, Total	80.9	81.4	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-01B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-01E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-01F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-02B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-02E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-02F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-03B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-03E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-03F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-04B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-04E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-04F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-05B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-05E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-05F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-06B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-06E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-06F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-07B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-07E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-07F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-08B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-08E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-08F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-09A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-09B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-09C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-09E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-09F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-10A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-10B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-10E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-10F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-11A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-11B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-11E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-11F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-12A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-12B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-12E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-12F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-13A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-13B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-13E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-13F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-14A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14C	Vial HCl preserved	B	NA		3.3	Y	Absent		8011(14)
L2153851-14D	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14E	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14F	Plastic 250ml HNO3 preserved	B	<2	<2	3.3	Y	Absent		PB-6020T-PPB(180)
L2153851-15A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)
L2153851-15D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 10/5/21

ALPHA Job #: L2153851

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@RansomEnv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report Only Project-Specific Analyte List
See Attached. Also send to: EDD@TerraPhase.com
Jeremy@HillcoGlobal.com

ANALYSIS: PADEP Shortlist 1-6

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-6	Sample Specific Comments	TOTAL # BOTTLES
53851-01	PB-204-01-SS01	10/4	1145	S	TS	X	>15,000 PID	6
-02	PB-204-02-SS01	↓	1155	↓	↓	X	↓	↓
-03	PB-204-03-SS01	↓	1210	↓	↓	X	↓	↓
-04	PB-204-04-SS01	↓	1225	↓	↓	X	↓	↓
-05	PB-204-05-SS01	↓	1235	↓	↓	X	↓	↓
-06	PB-204-06-SS01	↓	1240	↓	↓	X	↓	↓
-07	PB-204-07-SS01	↓	1250	↓	↓	X	↓	↓
-08	PB-204-08-SS01	↓	1300	↓	↓	X	↓	↓
-09	PB-204-09-SS01	↓	1310	↓	↓	X	↓	↓
-10	PB-204-10-SS01	↓	1315	↓	↓	X	↓	↓

Container Type: G
Preservative:

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/4 1620	[signature] AAL	10/4 1620
[signature] AAL	10/4 1720	[signature]	10-4- 1721
[signature]	10-4 2030	[signature] AAL	10/4/21 2030
[signature] AAL	10-4-21 2355	[signature]	10/5/21 2355

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 10/5/21

ALPHA Job #: L2153851

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave, Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report Only Project-Specific Analyte List
See Attached. Also send to: EDD@terraphase.com
jjerew@hillcglobal.com

ANALYSIS: PADEP Shortlist 1-6 ; PADEP Shortlist 1-6 (Voc) (Quench)

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-6	PADEP Shortlist 1-6 (Voc)	Sample Specific Comments	TOTAL # BOTTLES
53851-11	PB-204-11-SS01	10/4	1355	S	TS	X		>15,000 PID	6
-12	PB-204-12-SS01		1415	S	TS	X		↓	6
-13	PB-204-13-SS01		1430	S	TS	X			6
-14	FB-211004		1450	W	TS	X			6
-15	TB-211004			W			X		

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/4 1620	[signature] AAL	10/4 1620
[signature] AAL	10/4/1730	[signature]	10-4 1730
[signature]	10-4-2030	[signature] AAL	10/4/21 2030
[signature] AAL 10-4-21 2355		[signature] AAL 10/4/21 2355	[signature] 10/5/21

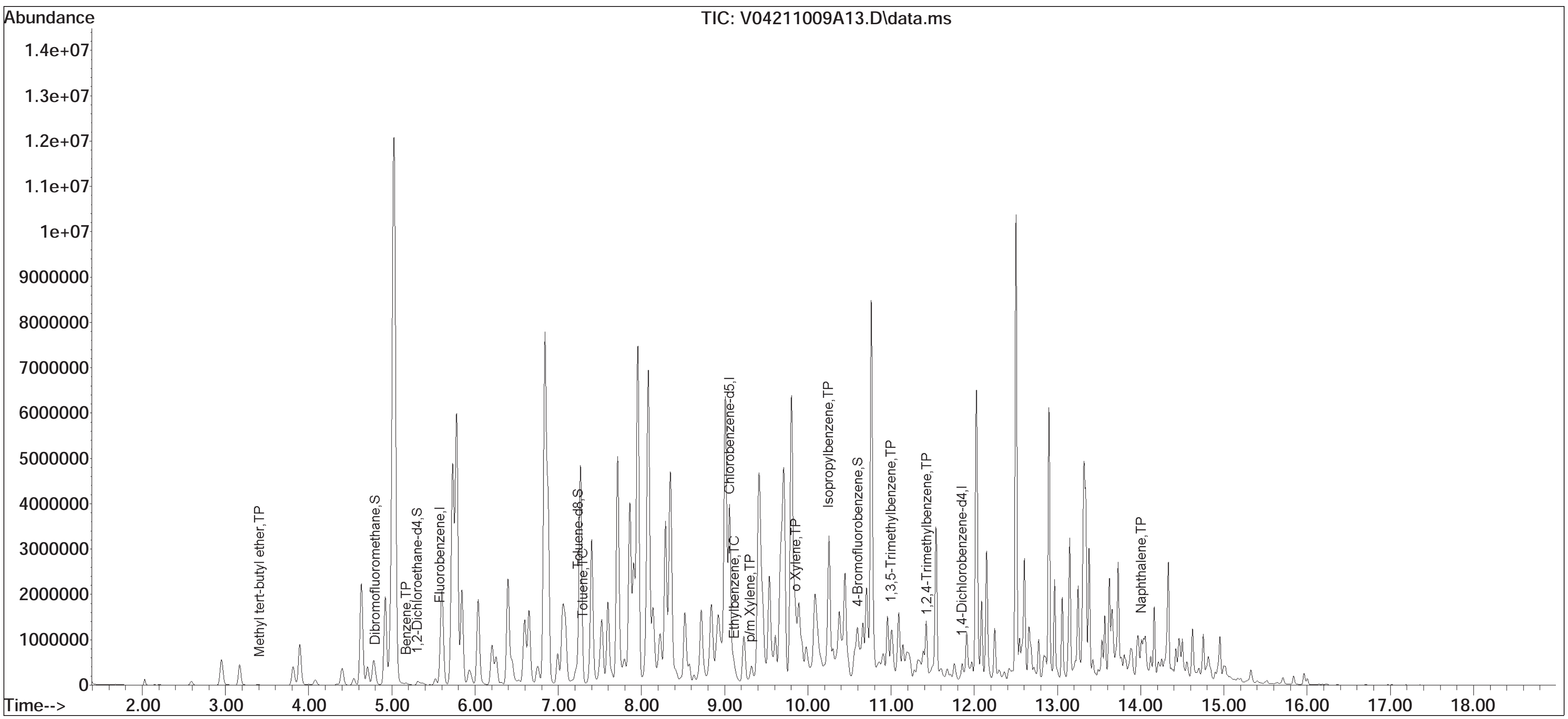
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A13.D
Acq On   : 9 Oct 2021   2:26 pm
Operator : VOA104:NLK
Sample   : L2153851-01D,31H,5.39,5,0.025,,A
Misc   : WG1556767,ICAL18128
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Oct 10 11:35:41 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

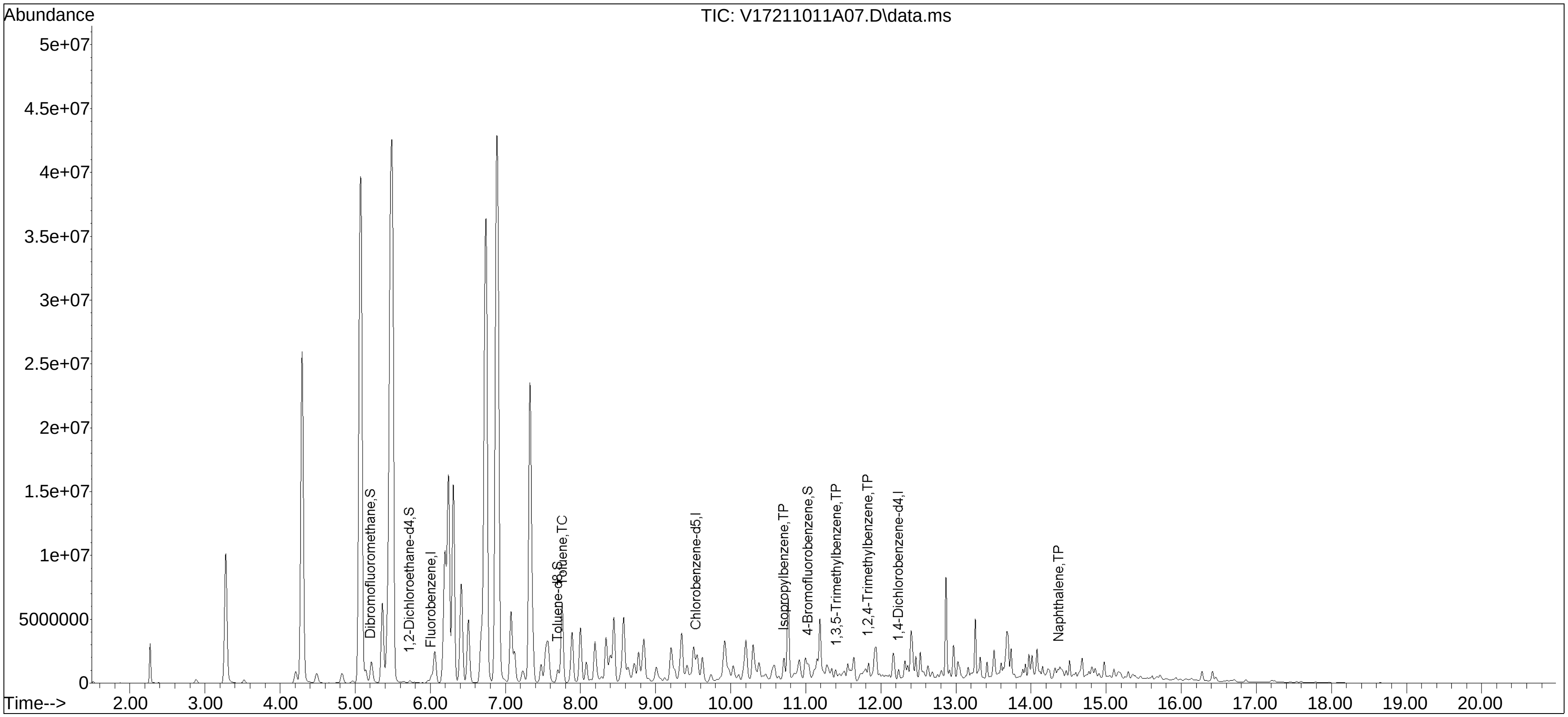


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A07.D
Acq On : 11 Oct 2021 08:39 am
Operator : VOA117:MV
Sample : l2153851-02,31H,5.63,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:54:29 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•



Quantitation Report (QT Reviewed)

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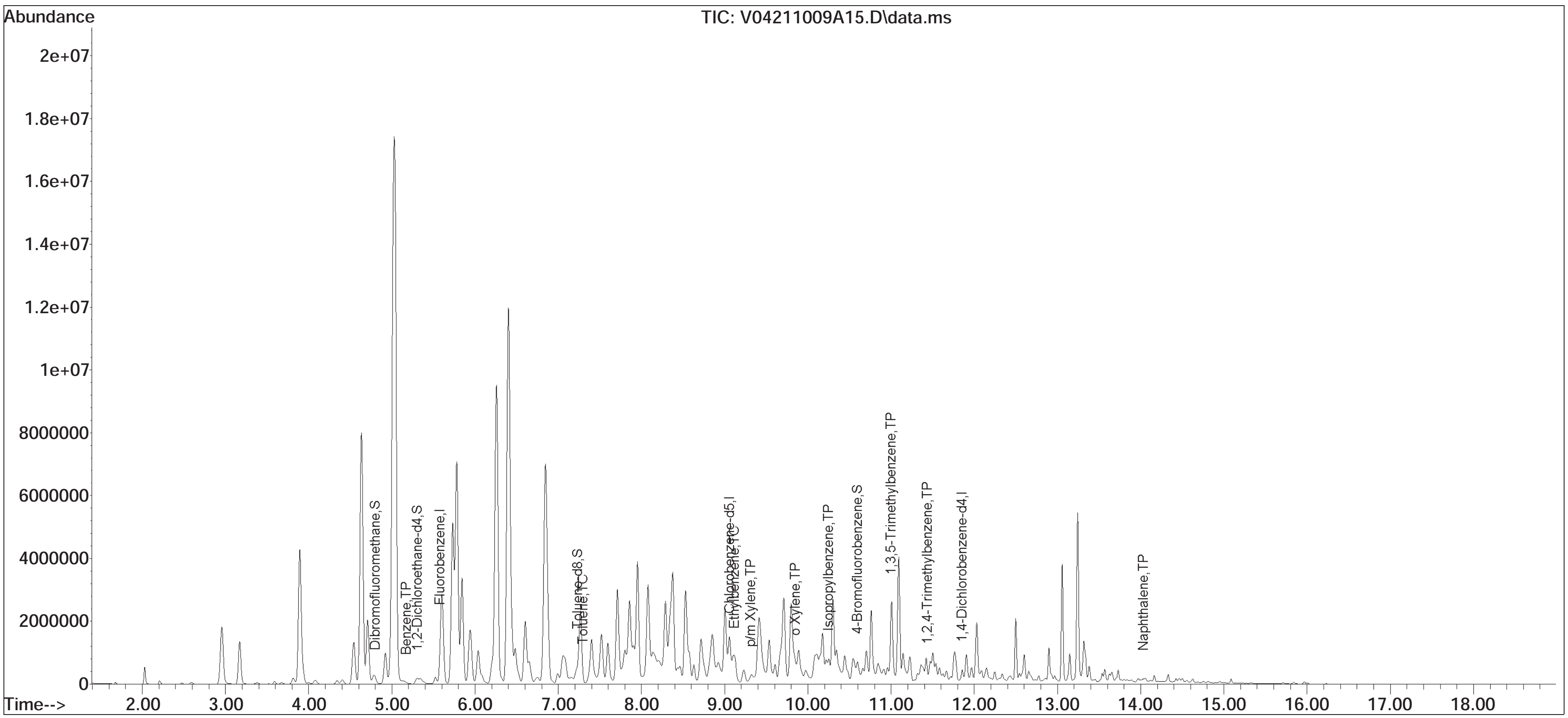
Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A15.D
Acq On    :  9 Oct 2021   3:16 pm
Operator  : VOA104:NLK
Sample    : L2153851-03D,31H,6.09,5,0.025,,A
Misc      : WG1556767,ICAL18128
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Oct 10 11:36:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•
```



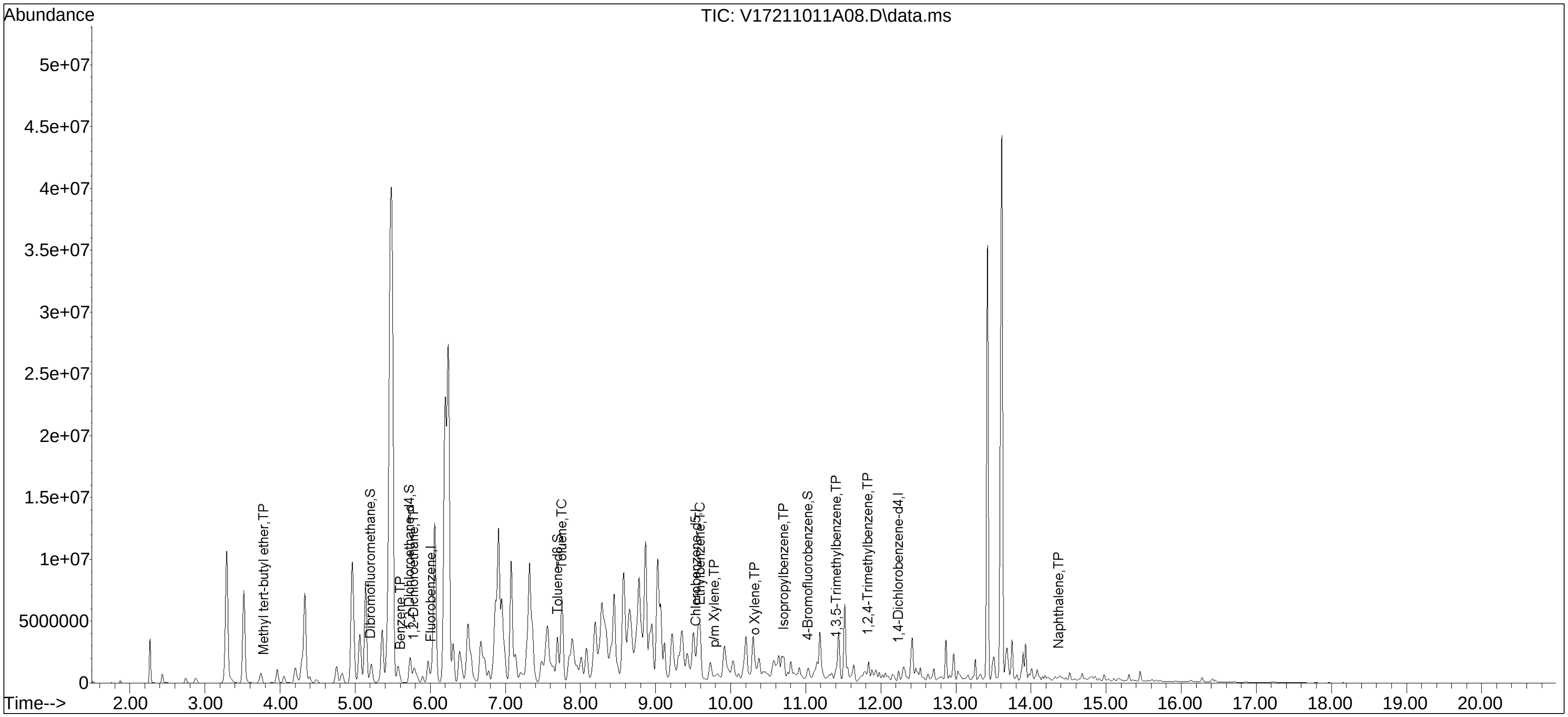
V104_210707N_8260.m Sun Oct 10 11:54:51 2021 Page: 2

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A08.D
Acq On : 11 Oct 2021 09:05 am
Operator : VOA117:MV
Sample : l2153851-04,31H,5.86,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 11 12:54:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

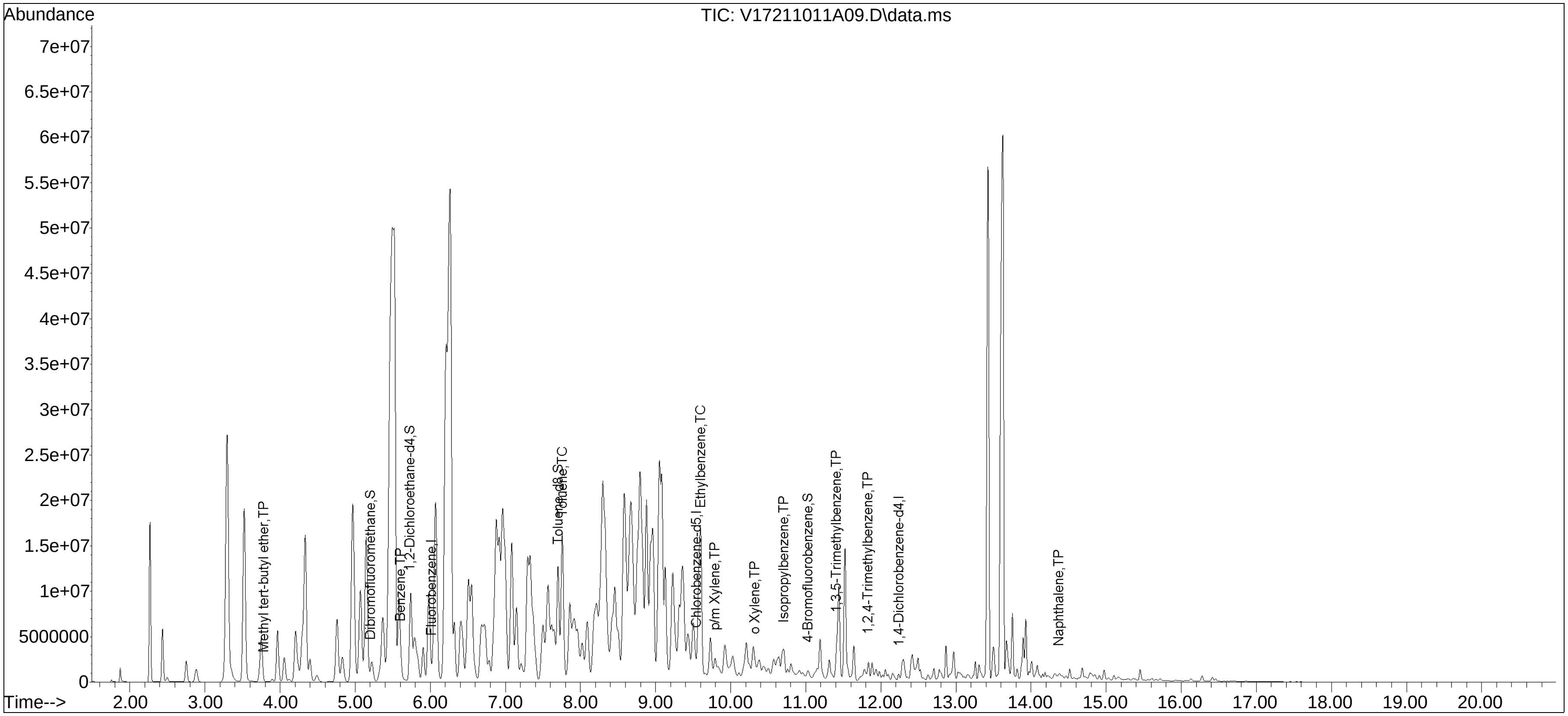


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A09.D
Acq On    : 11 Oct 2021  09:31 am
Operator  : VOA117:MV
Sample    : l2153851-05,31H,5.36,5,0.100,,a
Misc      : WG1556894,ICAL18358
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Oct 11 12:55:10 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•
```

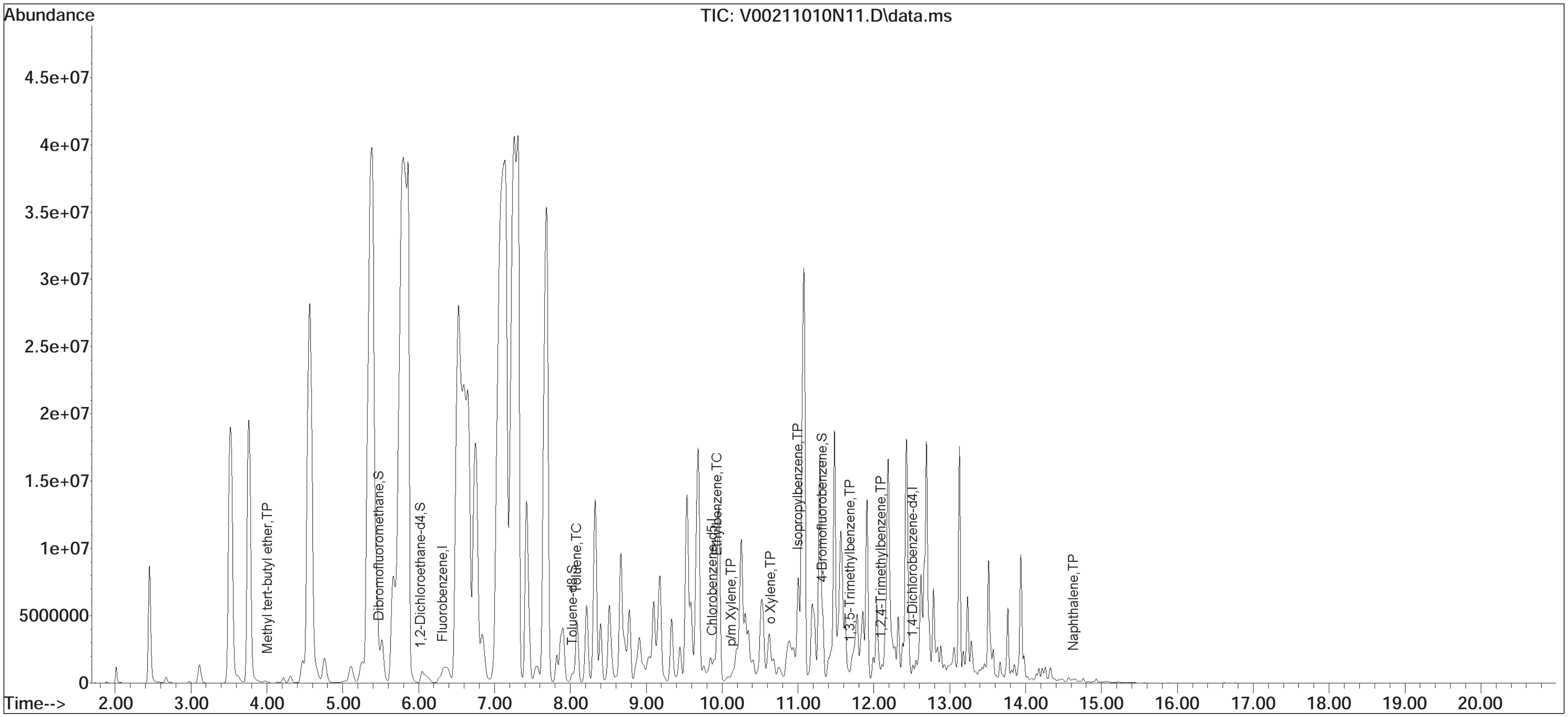


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N11.D
Acq On    : 10 Oct 2021   5:48 pm
Operator  : VOA100:NLK
Sample    : l2153851-07,31,6.41,5,,b
Misc      : WG1556923,ICAL18132
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Oct 11 08:05:22 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•
```

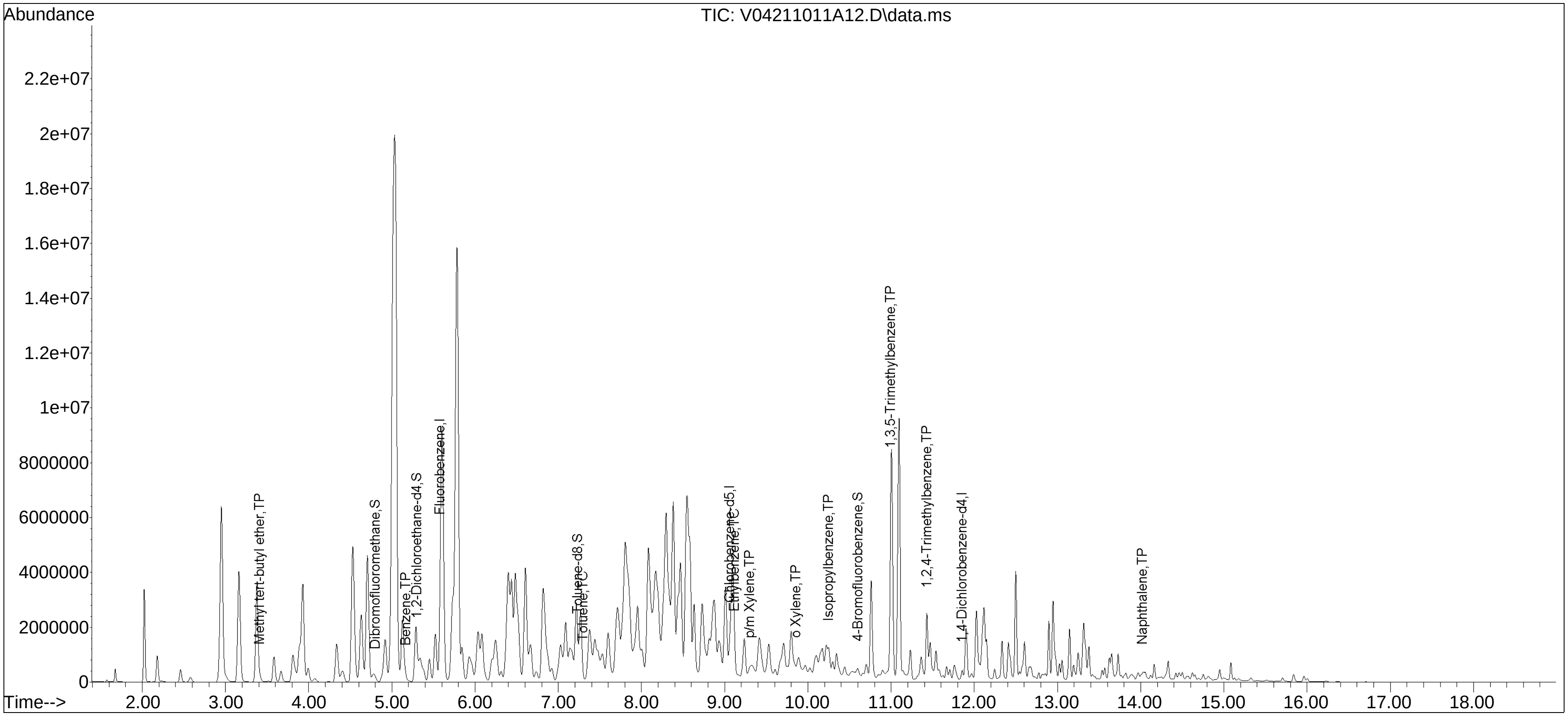


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A12.D
Acq On   : 11 Oct 2021 11:01 am
Operator : VOA104:MV
Sample   : L2153851-08,31H,6.76,5,0.100,,A
Misc   : WG1556767,ICAL18128
ALS Vial : 12   Sample Multiplier: 1

Quant Time: Oct 11 13:14:25 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•

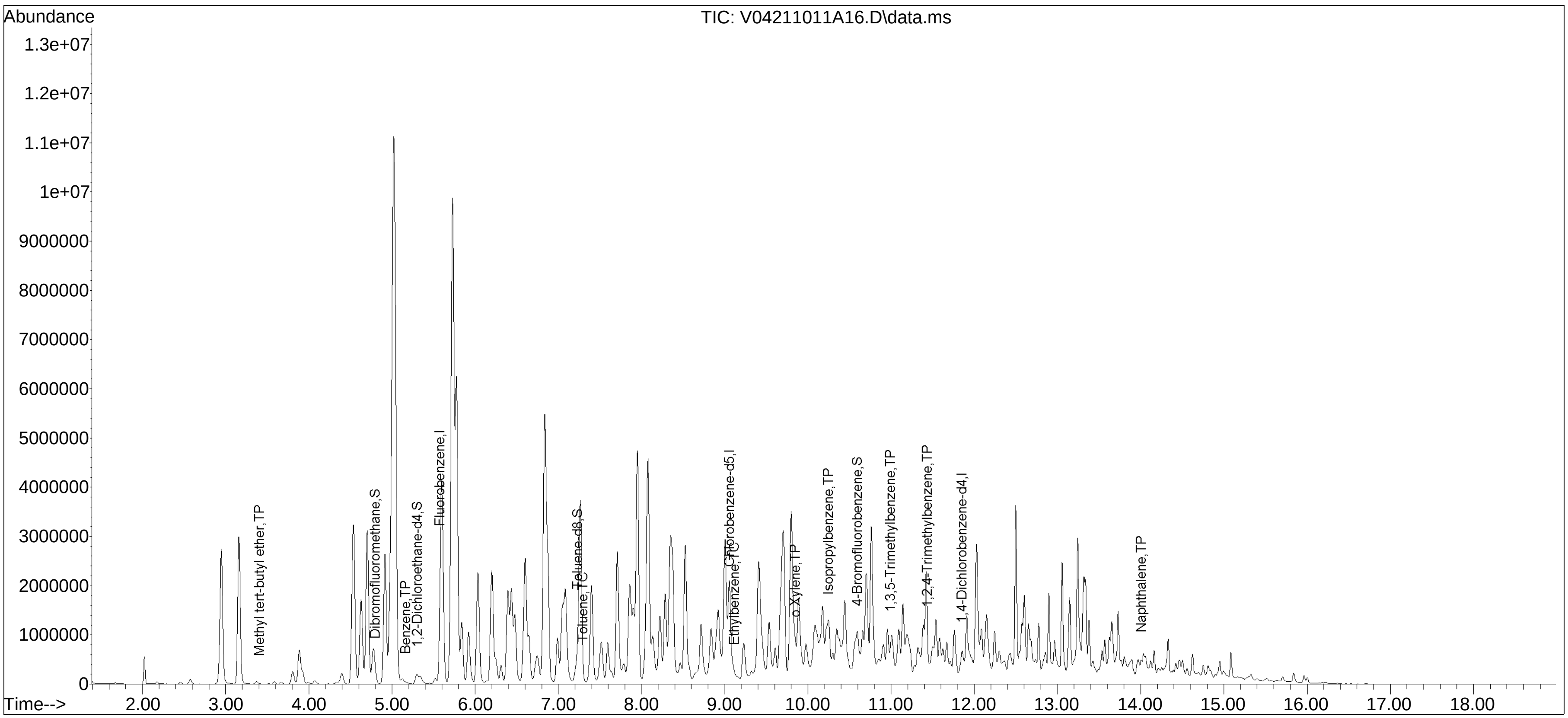


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A16.D
Acq On : 11 Oct 2021 12:42 pm
Operator : VOA104:MV
Sample : L2153851-09,31H,6.01,5,0.100,,A
Misc : WG1556767,ICAL18128
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Oct 11 13:16:36 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•

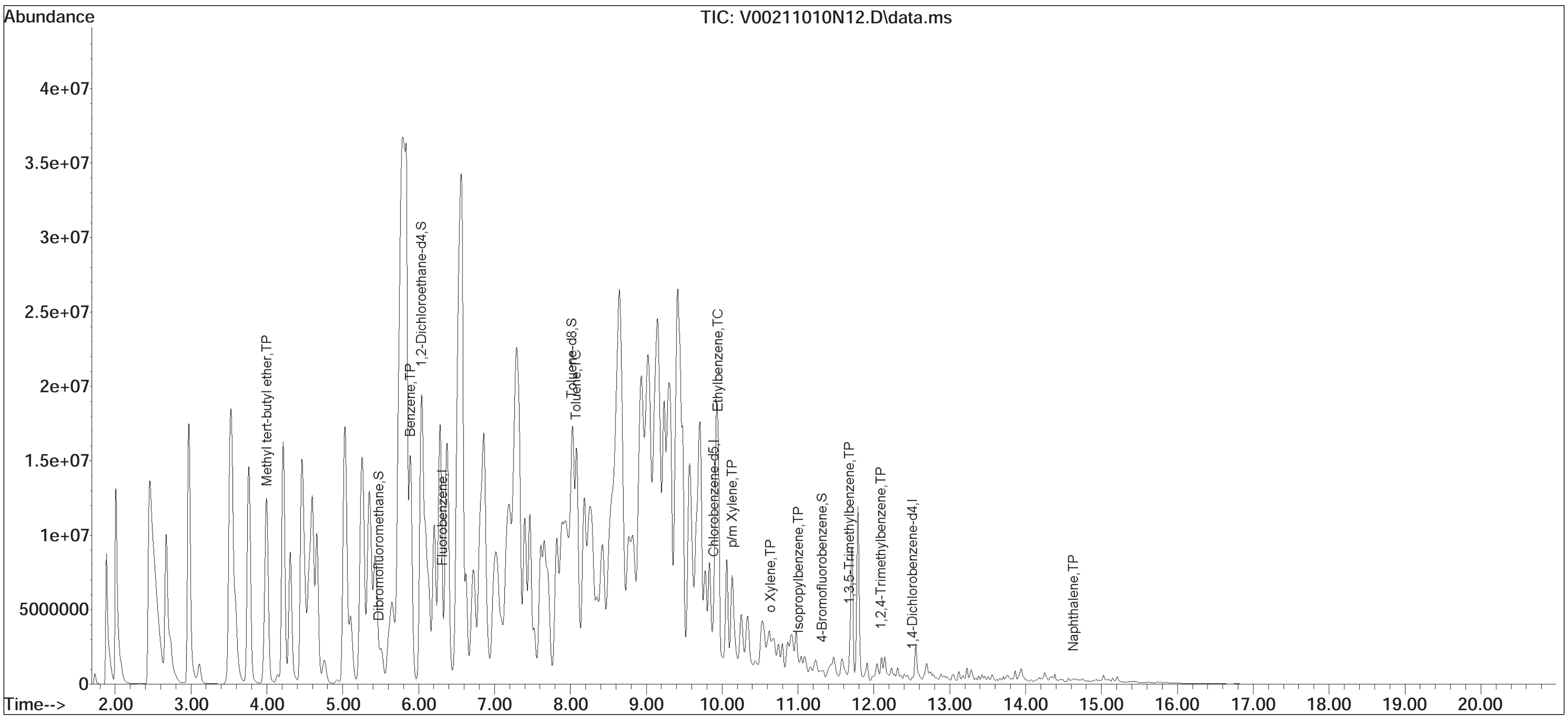


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N12.D
Acq On : 10 Oct 2021 6:13 pm
Operator : VOA100:NLK
Sample : l2153851-10,31,6.60,5,,b
Misc : WG1556923,ICAL18132
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 11 08:05:58 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

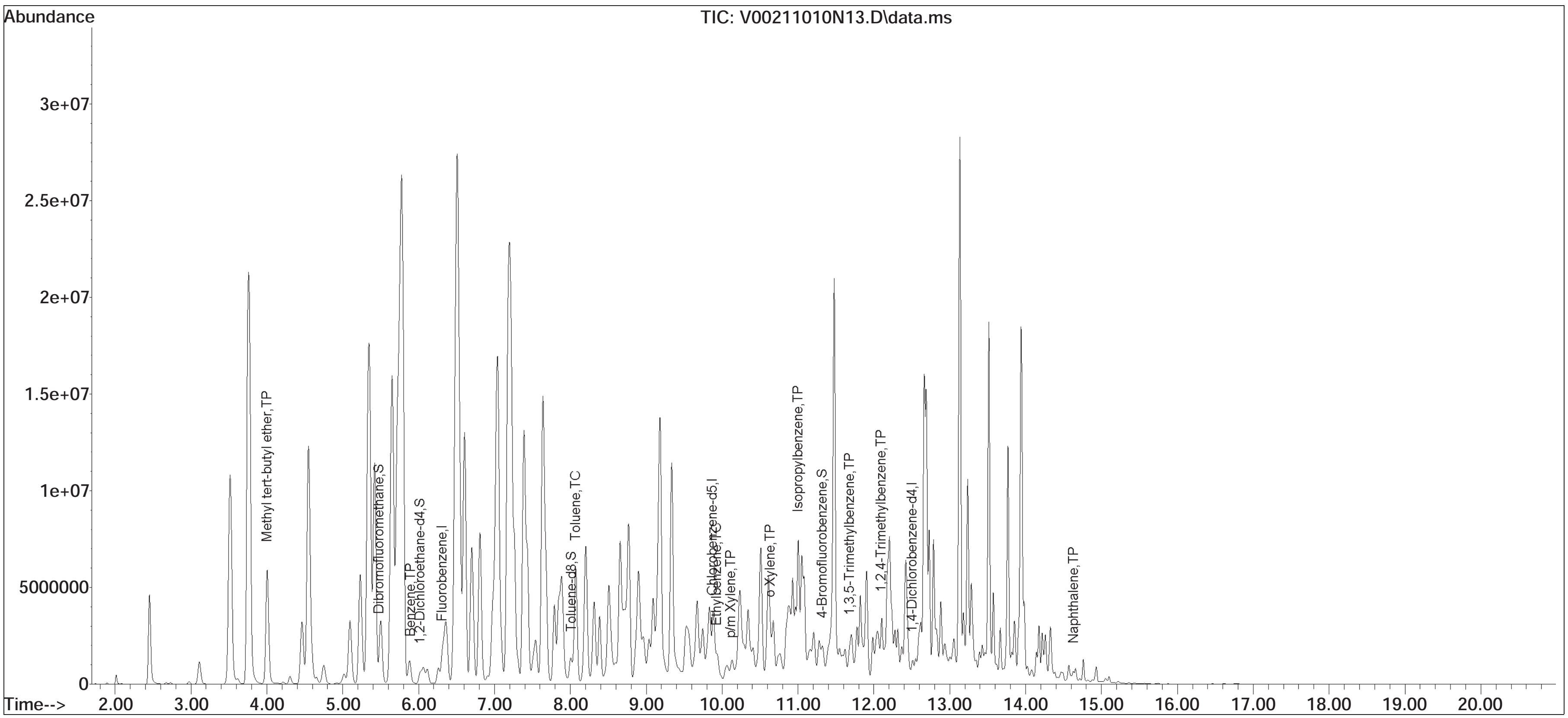


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N13.D
Acq On   : 10 Oct 2021   6:39 pm
Operator : VOA100:NLK
Sample   : l2153851-11,31,6.31,5,,b
Misc   : WG1556923,ICAL18132
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Oct 11 08:06:56 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

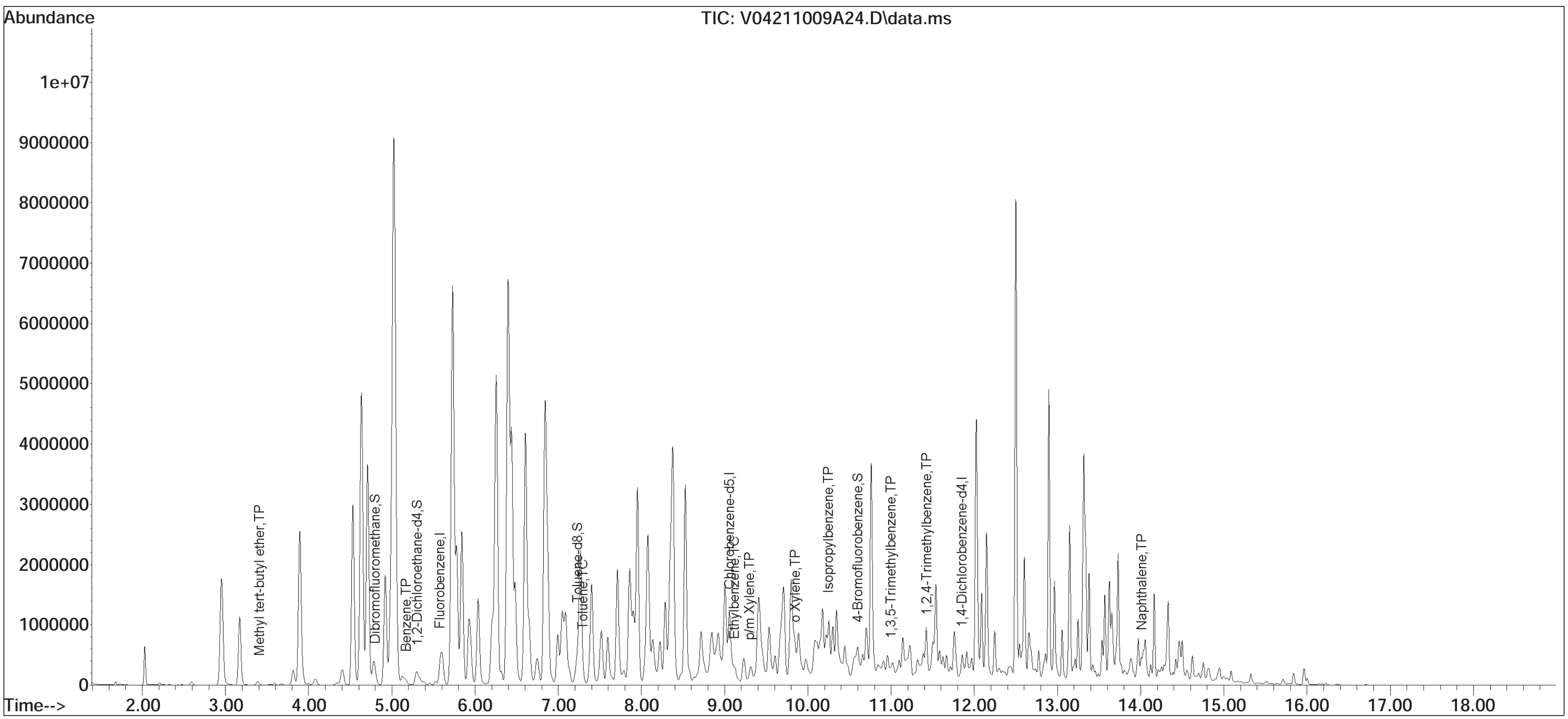


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A24.D
Acq On    :  9 Oct 2021   7:02 pm
Operator  : VOA104:NLK
Sample    : L2153851-12D,31H,3.19,5,0.025,,A
Misc      : WG1556767,ICAL18128
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Oct 10 11:43:41 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•
```

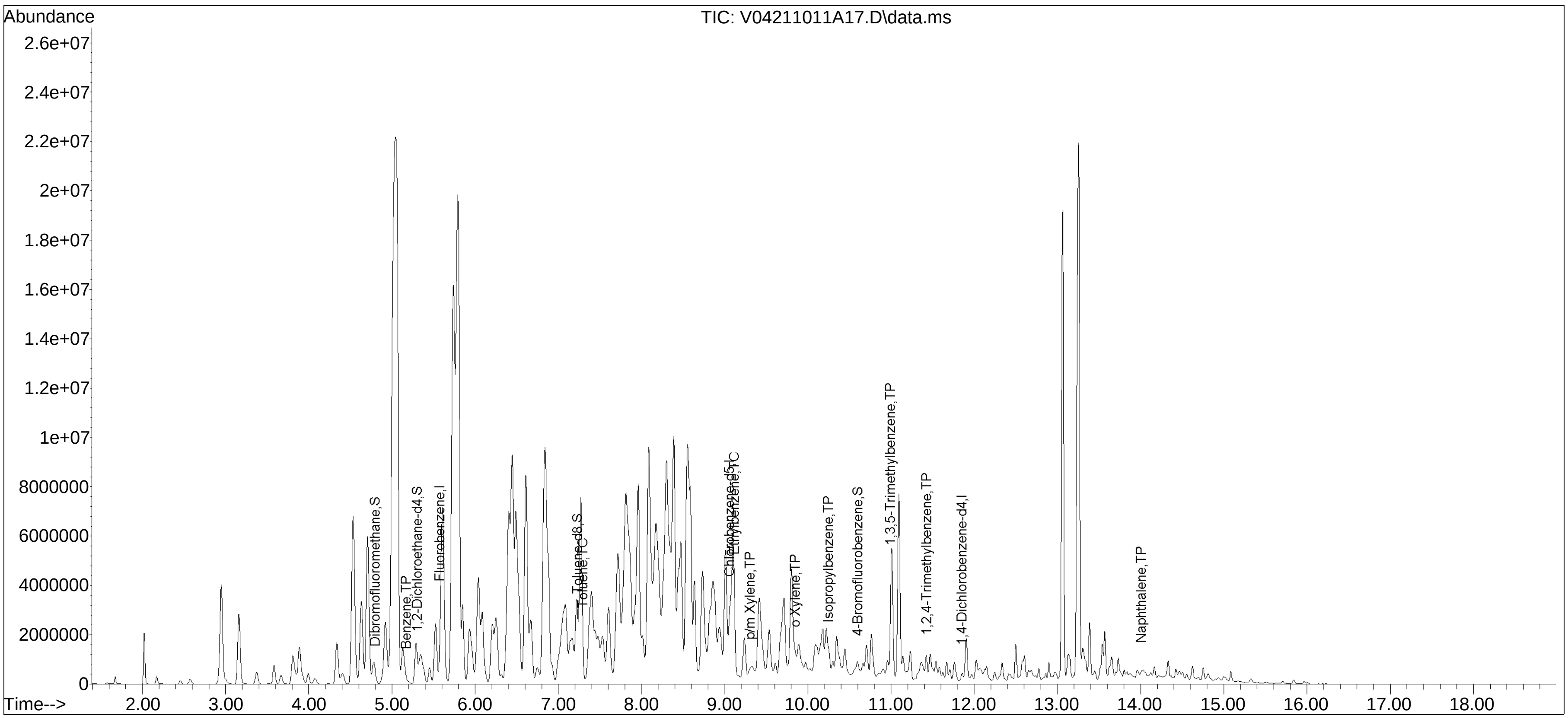


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A17.D
Acq On   : 11 Oct 2021   1:07 pm
Operator : VOA104:KJD
Sample   : L2153851-13,31H,5.74,5,0.100,,A
Misc   : WG1556767,ICAL18128
ALS Vial : 17   Sample Multiplier: 1

Quant Time: Oct 11 14:30:38 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•



ANALYTICAL REPORT

Lab Number:	L2154149
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	10/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2154149-01	PB-36-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:25	10/05/21
L2154149-02	PB-36-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:40	10/05/21
L2154149-03	PB-36-03-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:00	10/05/21
L2154149-04	PB-36-05-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:25	10/05/21
L2154149-05	PB-36-06-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:35	10/05/21
L2154149-06	PB-36-07-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:50	10/05/21
L2154149-07	PB-36-08-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:15	10/05/21
L2154149-08	PB-36-10-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:25	10/05/21
L2154149-09	PB-36-12-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:50	10/05/21
L2154149-10	PB-36-13-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:05	10/05/21
L2154149-11	PB-36-15-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:15	10/05/21
L2154149-12	PB-36-16-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:30	10/05/21
L2154149-13	PB-36-17-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:50	10/05/21
L2154149-14	PB-36-18-SS01	SOIL	PHILADELPHIA, PA	10/05/21 13:00	10/05/21
L2154149-15	PB-144-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:30	10/05/21
L2154149-16	PB-144-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:45	10/05/21
L2154149-17	DUP-19	SOIL	PHILADELPHIA, PA	10/05/21 00:00	10/05/21
L2154149-18	FB-211005-1	WATER	PHILADELPHIA, PA	10/05/21 12:40	10/05/21
L2154149-19	FB-211005-2	WATER	PHILADELPHIA, PA	10/05/21 15:00	10/05/21
L2154149-20	TB-211005	WATER	PHILADELPHIA, PA	10/05/21 00:00	10/05/21

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

October 19, 2021: This final report includes the results of all requested analyses.

October 12, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2154149-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (200%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (349%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (437%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.

L2154149-08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2154149-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2154149-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-12 and -14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2154149-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

PAHs
L2154149-16D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix, and due to the analytical dilution required by the sample matrix.

Total Metals
The WG1555222-3 MS recovery, performed on L2154149-01, is outside the acceptance criteria for lead (57%). A post digestion spike was performed and yielded an unacceptable recovery for lead (61%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.
The WG1555222-4 Laboratory Duplicate RPD for lead (35%), performed on L2154149-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Case Narrative (continued)

The WG1555222-6 serial dilution analysis, associated with L2154149-01, had a %D above the acceptance criteria for lead (33%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 10/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01
Client ID: PB-36-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 09:25
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 16:13
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.77		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.081	0.021	1
Toluene	0.20		mg/kg	0.081	0.044	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.024	1
Ethylbenzene	0.89		mg/kg	0.081	0.011	1
p/m-Xylene	0.58		mg/kg	0.16	0.045	1
o-Xylene	0.18		mg/kg	0.081	0.024	1
Xylenes, Total	0.76		mg/kg	0.081	0.024	1
Isopropylbenzene	13.		mg/kg	0.081	0.0088	1
1,3,5-Trimethylbenzene	0.42		mg/kg	0.16	0.016	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.16	0.027	1
Naphthalene	1.4		mg/kg	0.32	0.053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**200**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
Client ID: PB-36-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 09:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:05
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.066		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.052	J	mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	4.4		mg/kg	0.069	0.0097	1
p/m-Xylene	0.15		mg/kg	0.14	0.038	1
o-Xylene	0.11		mg/kg	0.069	0.020	1
Xylenes, Total	0.26		mg/kg	0.069	0.020	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.14	0.023	1
Naphthalene	ND		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-03 D2	Date Collected:	10/05/21 10:00
Client ID:	PB-36-03-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:47
Analyst: MV
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	670		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-03 D	Date Collected:	10/05/21 10:00
Client ID:	PB-36-03-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:31
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.5	0.25	20
Benzene	35.		mg/kg	0.63	0.21	20
1,2-Dichloroethane	ND		mg/kg	1.3	0.32	20
Toluene	180		mg/kg	1.3	0.68	20
1,2-Dibromoethane	ND		mg/kg	0.63	0.37	20
Ethylbenzene	160		mg/kg	1.3	0.18	20
p/m-Xylene	710		mg/kg	2.5	0.71	20
o-Xylene	290		mg/kg	1.3	0.37	20
Xylenes, Total	1000		mg/kg	1.3	0.37	20
Isopropylbenzene	21.		mg/kg	1.3	0.14	20
1,3,5-Trimethylbenzene	180		mg/kg	2.5	0.24	20
1,2,4-Trimethylbenzene	560	E	mg/kg	2.5	0.42	20
Naphthalene	66.		mg/kg	5.0	0.82	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04
Client ID: PB-36-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 10:25
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:47
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	0.00071	J	mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0033	J	mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**349**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-05	Date Collected:	10/05/21 10:35
Client ID:	PB-36-06-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 14:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.10		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.19		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.60		mg/kg	0.072	0.010	1
p/m-Xylene	0.83		mg/kg	0.14	0.040	1
o-Xylene	0.35		mg/kg	0.072	0.021	1
Xylenes, Total	1.2		mg/kg	0.072	0.021	1
Isopropylbenzene	11.		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	1.2		mg/kg	0.14	0.024	1
Naphthalene	0.62		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06 D2
Client ID: PB-36-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 14:12
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.4	0.34	25
Benzene	2.7		mg/kg	0.84	0.28	25
1,2-Dichloroethane	ND		mg/kg	1.7	0.43	25
Toluene	2.1		mg/kg	1.7	0.92	25
1,2-Dibromoethane	ND		mg/kg	0.84	0.49	25
Ethylbenzene	260		mg/kg	1.7	0.24	25
p/m-Xylene	1100	E	mg/kg	3.4	0.94	25
o-Xylene	160		mg/kg	1.7	0.49	25
Isopropylbenzene	16.		mg/kg	1.7	0.18	25
1,3,5-Trimethylbenzene	260		mg/kg	3.4	0.32	25
1,2,4-Trimethylbenzene	760	E	mg/kg	3.4	0.56	25
Naphthalene	87.		mg/kg	6.7	1.1	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06 D
Client ID: PB-36-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 01:10
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	920		mg/kg	6.7	1.9	50
Xylenes, Total	1100		mg/kg	1.7	0.49	50
1,2,4-Trimethylbenzene	640		mg/kg	6.7	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07
Client ID: PB-36-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 11:15
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 21:22
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00040	J	mg/kg	0.0020	0.00020	1
Benzene	0.0014		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0027		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.00057	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0028		mg/kg	0.0020	0.00057	1
o-Xylene	0.0030		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0058		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.19		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	0.0027	J	mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	**437**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-08 D	Date Collected:	10/05/21 11:25
Client ID:	PB-36-10-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 22:33
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.61	0.061	5
Benzene	0.52		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	0.22	J	mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.089	5
Ethylbenzene	2.9		mg/kg	0.30	0.043	5
p/m-Xylene	0.87		mg/kg	0.61	0.17	5
o-Xylene	0.38		mg/kg	0.30	0.088	5
Xylenes, Total	1.2		mg/kg	0.30	0.088	5
Isopropylbenzene	1.1		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	0.091	J	mg/kg	0.61	0.058	5
1,2,4-Trimethylbenzene	0.14	J	mg/kg	0.61	0.10	5
Naphthalene	1.1	J	mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-09	Date Collected:	10/05/21 11:50
Client ID:	PB-36-12-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 20:53
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0025		mg/kg	0.0018	0.00018	1
Benzene	0.015		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.0013		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0016		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.0050		mg/kg	0.0018	0.00050	1
o-Xylene	0.0022		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.0072		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.0036		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.019		mg/kg	0.0018	0.00030	1
Naphthalene	0.0039		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10
Client ID: PB-36-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:05
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 21:18
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	0.00065	J	mg/kg	0.00094	0.00027	1
Xylenes, Total	0.00065	J	mg/kg	0.00094	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11
Client ID: PB-36-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 12:15
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 21:47
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	0.00074	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.00074	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00036	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.00085	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**151**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-12	Date Collected:	10/05/21 12:30
Client ID:	PB-36-16-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:23
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.030	J	mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	0.022	J	mg/kg	0.065	0.0092	1
p/m-Xylene	0.060	J	mg/kg	0.13	0.036	1
o-Xylene	0.058	J	mg/kg	0.065	0.019	1
Xylenes, Total	0.12	J	mg/kg	0.065	0.019	1
Isopropylbenzene	0.044	J	mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.13	0.022	1
Naphthalene	0.12	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13
Client ID: PB-36-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 21:43
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	0.00082	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00082	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-14	Date Collected:	10/05/21 13:00
Client ID:	PB-36-18-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	10/11/21 22:12
Analyst:	JC
Percent Solids:	81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	ND		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	0.017	J	mg/kg	0.064	0.0090	1
p/m-Xylene	0.051	J	mg/kg	0.13	0.036	1
o-Xylene	0.053	J	mg/kg	0.064	0.018	1
Xylenes, Total	0.10	J	mg/kg	0.064	0.018	1
Isopropylbenzene	0.0071	J	mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.13	0.021	1
Naphthalene	0.081	J	mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**164**	Q	70-130
Dibromofluoromethane	101		70-130

SAMPLE RESULTS

Lab ID:	L2154149-15	Date Collected:	10/05/21 14:30
Client ID:	PB-144-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 22:57
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-16	Date Collected:	10/05/21 14:45
Client ID:	PB-144-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:17
Analyst: NLK
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17
Client ID: DUP-19
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:38
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Client ID: FB-211005-1
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/08/21 12:34
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-18	Date Collected:	10/05/21 12:40
Client ID:	FB-211005-1	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 12:29
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
Client ID: FB-211005-2
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 15:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/08/21 12:40
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-19	Date Collected:	10/05/21 15:00
Client ID:	FB-211005-2	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 12:50
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-20
Client ID: TB-211005
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/08/21 12:46
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-20	Date Collected:	10/05/21 00:00
Client ID:	TB-211005	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 13:10
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/08/21 12:15
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 18-20 Batch: WG1556099-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 08:50
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1556893-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1556894-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 08:50
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-03 Batch: WG1556894-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06 Batch: WG1556922-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 14:48
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06 Batch: WG1556922-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	0.041	J	mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 18-20 Batch: WG1557030-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09-10,13 Batch: WG1557082-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	0.00080	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00080	J	mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08,12 Batch: WG1557083-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-17 Batch: WG1557127-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,11 Batch: WG1557470-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	0.00081	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00081	J	mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1557472-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 18-20 Batch: WG1556099-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1556893-3 WG1556893-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-03 Batch: WG1556894-3 WG1556894-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		30
Naphthalene	94		97		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		104		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06 Batch: WG1556922-3 WG1556922-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	96		101		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06 Batch: WG1556922-8 WG1556922-9								
Methyl tert butyl ether	80		76		66-130	5		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	95		92		70-130	3		30
Toluene	91		87		70-130	4		30
1,2-Dibromoethane	90		86		70-130	5		30
Ethylbenzene	94		89		70-130	5		30
p/m-Xylene	95		90		70-130	5		30
o-Xylene	93		90		70-130	3		30
Isopropylbenzene	101		96		70-130	5		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		95		70-130	4		30
Naphthalene	96		93		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		102		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		101		70-130
Dibromofluoromethane	95		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 18-20 Batch: WG1557030-3 WG1557030-4								
Methyl tert butyl ether	77		76		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	93		93		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	102		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09-10,13 Batch: WG1557082-3 WG1557082-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	105		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08,12 Batch: WG1557083-3 WG1557083-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	104		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-17 Batch: WG1557127-3 WG1557127-4								
Methyl tert butyl ether	85		91		66-130	7		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		97		70-130	3		30
Ethylbenzene	95		93		70-130	2		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	98		94		70-130	4		30
1,3,5-Trimethylbenzene	97		92		70-130	5		30
1,2,4-Trimethylbenzene	96		92		70-130	4		30
Naphthalene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	100		96		70-130
Dibromofluoromethane	92		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,11 Batch: WG1557470-3 WG1557470-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1557472-3 WG1557472-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-15	Date Collected:	10/05/21 14:30
Client ID:	PB-144-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	10/07/21 12:52
Analytical Date:	10/08/21 18:29		
Analyst:	SLR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	25.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	25.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16 D
Client ID: PB-144-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 14:45
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 10/08/21 18:52
Analyst: SLR
Percent Solids: 94%
Extraction Method: EPA 3546
Extraction Date: 10/07/21 12:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	2600	320	5
Benzo(a)anthracene	17000		ug/kg	1600	300	5
Benzo(a)pyrene	12000		ug/kg	2100	650	5
Benzo(b)fluoranthene	4700		ug/kg	1600	450	5
Chrysene	20000		ug/kg	1600	280	5
Anthracene	1100	J	ug/kg	1600	520	5
Benzo(ghi)perylene	5000		ug/kg	2100	310	5
Fluorene	1100	J	ug/kg	2600	260	5
Phenanthrene	1700		ug/kg	1600	320	5
Pyrene	41000		ug/kg	1600	260	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	81		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Client ID: FB-211005-1
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 10/12/21 01:06
Analyst: ALS

Extraction Method: EPA 3510C
Extraction Date: 10/10/21 07:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		21-120
Phenol-d6	41		10-120
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	82		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-19	Date Collected:	10/05/21 15:00
Client ID:	FB-211005-2	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	10/10/21 07:46
Analytical Date:	10/12/21 01:25		
Analyst:	ALS		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.05	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.01	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	39		21-120
Phenol-d6	37		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	45		10-120
4-Terphenyl-d14	75		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	10/07/21 22:15	Extraction Date:	10/06/21 15:13
Analyst:	JG		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1555279-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	39.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	89		25-120
Phenol-d6	93		10-120
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	91		30-120
2,4,6-Tribromophenol	87		10-136
4-Terphenyl-d14	101		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	10/11/21 16:12	Extraction Date:	10/09/21 17:14
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 18-19 Batch: WG1556643-1					
Naphthalene	0.07	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1555279-2 WG1555279-3								
Naphthalene	65		83		40-140	24		50
Benzo(a)anthracene	69		93		40-140	30		50
Benzo(a)pyrene	71		95		40-140	29		50
Benzo(b)fluoranthene	67		89		40-140	28		50
Chrysene	65		87		40-140	29		50
Anthracene	69		91		40-140	28		50
Benzo(ghi)perylene	69		92		40-140	29		50
Fluorene	69		90		40-140	26		50
Phenanthrene	67		88		40-140	27		50
Pyrene	69		91		35-142	28		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		88		25-120
Phenol-d6	72		93		10-120
Nitrobenzene-d5	68		88		23-120
2-Fluorobiphenyl	68		87		30-120
2,4,6-Tribromophenol	65		86		10-136
4-Terphenyl-d14	74		99		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 18-19 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149

METALS

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01 | Date Collected: 10/05/21 09:25
Client ID: PB-36-01-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	60.4		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 00:25	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
Date Collected: 10/05/21 09:40
Client ID: PB-36-02-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.86		mg/kg	2.36	0.126	1	10/07/21 08:00	10/07/21 23:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03
Date Collected: 10/05/21 10:00
Client ID: PB-36-03-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.50		mg/kg	2.44	0.131	1	10/07/21 08:00	10/07/21 23:12	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-04	Date Collected:	10/05/21 10:25
Client ID:	PB-36-05-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.80		mg/kg	2.38	0.128	1	10/07/21 08:00	10/07/21 23:17	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-05	Date Collected:	10/05/21 10:35
Client ID:	PB-36-06-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.8		mg/kg	2.41	0.129	1	10/07/21 08:00	10/07/21 23:21	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06
Date Collected: 10/05/21 10:50
Client ID: PB-36-07-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.48	0.133	1	10/07/21 08:00	10/07/21 23:26	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-07	Date Collected:	10/05/21 11:15
Client ID:	PB-36-08-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.03		mg/kg	2.47	0.132	1	10/07/21 08:00	10/08/21 00:11	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08 Date Collected: 10/05/21 11:25
Client ID: PB-36-10-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.22		mg/kg	2.42	0.130	1	10/07/21 08:00	10/08/21 00:16	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-09	Date Collected:	10/05/21 11:50
Client ID:	PB-36-12-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	45.4		mg/kg	11.6	0.623	5	10/07/21 08:00	10/11/21 20:31	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-10	Date Collected:	10/05/21 12:05
Client ID:	PB-36-13-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.8		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 00:58	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-11	Date Collected:	10/05/21 12:15
Client ID:	PB-36-15-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.32		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:02	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-12	Date Collected:	10/05/21 12:30
Client ID:	PB-36-16-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	87.5		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 01:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-13	Date Collected:	10/05/21 12:50
Client ID:	PB-36-17-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.7		mg/kg	2.40	0.128	1	10/07/21 08:00	10/08/21 01:12	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-14 | Date Collected: 10/05/21 13:00

Client ID: PB-36-18-SS01 | Date Received: 10/05/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	112		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 01:16	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-15	Date Collected:	10/05/21 14:30
Client ID:	PB-144-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.73		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:21	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-16	Date Collected:	10/05/21 14:45
Client ID:	PB-144-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	143		mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 01:26	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-17	Date Collected:	10/05/21 00:00
Client ID:	DUP-19	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	26.8		mg/kg	2.35	0.126	1	10/07/21 08:00	10/08/21 01:31	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-18	Date Collected:	10/05/21 12:40
Client ID:	FB-211005-1	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 17:35	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19 Date Collected: 10/05/21 15:00

Client ID: FB-211005-2 Date Received: 10/05/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 17:40	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 18-19 Batch: WG1555180-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 15:15	1,6020B	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-17 Batch: WG1555222-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 00:02	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 18-19 Batch: WG1555180-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-17 Batch: WG1555222-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 18-19 QC Batch ID: WG1555180-3 QC Sample: L2154178-01 Client ID: MS Sample												
Lead, Total	7.869	530	520.1	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-3 QC Sample: L2154149-01 Client ID: PB-36-01-SS01												
Lead, Total	60.4	52.2	90.3	**57**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-4 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	42.2	mg/kg	**35**	Q	20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-6 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	80.4	mg/kg	**33**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01 | Date Collected: 10/05/21 09:25
Client ID: PB-36-01-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
Date Collected: 10/05/21 09:40
Client ID: PB-36-02-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03
Client ID: PB-36-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04
Client ID: PB-36-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 10:25
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-05 | Date Collected: 10/05/21 10:35
Client ID: PB-36-06-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06
Client ID: PB-36-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 10:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07 | Date Collected: 10/05/21 11:15
Client ID: PB-36-08-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08 | Date Collected: 10/05/21 11:25
Client ID: PB-36-10-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09
Client ID: PB-36-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 11:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10
Date Collected: 10/05/21 12:05
Client ID: PB-36-13-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11
Client ID: PB-36-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:15
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12
Date Collected: 10/05/21 12:30
Client ID: PB-36-16-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13
Date Collected: 10/05/21 12:50
Client ID: PB-36-17-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-14
Client ID: PB-36-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 13:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15

Client ID: PB-144-01-SS01

Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:30

Date Received: 10/05/21

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16
Client ID: PB-144-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:45
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-17	Date Collected:	10/05/21 00:00
Client ID:	DUP-19	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-17 QC Batch ID: WG1554975-1 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Solids, Total	79.7	80.3	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-01A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-01B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-02A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-02B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-03A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-03B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-04A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-04B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-05A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-05B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-05C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-05D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-06A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-06B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-07A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-07B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-08B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-09B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-10B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-11B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-12A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-12B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-13A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-13B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-14A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-14B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-15B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-16A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-16B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-16C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-16D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-16F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-17A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-17B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-18A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-18B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-18C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-18D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-19A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-19B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-19C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-19D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-20A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20C	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)
L2154149-20D	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 10/06/21

ALPHA Job #: L2154149

Client Information

Client: Ransom Consulting

Address: 2127 Hamilton Ave

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL

☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project specific analyte list. See attached

Also send to: EDD@terraphase.com

J.Jerry@chicoglobal.com

ANALYSIS: PADEP Short List 1,2

SAMPLE HANDLING

Filtration ________

☐ Done

☐ Not needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Short List 1,2	Sample Specific Comments	TOTAL # BOTTLES
54149-01	PB-36-01-5501	10/5	0925	S	TB	X		5
-02	PB-36-02-5501		0940			X		
-03	PB-36-03-5501		1000			X		
-04	PB-36-05-5501		1025			X		
-05	PB-36-06-5501		1035			X		
-06	PB-36-07-5501		1050			X		
-07	PB-36-08-5501		1115			X		
-08	PB-36-10-5501		1125			X		
-09	PB-36-12-5501		1150			X		
-10	PB-36-13-5501		1205			X		

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/5 1545	[signature]	10/5/21 1545
[signature]	10/5/21 1720	[signature]	10/5 1720
[signature]	10-5 2030	[signature] AAL	10/5/21 2030
[signature] AAL	10/5/21 2255	[signature]	10/5/21 2255

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 10/06/21

ALPHA Job #: L2154149

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@Ransom Env

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report Only Project Specific Analyte List. See Attached
Also send to: EDD@TERRAPHASE.com
jjeroy@HilcoGlobal.com

ANALYSIS: PADEP Shortlist 1,2 | PADEP Shortlist 1-5 | VOC portion of PADEP Shortlist (1-5)

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1,2	PADEP Shortlist 1-5	VOC portion of PADEP Shortlist (1-5)	Sample Specific Comments	Total # Bottles
54149-11	PB-36-15-5501	10/5	1215	S	TS	X				5
-12	PB-36-16-5501	↓	1230	S	TS	X				5
-13	PB-36-17-5501		1250	S	TS	X				5
-14	PB-36-18-5501		1300	S	TS	X				5
-15	PB-144-01-5501		1430	S	TS		X			6
-16	PB-144-02-5501		1445	S	TS		X			6
-17	DUP-19			S		X				5
-18	FB-211005-1		1240	W			X			6
-19	FB-211005-2		1500	W			X			6
-20	TB-211005	↓						X		4

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/5 1545	[signature]	10/5/21 15
[signature]	10/5/21 [illegible]	[signature]	10/5 [illegible]
[signature]	10/5 20[illegible]	AAL [signature]	10/5/21 20:50
[signature] AAL	10/5/21 2355	[signature]	10/5/21 2355
		[signature]	10/6/21 02:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

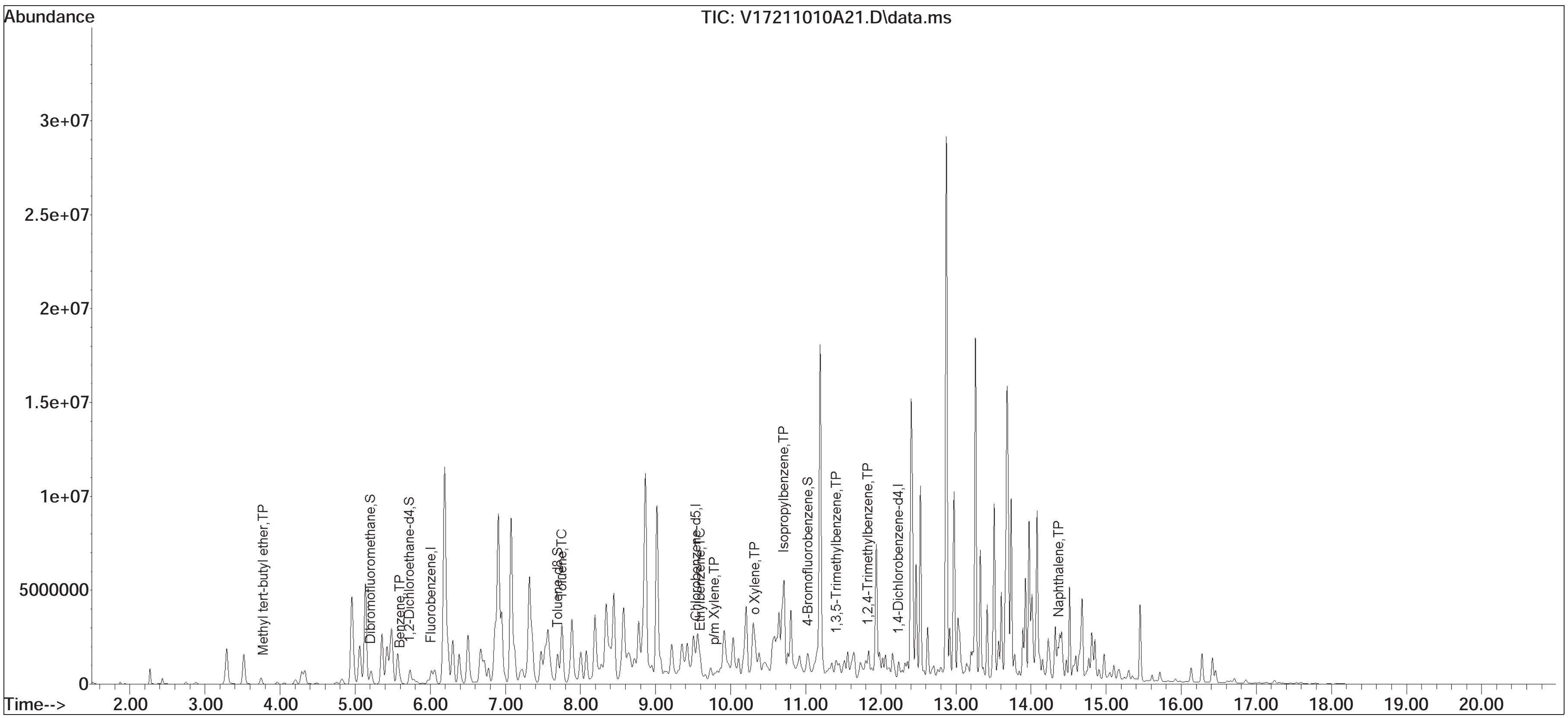
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A21.D
Acq On   : 10 Oct 2021 04:13 pm
Operator : VOA117:NLK
Sample   : l2154149-01,31H,4.59,5,0.100,,a
Misc   : WG1556894,ICAL18358
ALS Vial : 21   Sample Multiplier: 1

Quant Time: Oct 11 06:26:04 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

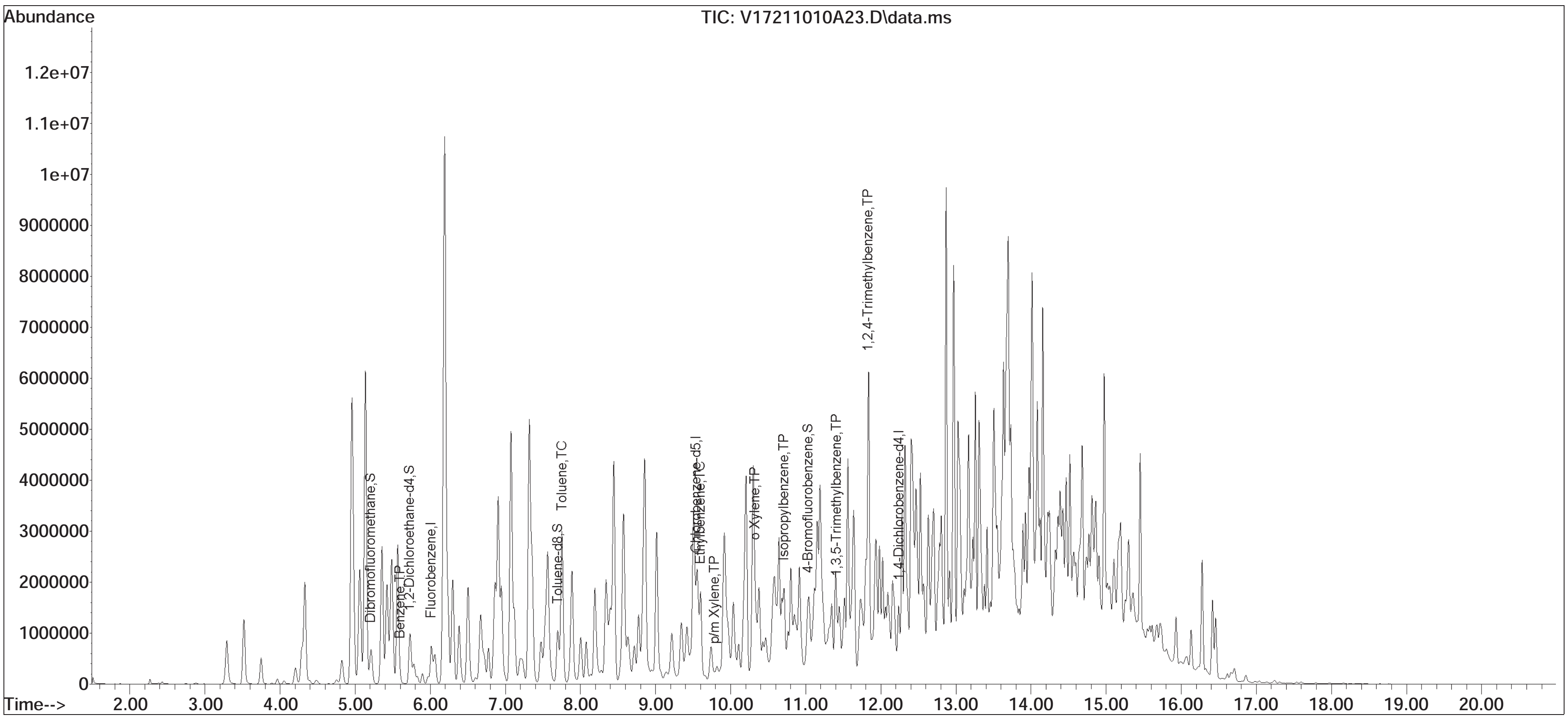


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A23.D
Acq On   : 10 Oct 2021 05:05 pm
Operator : VOA117:NLK
Sample   : l2154149-02,31H,5.29,5,0.100,,a
Misc   : WG1556894,ICAL18358
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Oct 11 07:34:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

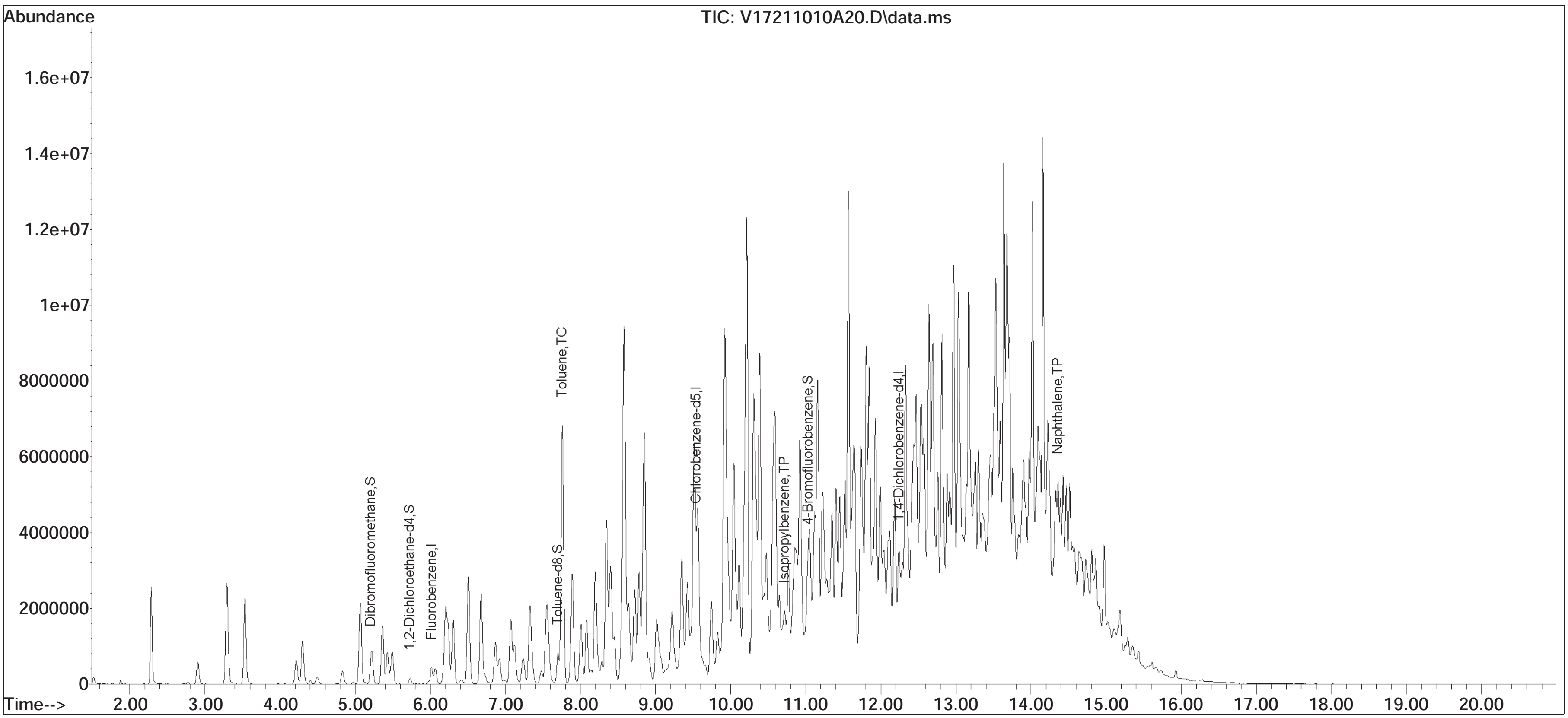


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A20.D
Acq On : 10 Oct 2021 03:47 pm
Operator : VOA117:NLK
Sample : l2154149-04,31,6.30,5,,b
Misc : WG1556893,ICAL18358
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Oct 11 07:28:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

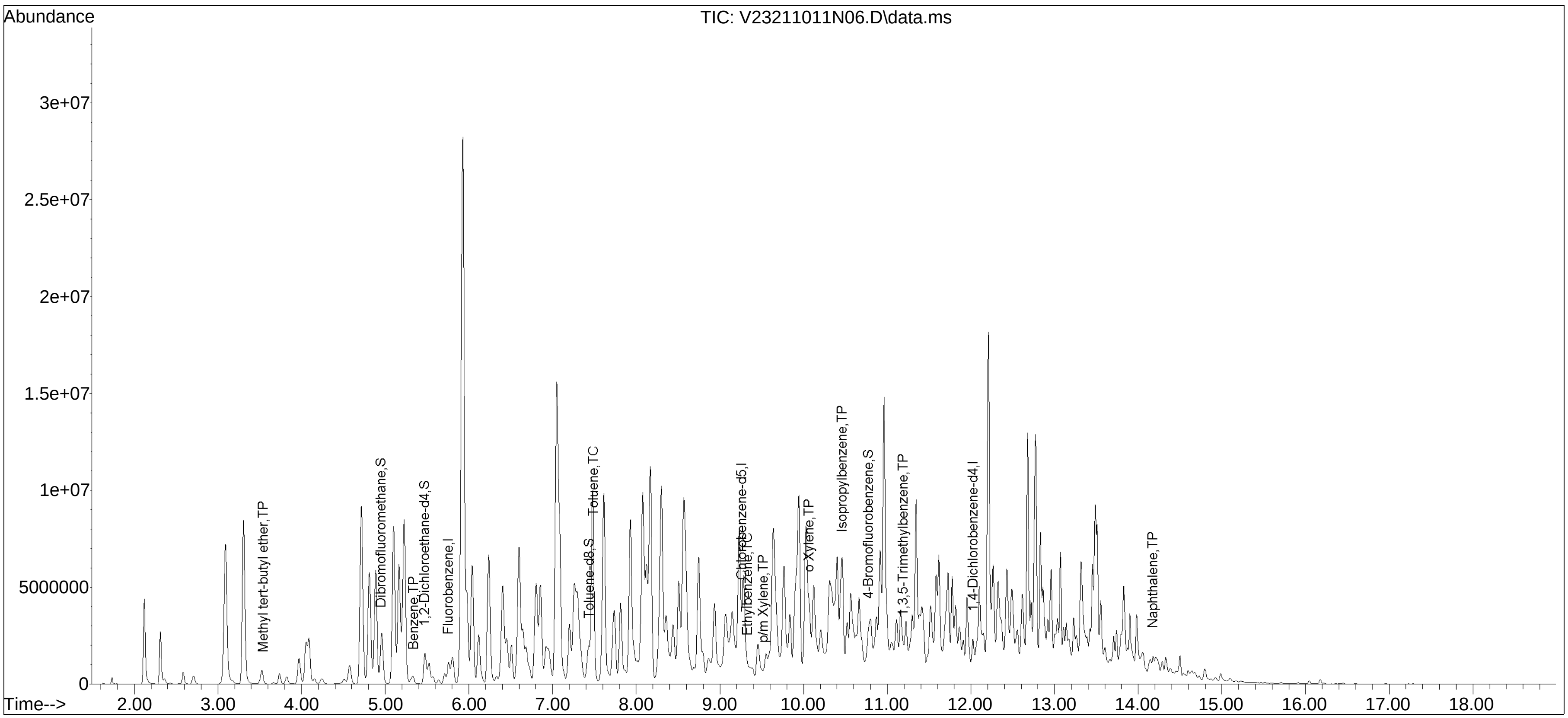


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N06.D
Acq On : 11 Oct 2021 09:22 pm
Operator : VOA123:JC
Sample : L2154149-07,31,6.16,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 12 08:20:34 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

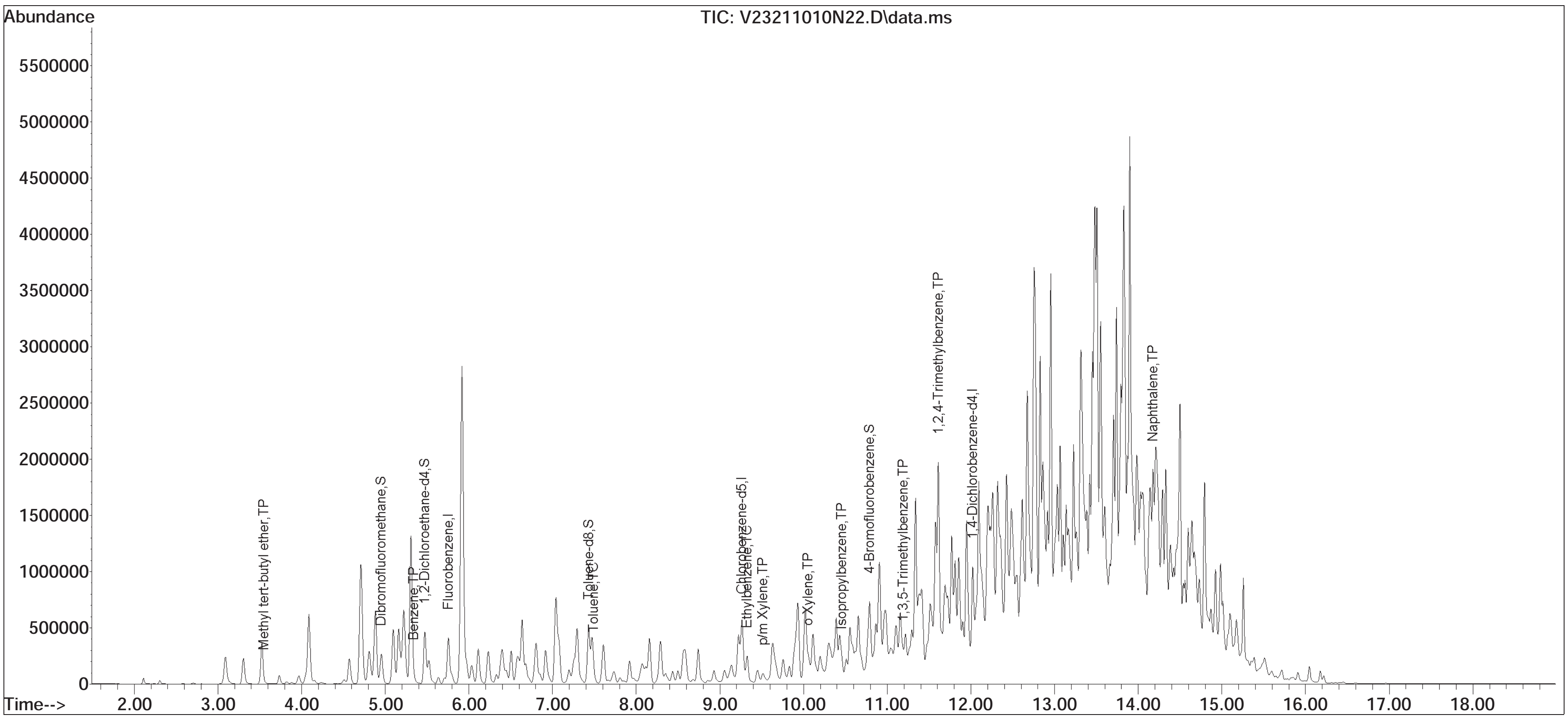


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\211010N\
Data File : V23211010N22.D
Acq On    : 10 Oct 2021  10:33 pm
Operator  : VOA123:NLK
Sample    : L2154149-08D,31H,6.27,5,0.020,,A
Misc      : WG1557083,ICAL18187
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Oct 11 11:57:37 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•
```

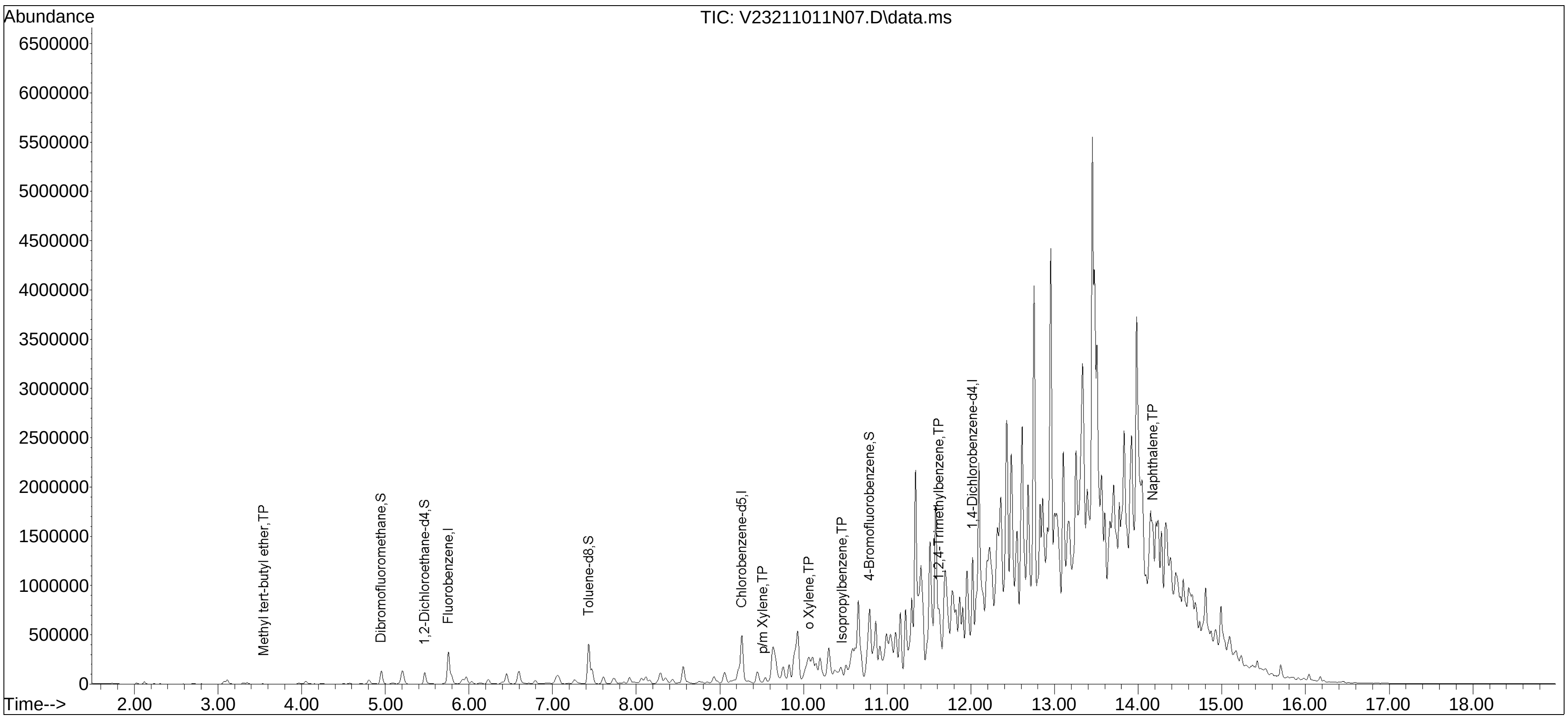


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N07.D
Acq On : 11 Oct 2021 09:47 pm
Operator : VOA123:JC
Sample : L2154149-11,31,6.30,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 12 08:12:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

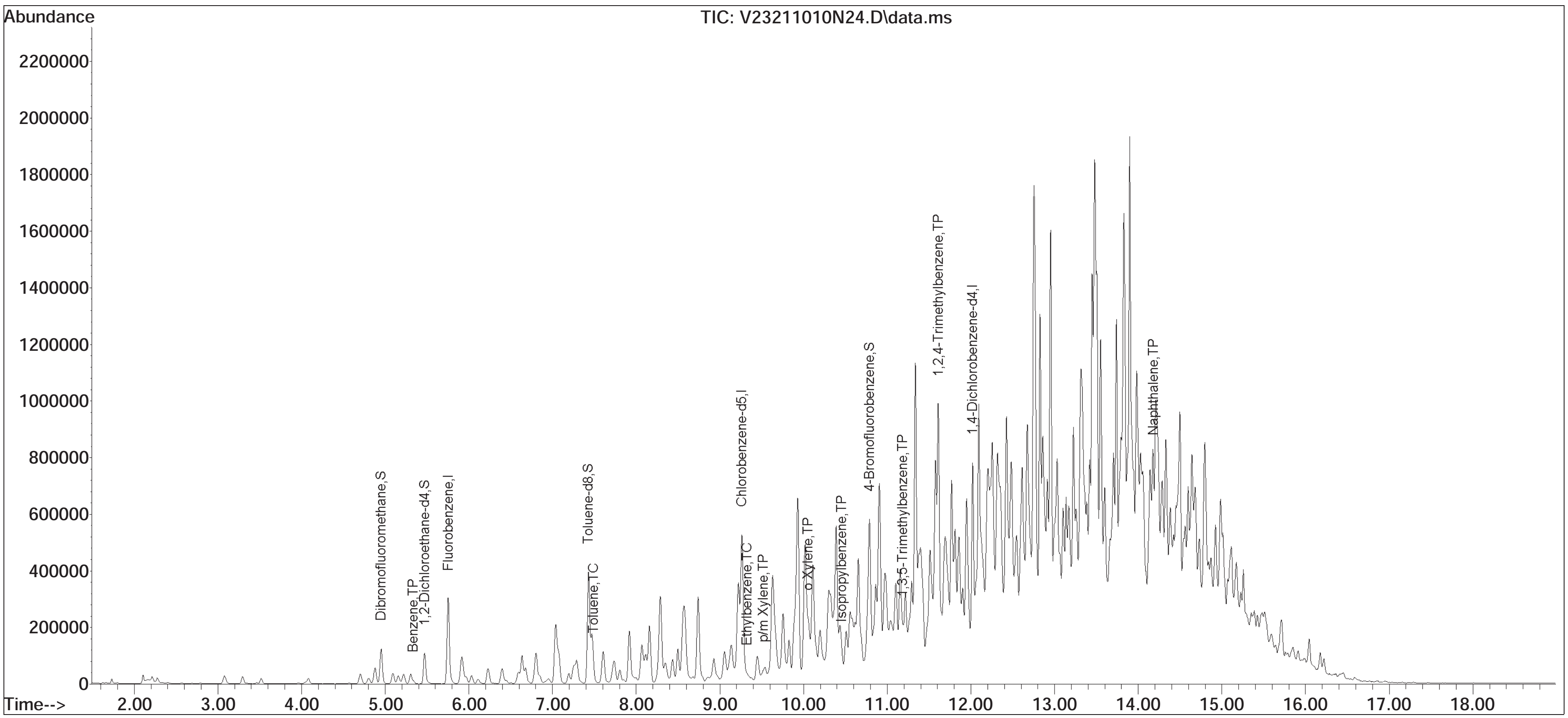


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211010N\
Data File : V23211010N24.D
Acq On : 10 Oct 2021 11:23 pm
Operator : VOA123:NLK
Sample : L2154149-12,31H,5.42,5,0.100,,A
Misc : WG1557083,ICAL18187
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 11 11:43:54 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•

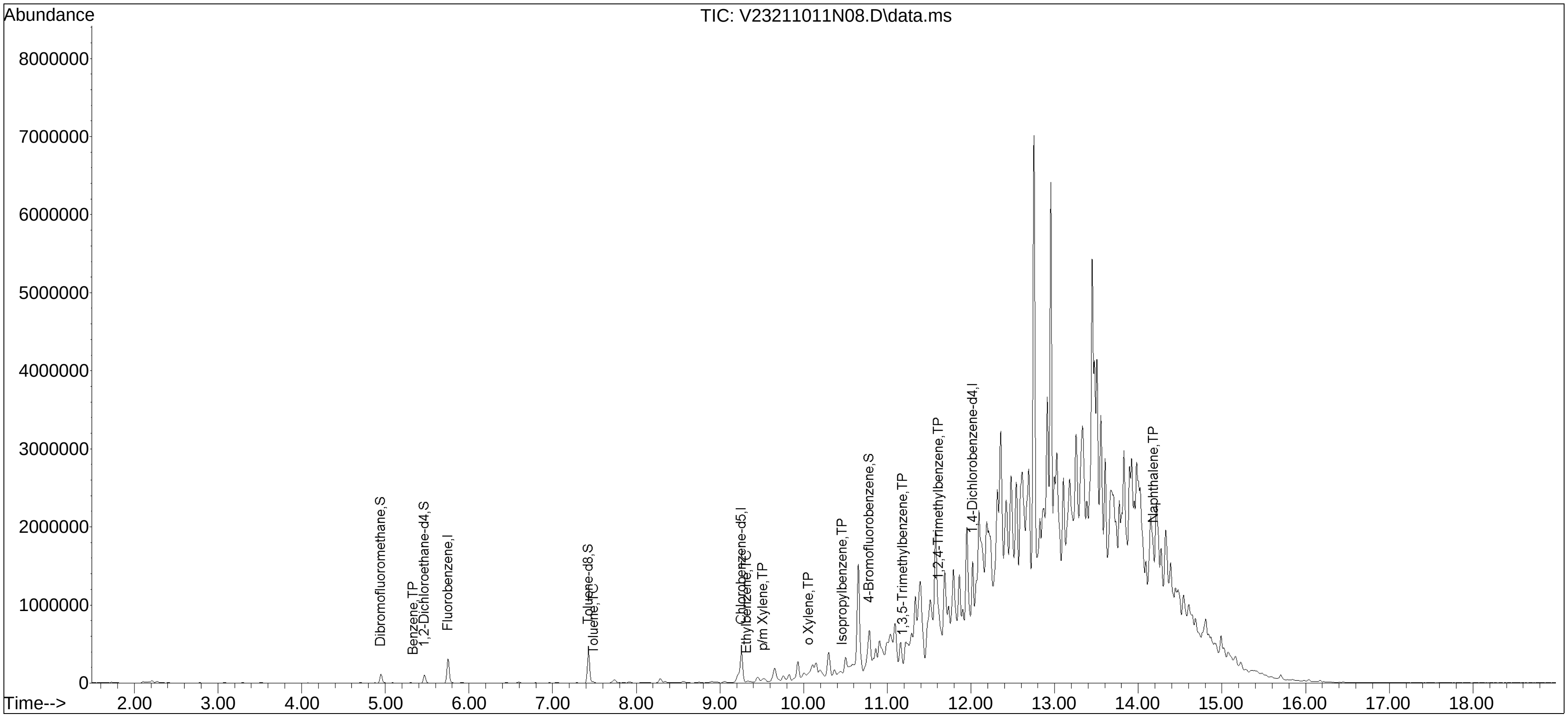


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N08.D
Acq On    : 11 Oct 2021  10:12 pm
Operator  : VOA123:JC
Sample    : L2154149-14,31H,5.86,5,0.100,,A
Misc      : WG1557472,ICAL18187
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Oct 12 08:12:08 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•
```

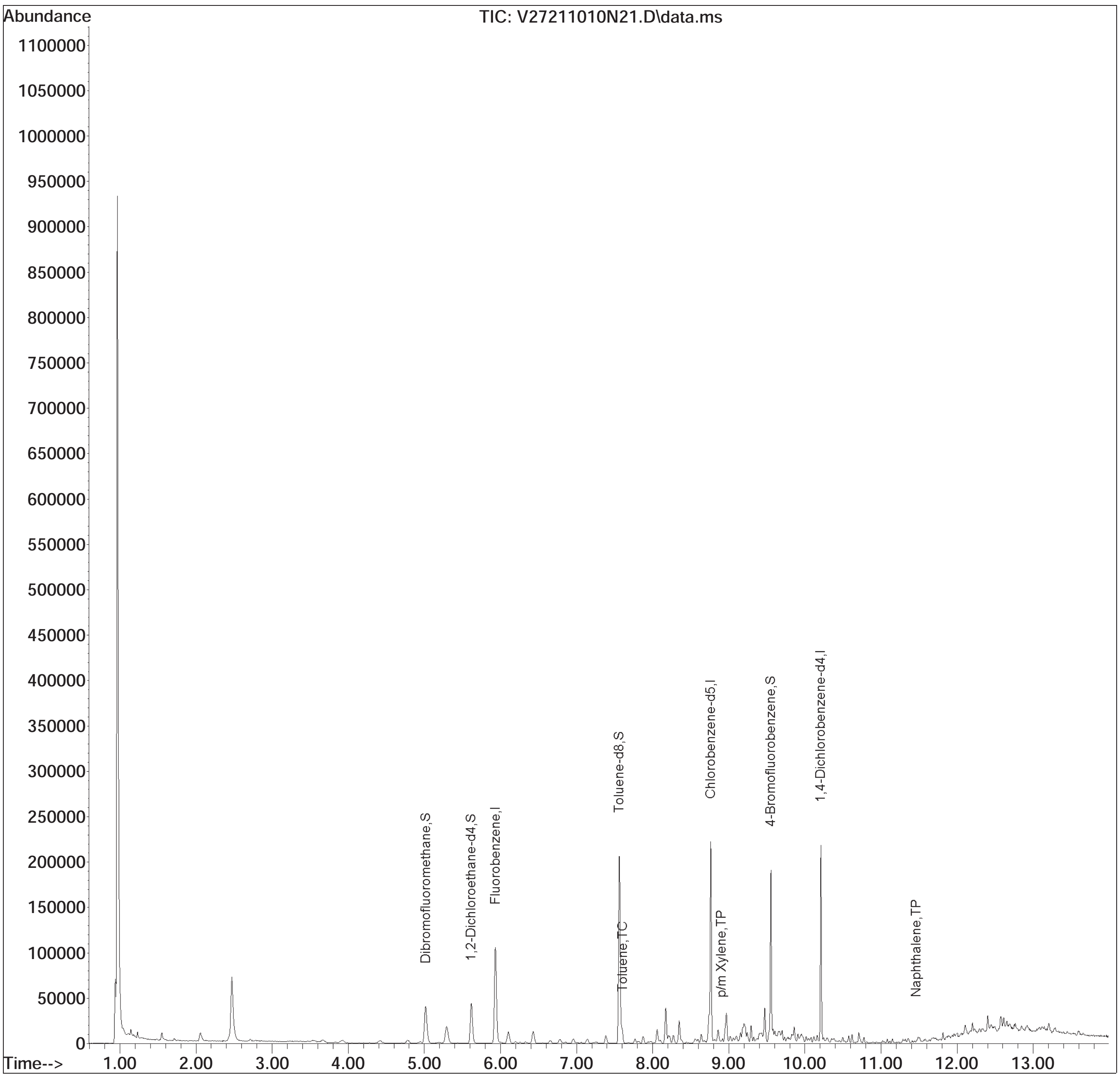


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2021\211010N\
Data File : V27211010N21.D
Acq On : 10 Oct 2021 11:17 pm
Operator : VOA127:NLK
Sample : L2154149-16,31,5.87,5,,B
Misc : WG1557127,ICAL18360
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 11 12:30:28 2021
Quant Method : I:\VOLATILES\VOA127\2021\211010N\V127_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 10:48:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V27211010N01.D•



ANALYTICAL REPORT

Lab Number:	L2206339
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	03/29/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206339-01	PB-204-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 10:30	02/07/22
L2206339-02	PB-204-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 10:40	02/07/22
L2206339-03	PB-204-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 11:30	02/07/22
L2206339-04	PB-204-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 11:40	02/07/22
L2206339-05	PB-204-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 11:50	02/07/22
L2206339-06	PB-204-06R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 12:20	02/07/22
L2206339-07	PB-204-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 12:25	02/07/22
L2206339-08	PB-204-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 12:30	02/07/22
L2206339-09	PB-33-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 13:00	02/07/22
L2206339-10	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2206339-11	PB-29-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 14:05	02/07/22
L2206339-12	PB-29-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:15	02/07/22
L2206339-13	PB-29-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:20	02/07/22
L2206339-14	PB-29-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:45	02/07/22
L2206339-15	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22
L2206339-16	FB-220207-1	WATER	PHILADELPHIA, PA	02/07/22 12:00	02/07/22
L2206339-17	FB-220207-2	WATER	PHILADELPHIA, PA	02/07/22 15:00	02/07/22
L2206339-18	TB-220207	WATER	PHILADELPHIA, PA	02/07/22 00:00	02/07/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2206339-14.

Report Revision

February 22, 2022: This report includes the results of the Volatile Organics analysis performed on L2206339-07.

Report Submission

February 21, 2022: This final report includes the results of all requested analyses.

February 14, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206339-06 and -07: At the client's request, Naphthalene was analyzed by Method 8270D.

L2206339-16 and -17: Sample containers for Semivolatile Organics were received, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206339-01: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2206339-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (256%) and 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206339-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

Case Narrative (continued)

L2206339-07: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (164%) and 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206339-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals
L2206339-04 and -12: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.
The WG1602754-3 MS recovery, performed on L2206339-03, is outside the acceptance criteria for lead (178%). A post digestion spike was performed and yielded an unacceptable recovery of 61%. The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.
The WG1602754-6 serial dilution analysis, associated with L2206339-03, had a %D above the acceptance criteria for lead (22%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 03/29/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-01	Date Collected:	02/07/22 10:30
Client ID:	PB-204-11R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 10:02
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	**256**	Q	70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	**65**	Q	70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-07	Date Collected:	02/07/22 12:25
Client ID:	PB-204-06R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:32
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.036		mg/kg	0.00048	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**164**	Q	70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-09 D
Client ID: PB-33-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 09:21
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	5.2		mg/kg	0.053	0.018	2
Toluene	0.19		mg/kg	0.11	0.058	2
Ethylbenzene	21.		mg/kg	0.11	0.015	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-14 D	Date Collected:	02/07/22 14:45
Client ID:	PB-29-03R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 09:41
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	4.6		mg/kg	2.6	0.26	25
Benzene	110		mg/kg	0.65	0.22	25
Toluene	200		mg/kg	1.3	0.70	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-16	Date Collected:	02/07/22 12:00
Client ID:	FB-220207-1	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	02/08/22 12:59
Analyst:	AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

SAMPLE RESULTS

Lab ID:	L2206339-17	Date Collected:	02/07/22 15:00
Client ID:	FB-220207-2	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/22 13:20
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-18	Date Collected:	02/07/22 00:00
Client ID:	TB-220207	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/22 13:40
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	107		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/08/22 08:13
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1602841-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 08:38
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,09,14 Batch: WG1604734-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	108		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07 Batch: WG1607838-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1602841-3 WG1602841-4								
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	97		100		70-130	3		20
Ethylbenzene	100		110		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,09,14 Batch: WG1604734-3 WG1604734-4								
Methyl tert butyl ether	82		82		66-130	0		30
Benzene	97		103		70-130	6		30
Toluene	97		104		70-130	7		30
1,2-Dibromoethane	92		92		70-130	0		30
Ethylbenzene	99		105		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03
Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07 Batch: WG1607838-3 WG1607838-4								
Benzene	101		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		88		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	93		90		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-06	Date Collected:	02/07/22 12:20
Client ID:	PB-204-06R-0.0-0.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:15
Analytical Date:	02/13/22 13:04		
Analyst:	CMM		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-07	Date Collected:	02/07/22 12:25
Client ID:	PB-204-06R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:15
Analytical Date:	02/13/22 13:28		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	58		18-120

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-16	Date Collected:	02/07/22 12:00
Client ID:	FB-220207-1	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 11:53		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	91		15-120
4-Terphenyl-d14	102		41-149

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-17	Date Collected:	02/07/22 15:00
Client ID:	FB-220207-2	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 12:10		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	76		41-149

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 11:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/13/22 11:37	Extraction Date:	02/12/22 10:27
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 16-17 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 16-17 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

METALS

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-03
Date Collected: 02/07/22 11:30
Client ID: PB-204-01R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	61.6		mg/kg	2.32	0.125	1	02/08/22 22:02	02/10/22 12:03	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-04	Date Collected:	02/07/22 11:40
Client ID:	PB-204-01R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.16	J	mg/kg	11.9	0.639	5	02/08/22 22:02	02/10/22 14:47	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-11
Date Collected: 02/07/22 14:05
Client ID: PB-29-02R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2500		mg/kg	2.34	0.125	1	02/08/22 22:02	02/10/22 13:07	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-12	Date Collected:	02/07/22 14:15
Client ID:	PB-29-02R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.53	J	mg/kg	12.2	0.657	5	02/08/22 22:02	02/10/22 14:52	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-16	Date Collected:	02/07/22 12:00
Client ID:	FB-220207-1	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 11:01	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-17	Date Collected:	02/07/22 15:00
Client ID:	FB-220207-2	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 11:06	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 16-17 Batch: WG1602709-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 10:30	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,11-12 Batch: WG1602754-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/08/22 22:02	02/10/22 11:40	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1602709-2								
Lead, Total	93		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 Batch: WG1602754-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1602709-3 QC Sample: L2206625-01 Client ID: MS Sample												
Lead, Total	ND	530	488.4	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-3 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5												
Lead, Total	61.6	49	149	**178**	Q	-	-		75-125	-		20

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2206339

Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-4 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	63.4	mg/kg	3		20

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206339
Report Date: 03/29/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-6 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	75.0	mg/kg	**22**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-01	Date Collected:	02/07/22 10:30
Client ID:	PB-204-11R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-03
Date Collected: 02/07/22 11:30
Client ID: PB-204-01R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-04	Date Collected:	02/07/22 11:40
Client ID:	PB-204-01R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.3		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-06
Date Collected: 02/07/22 12:20
Client ID: PB-204-06R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206339-07	Date Collected:	02/07/22 12:25
Client ID:	PB-204-06R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-09
Date Collected: 02/07/22 13:00
Client ID: PB-33-05R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-11
Client ID: PB-29-02R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:05
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-12
Client ID: PB-29-02R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 14:15
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206339-14
Date Collected: 02/07/22 14:45
Client ID: PB-29-03R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09,11-12,14 QC Batch ID: WG1602482-1 QC Sample: L2206339-01 Client ID: PB-204-11R-6.0-6.5						
Solids, Total	83.4	83.1	%	0		20

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-02A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-02B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-03A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-03B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-04A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-04B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-05A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-05B	Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		HOLD-METAL(180)
L2206339-06A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-06B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-06E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-07A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2206339-07B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2206339-07C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Serial_No:03292215:35

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 03/29/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-07D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-07E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-08A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-08B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-08E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-8270(14)
L2206339-09A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-09B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-10A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-10B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-11A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-11B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-12A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-12B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-13A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-13B	Glass 250ml/8oz unpreserved	B	NA		3.8	Y	Absent		HOLD-METAL(180)
L2206339-14A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2206339-14B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-15A	Vial MeOH preserved	B	NA		3.8	Y	Absent		HOLD-8260HLW(14)
L2206339-15B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-15C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2206339-15D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-16A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-16E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-16F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-17E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-18A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-18B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/8/22

ALPHA Job #: L2206339

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per ~~attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8260)	ETHYL BENZENE	1,2-DBA (DIBROMO ETHANE)					Sample Specific Comments
06339-01	PB-204-11R-6.0-6.5	2/7	1030	S	TS	☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	
02	PB-204-11R-14.0-14.5		1040			☐	☐	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	HOLD
03	PB-204-01R-0.0-0.5		1130			✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
04	PB-204-01R-6.0-6.5		1140			✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
05	PB-204-01R-14.0-14.5		1150			✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD
06	PB-204-06R-0.0-0.5		1220			☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐	
07	PB-204-06R-6.0-6.5		1225			☐	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐	
08	PB-204-06R-14.0-14.5		1230			☐	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐	HOLD
09	~~PB-204~~ PB-33-05R-6.0-6.5		1300			☐	✓	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	
10	PB-33-05R-14.0-14.5		1310			☐	✓	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	HOLD

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 1313	2/7 1515	[signature]	2/7 1515
[signature]	2/7 2030	[signature]	2/7 1930
[signature] Yuthenry Ilee	2/7/22	Yuthenry Ilee	2/7/22 2030
[signature]	2/07/22 2125	[signature] AAC	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(MA) (rev. 6-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/8/22

ALPHA Job #: L2206339

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Sampling

Criteria:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8260)	Ethyl-Benzene	1,2-DBA (Dibromoethane)					Sample Specific Comments
06339-11	PB-29-02R-0.0-0.5	2/7	1405	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
12	PB-29-02R-6.0-6.5		1415			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
13	PB-29-02R-14.0-14.5		1420			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD
14	PB-29-03R-6.0-6.5		1445			☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	
15	PB-29-03R-14.0-14.5		1455			☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD
16	~~Terraphase~~ FB-220207-1		1200			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐	
17	FB-220207-2		1500			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐	
18	TB-220207		-			☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/7 1515	[signature]	2/7 1515
[signature]	1800	AMP	2/7 1960
AMP	2/7 2030	Anthony Huss	2/7/22 2030
Anthony Huss	2/7/22	[signature] AAL	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

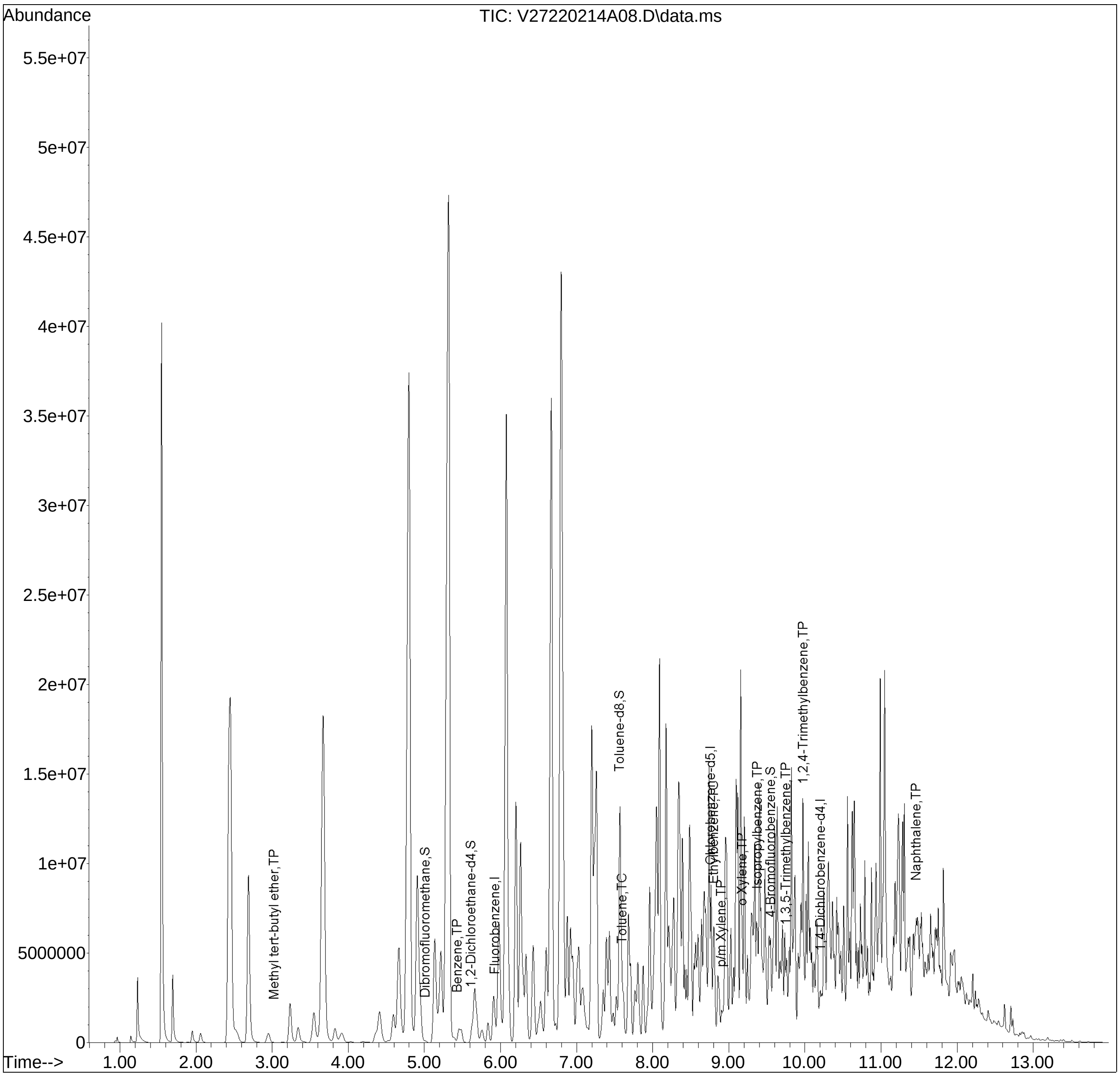
FORM NO: 01-01(HJ) (rev. 6-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
Data File : V27220214A08.D
Acq On : 14 Feb 2022 10:02 am
Operator : VOA127:AJK
Sample : l2206339-01,31H,5.11,5,0.100,,a
Misc : WG1604734,ICAL18638
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 14 11:46:43 2022
Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•

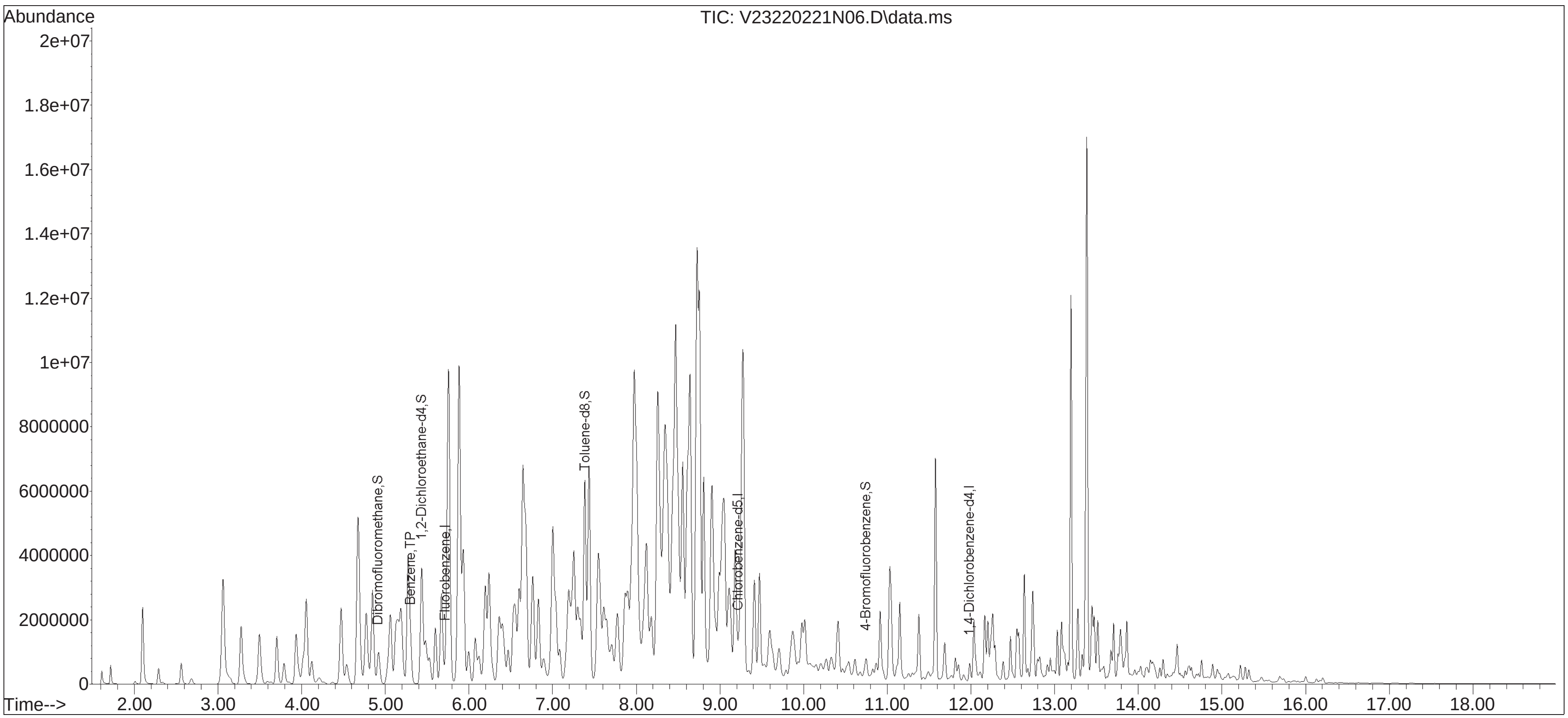


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220221N\
Data File : V23220221N06.D
Acq On   : 21 Feb 2022 08:32 pm
Operator : VOA123:AJK
Sample   : l2206339-07,31,6.17,5,,b
Misc   : WG1607838,ICAL18401
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Feb 22 13:01:12 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List   : 8260-Benzene - benzene only2\220221N\V23220221N01.D•

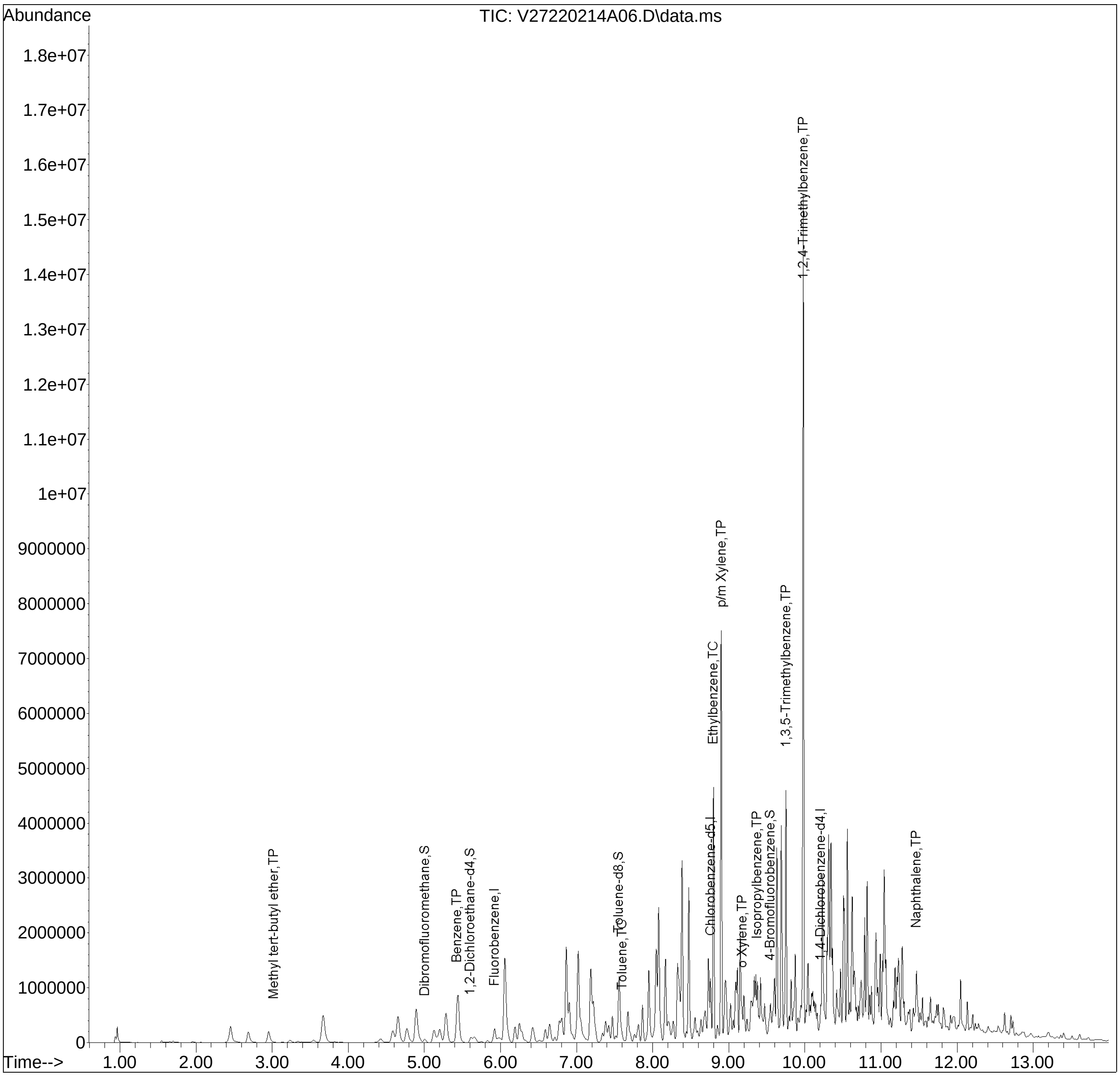


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
Data File : V27220214A06.D
Acq On : 14 Feb 2022 09:21 am
Operator : VOA127:AJK
Sample : l2206339-09D2,31H,7.02,5,0.050,,a
Misc : WG1604734,ICAL18638
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 11:45:49 2022
Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•



ANALYTICAL REPORT

Lab Number:	L2206606
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	03/29/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206606-01	PB-29-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 09:35	02/08/22
L2206606-02	PB-29-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 09:45	02/08/22
L2206606-03	PB-29-15R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 10:35	02/08/22
L2206606-04	PB-29-15R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 10:45	02/08/22
L2206606-05	PB-29-15R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 10:55	02/08/22
L2206606-06	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:10	02/08/22
L2206606-07	PB-29-28-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 11:15	02/08/22
L2206606-08	PB-29-28-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 11:25	02/08/22
L2206606-09	PB-29-26R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:30	02/08/22
L2206606-10	PB-27-01R-3.5-4.0	SOIL	PHILADELPHIA, PA	02/08/22 12:25	02/08/22
L2206606-11	PB-27-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 12:30	02/08/22
L2206606-12	PB-27-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:05	02/08/22
L2206606-13	PB-27-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:10	02/08/22
L2206606-14	PB-27-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:15	02/08/22
L2206606-15	PB-27-18-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:25	02/08/22
L2206606-16	PB-27-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:30	02/08/22
L2206606-17	PB-27-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:35	02/08/22
L2206606-18	PB-27-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 12:20	02/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2206606-14, -15, and -16.

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206606-14.

February 28, 2022: This preliminary report includes the results of the Volatile Organics analysis performed on L2206606-08 and the Total Lead analysis performed on L2206606-15 and -16.

Report Revision

February 22, 2022: At the client's request, the Volatile Organics reporting list has been amended on L2206606-06 and -07.

Report Submission

February 15, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206606-12: Sample containers for Volatile Organics were received for the "PB-27-02R-0.0-0.5" sample, but were not listed on the chain of custody. At the client's request, the analysis was not performed.

Volatile Organics

L2206606-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (141%) and 4-bromofluorobenzene (288%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2206606-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (57%) and dibromofluoromethane (61%) due to interference with the Internal Standard.
L2206606-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (136%) and 4-bromofluorobenzene (285%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-08 and -14D: The sample was analyzed with the method required holding time exceeded.
L2206606-13D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (204%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-13D2: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (64%) due to interference with the Internal Standard.
L2206606-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-15: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.
L2206606-15: The sample was received in the appropriate containers (vials) for the Volatile Organics by EPA Method 5035/8260 Low Level analysis; however, analysis yielded no reportable data. With the client's authorization, a sample aliquot was taken from an unpreserved container (inappropriate plastic) and preserved appropriately.
L2206606-16: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2206606-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

Total Metals

L2206606-03: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

The WG1607927-3 MS recovery for lead (15%), performed on L2206606-15, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1607927-6 serial dilution analysis, associated with L2206606-15, had a %D above the acceptance criteria for lead (43%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 03/29/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-01	Date Collected:	02/08/22 09:35
Client ID:	PB-29-08R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 08:48
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Ethylbenzene	0.21		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.037		mg/kg	0.0025	0.00069	1
o-Xylene	0.0085		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.046		mg/kg	0.0012	0.00036	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0071		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**57**	Q	70-130
Toluene-d8	**141**	Q	70-130
4-Bromofluorobenzene	**288**	Q	70-130
Dibromofluoromethane	**61**	Q	70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-06	Date Collected:	02/08/22 11:10
Client ID:	PB-29-28-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/09/22 16:28
Analyst:	AJK
Percent Solids:	83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0027		mg/kg	0.00073	0.00024	1
Toluene	0.0015		mg/kg	0.0015	0.00080	1
Naphthalene	ND		mg/kg	0.0059	0.00096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-07	Date Collected:	02/08/22 11:15
Client ID:	PB-29-28-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/11/22 09:41
Analyst:	AJK
Percent Solids:	81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	7.0		mg/kg	0.035	0.012	1
Toluene	8.1		mg/kg	0.070	0.038	1
Naphthalene	2.3		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	**136**	Q	70-130
4-Bromofluorobenzene	**285**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-08	Date Collected:	02/08/22 11:25
Client ID:	PB-29-28-14.0-14.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 01:18
Analyst: KDU
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	6.0		mg/kg	0.032	0.011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	90		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-13	D2	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5		Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/11/22 10:31
Analyst:	AJK
Percent Solids:	82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.5		mg/kg	0.59	0.059	5
Benzene	19.		mg/kg	0.15	0.049	5
Toluene	150	E	mg/kg	0.29	0.16	5
Ethylbenzene	94.	E	mg/kg	0.29	0.041	5
p/m-Xylene	310	E	mg/kg	0.59	0.16	5
o-Xylene	100		mg/kg	0.29	0.085	5
1,3,5-Trimethylbenzene	57.		mg/kg	0.59	0.056	5
1,2,4-Trimethylbenzene	160	E	mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**204**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-13 D	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 17:18
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	170		mg/kg	5.9	3.2	100
Ethylbenzene	100		mg/kg	5.9	0.83	100
p/m-Xylene	360		mg/kg	12	3.3	100
Xylenes, Total	460		mg/kg	0.29	0.085	100
1,2,4-Trimethylbenzene	180		mg/kg	12	2.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-14 D
Client ID: PB-27-02R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:15
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:38
Analyst: AJK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.38		mg/kg	0.27	0.027	2
Benzene	6.6		mg/kg	0.068	0.023	2
Toluene	12.		mg/kg	0.14	0.074	2
Ethylbenzene	31.		mg/kg	0.14	0.019	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 17:43
Analyst: AJK
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.025	J	mg/kg	0.10	0.010	1
Benzene	0.034		mg/kg	0.026	0.0085	1
Ethylbenzene	0.0078	J	mg/kg	0.051	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/15/22 13:51
Analyst:	KJD
Percent Solids:	89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00087	J	mg/kg	0.0022	0.00022	1
Benzene	0.00085		mg/kg	0.00054	0.00018	1
Ethylbenzene	0.0013		mg/kg	0.0011	0.00015	1
1,3,5-Trimethylbenzene	0.00058	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0011	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	116		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-16	Date Collected:	02/08/22 13:30
Client ID:	PB-27-18-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:06
Analyst: AJK
Percent Solids: 80%

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.017	J	mg/kg	0.15	0.015	1
Benzene	0.016	J	mg/kg	0.038	0.013	1
Ethylbenzene	0.026	J	mg/kg	0.077	0.011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.033	J	mg/kg	0.15	0.026	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1603548-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,15 Batch: WG1603551-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:16
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,13,16 Batch: WG1605129-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 08:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1605187-5					
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15 Batch: WG1605212-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Ethylbenzene	ND		mg/kg	0.0010	0.00014
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1608829-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1603548-3 WG1603548-4								
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
Naphthalene	90		99		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,15 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,13,16 Batch: WG1605129-3 WG1605129-4								
Methyl tert butyl ether	89		96		66-130	8		30
Benzene	92		96		70-130	4		30
Toluene	100		102		70-130	2		30
Ethylbenzene	102		103		70-130	1		30
p/m-Xylene	99		100		70-130	1		30
o-Xylene	97		99		70-130	2		30
1,3,5-Trimethylbenzene	104		105		70-130	1		30
1,2,4-Trimethylbenzene	102		104		70-130	2		30
Naphthalene	95		101		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		113		70-130
Toluene-d8	107		105		70-130
4-Bromofluorobenzene	114		109		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1605187-3 WG1605187-4								
Ethylbenzene	96		91		70-130	5		30
p/m-Xylene	99		94		70-130	5		30
o-Xylene	102		97		70-130	5		30
1,3,5-Trimethylbenzene	108		100		70-130	8		30
1,2,4-Trimethylbenzene	109		101		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		82		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	87		89		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1608829-8 WG1608829-9								
Methyl tert butyl ether	84		84		66-130	0		30
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
Ethylbenzene	98		100		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-01	Date Collected:	02/08/22 09:35
Client ID:	PB-29-08R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 13:52		
Analyst:	WR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-09	Date Collected:	02/08/22 11:30
Client ID:	PB-29-26R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 14:15		
Analyst:	WR		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.026	J	mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	107		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	79		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-10	Date Collected:	02/08/22 12:25
Client ID:	PB-27-01R-3.5-4.0	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 14:37		
Analyst:	WR		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.63		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**126**	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	80		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-12	Date Collected:	02/08/22 13:05
Client ID:	PB-27-02R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:00		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.036	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**124**	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	67		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-13	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:22		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:45		
Analyst:	WR		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	35		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-16	Date Collected:	02/08/22 13:30
Client ID:	PB-27-18-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:07		
Analyst:	WR		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	37		30-120
4-Terphenyl-d14	36		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-18	Date Collected:	02/08/22 12:20
Client ID:	PB-27-01R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:30		
Analyst:	WR		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	42		23-120
2-Fluorobiphenyl	**27**	Q	30-120
4-Terphenyl-d14	24		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 11:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120

METALS

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-03 Date Collected: 02/08/22 10:35

Client ID: PB-29-15R-0.0-0.5 Date Received: 02/08/22

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.57	J	mg/kg	11.3	0.604	5	02/09/22 22:45	02/13/22 18:41	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-04	Date Collected:	02/08/22 10:45
Client ID:	PB-29-15R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.39		mg/kg	2.37	0.127	1	02/09/22 22:45	02/13/22 14:48	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-09	Date Collected:	02/08/22 11:30
Client ID:	PB-29-26R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	274		mg/kg	2.06	0.111	1	02/09/22 22:45	02/13/22 14:52	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-10	Date Collected:	02/08/22 12:25
Client ID:	PB-27-01R-3.5-4.0	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	16.9		mg/kg	2.32	0.124	1	02/09/22 22:45	02/13/22 15:38	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-12	Date Collected:	02/08/22 13:05
Client ID:	PB-27-02R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1210		mg/kg	2.38	0.127	1	02/10/22 22:22	02/13/22 12:48	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-13	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.00		mg/kg	2.35	0.126	1	02/09/22 22:45	02/13/22 15:42	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-15 Date Collected: 02/08/22 13:25
Client ID: PB-27-18-0.0-0.5 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	330		mg/kg	2.14	0.115	1	02/23/22 07:45	02/28/22 13:47	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16 Date Collected: 02/08/22 13:30

Client ID: PB-27-18-6.0-6.5 Date Received: 02/08/22

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	32.6		mg/kg	2.40	0.128	1	02/23/22 07:45	02/28/22 13:33	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-18	Date Collected:	02/08/22 12:20
Client ID:	PB-27-01R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	273		mg/kg	2.30	0.123	1	02/09/22 22:45	02/13/22 15:47	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,09-10,13,18 Batch: WG1603164-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 12 Batch: WG1603583-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/10/22 22:22	02/13/22 11:49	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15-16 Batch: WG1607927-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 07:45	02/28/22 13:24	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,09-10,13,18 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 12 Batch: WG1603583-2 SRM Lot Number: D113-540								
Lead, Total	108		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 15-16 Batch: WG1607927-2 SRM Lot Number: D113-540								
Lead, Total	97		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03
Lab Number: L2206606
Report Date: 03/29/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,09-10,13,18 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	**73**	Q	41.5	**65**	Q	75-125	9		20
Total Metals - Mansfield Lab Associated sample(s): 12 QC Batch ID: WG1603583-3 WG1603583-4 QC Sample: L2206791-01 Client ID: MS Sample												
Lead, Total	18.7	66.7	69.3	76		74.5	82		75-125	7		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-3 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5												
Lead, Total	330	45.7	337	**15**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-4 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	324	mg/kg	2		20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206606
Report Date: 03/29/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-6 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	472	mg/kg	**43**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-01	Date Collected:	02/08/22 09:35
Client ID:	PB-29-08R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-03
Client ID: PB-29-15R-0.0-0.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 10:35
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-04
Date Collected: 02/08/22 10:45
Client ID: PB-29-15R-6.0-6.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-06	Date Collected:	02/08/22 11:10
Client ID:	PB-29-28-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-07
Date Collected: 02/08/22 11:15
Client ID: PB-29-28-6.0-6.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-08 Date Collected: 02/08/22 11:25
Client ID: PB-29-28-14.0-14.5 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-09
Date Collected: 02/08/22 11:30
Client ID: PB-29-26R-0.0-0.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-10 Date Collected: 02/08/22 12:25
Client ID: PB-27-01R-3.5-4.0 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-12
Client ID: PB-27-02R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:05
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-13	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-14 Date Collected: 02/08/22 13:15
Client ID: PB-27-02R-14.0-14.5 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.1		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-16
Client ID: PB-27-18-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:30
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2206606-18
Date Collected: 02/08/22 12:20
Client ID: PB-27-01R-0.0-0.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2206606
Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09-10,12-13,15-16,18 QC Batch ID: WG1602922-1 QC Sample: L2206606-01 Client ID: PB-29-08R-6.0-6.5						
Solids, Total	78.8	78.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 08,14 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: PB-29-28-14.0-14.5						
Solids, Total	81.0	81.0	%	0		20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 03/29/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-01A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2206606-01B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-01E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2206606-02A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2206606-02B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-02E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		HOLD-8270(14)
L2206606-03A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-03B	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-04B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-05A	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-METAL(180)
L2206606-05B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-06A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-06B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-07A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-07B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-07C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-07D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-08A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-08B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-09A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-09B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-10A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-10B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-11A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-CONTINGENCY(14)
L2206606-11B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-12A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-12B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-12E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-13A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-13B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-13F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PA-PAH(14)
L2206606-14A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-14B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-14E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-METAL(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-14F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-15A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206606-15B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-15E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-16A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-16B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-16E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-17A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-17B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-17E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-18A	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-18B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:03292215:39

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206606

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS AST Closure - Site Investigation

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-Day

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS Run NAP via 8270

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene ~~(8260)~~ TS	1,2,4-TMB, 1,3,5-TMB, XYLENES, ETHYLBENZENE	~~MTBE~~ TS	Sample Specific Comments	TOTAL # BOTTLES
06606-01	PB-29-08R-6.0-6.5	2/8	0935	S	TS	☐	☐	☐	☐	☐	☑	☑	☐		5
02	PB-29-08R-14.0-14.5		0945			☐	☐	☐	☐	☐	☑	☑	☐	HOLD	5
03	PB-29-15R-0.0-0.5		1035			☑	☐	☐	☐	☐	☐	☐	☐		2
04	PB-29-15R-6.0-6.5		1045			☑	☐	☐	☐	☐	☐	☐	☐		2
05	PB-29-15R-14.0-14.5		1055			☑	☐	☐	☐	☐	☐	☐	☐	HOLD	2
06	PB-29-28-0.0-0.5		1110			☐	☑	☐	☐	☐	☐	☐	☐		4
07	PB-29-28-6.0-6.5		1115			☐	☑	☐	☐	☐	☐	☐	☐		4
08	PB-29-28-14.0-14.5		1125			☐	☑	☐	☐	☐	☐	☐	☐	HOLD	4
09	PB-29-26R-0.0-0.5		1130			☑	☐	☐	☐	☐	☑	☐	☐		5
~~10~~ cel 2/9	~~PB-27-01R-0.0-0.5~~					~~☑~~	~~☑~~	~~☑~~	~~☐~~	~~☐~~	~~☑~~	~~☐~~	~~☑~~		~~5~~

TS; see pg. 2

Container Type	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1536	[signature] AAL	2/8 1536
[signature]	2/8 1800	[signature]	2/8 1800
[signature]	2-8 2030	Anthony Greco	2/8/22 2030
Anthony Greco 2/8/22		[signature]	2/8/22 2355

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Serial_No:03292215:39

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206606

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES ~~Refinery - Delineation~~ TS AST CLOSURE - SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ TS 5-DAY ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached RUN NAP VIA 8270

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	~~Benzo(a)pyrene~~	~~Benzo(b)fluoranthene~~	Naphthalene ~~(8260)~~ TS	1,2,4-TMB, 1,3,5-TMB, XYLENES, MTBE, ETHYLBENZENE	1,2,4-TMB, 1,3,5-TMB, ETHYLBENZENE					Sample Specific Comments	TOTAL # BOTTLES
06606-10	PB-27-01R-3.5-4.0	2/8	1225	S	TS	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		~~5~~ 2
CEC 2/9 11	PB-27-01R-14.0-14.5	↓	1230	S	↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	~~5~~ 2
12	PB-27-02R-0.0-0.5		1305	S		☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
13	PB-27-02R-6.0-6.5		1310	S		☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐		
14	PB-27-02R-14.0-14.5		1315	S		☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	HOLD	
15	PB-~~27~~-18-0.0-0.5		1325	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐		
16	PB-27-18-6.0-6.5		1330	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐		
17	PB-27-18-14.0-14.5		1335	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	HOLD	
18	PB-27-01R-0.0-0.5	↓	1220	S	↓	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1536	[signature] AAL	2/8 1536
[signature] AAL	2/8 1800	[signature] AMP	2-8- 1800
AMP	2-8- 2030	Anthony Fuccu	2/8/22 2030
Anthony Fuccu	2/8/22	[signature]	2/8/22 2335

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

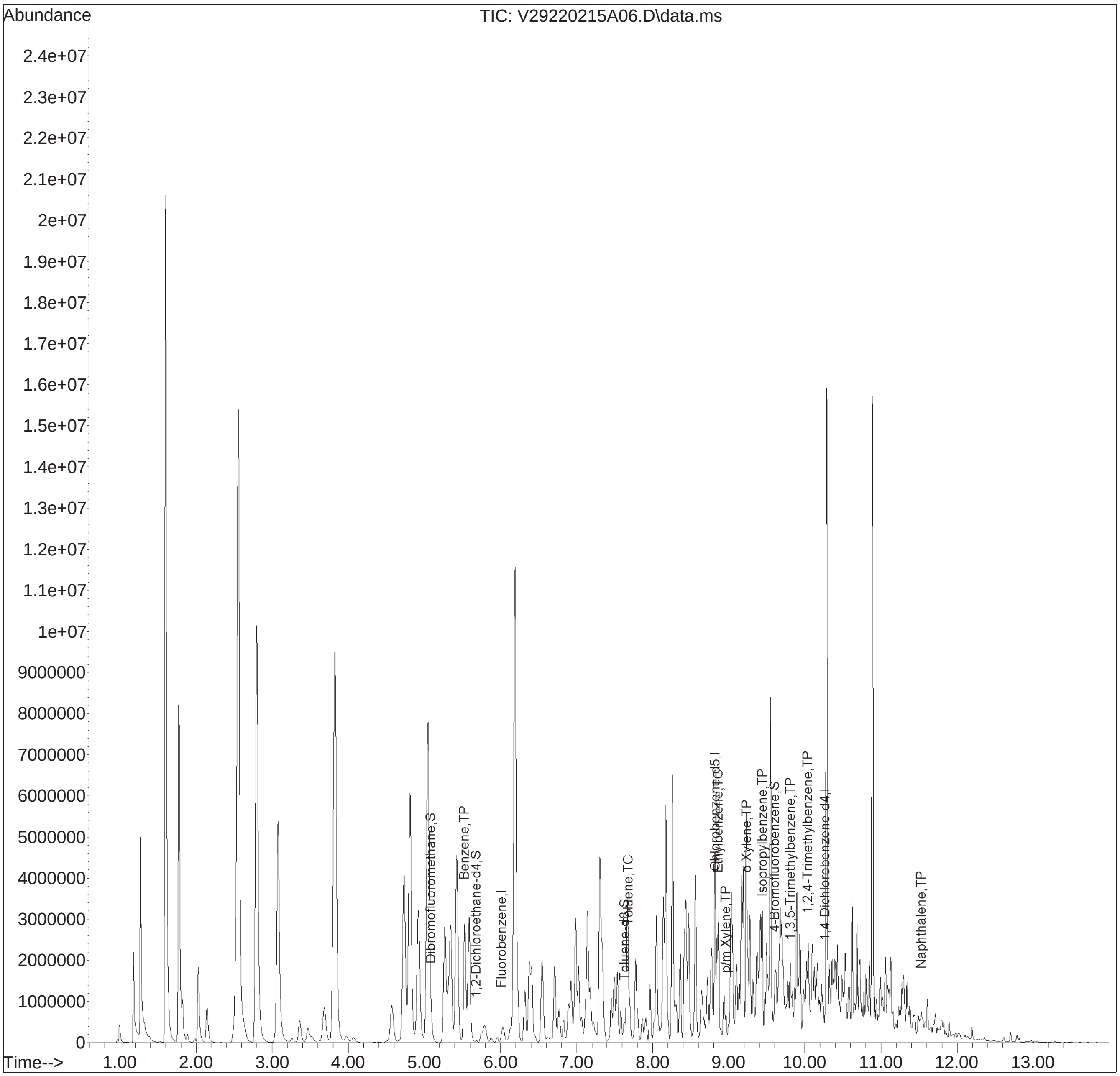
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220215A\
Data File : V29220215A06.D
Acq On : 15 Feb 2022 08:48 am
Operator : VOA129:NLK
Sample : L2206606-01,31,5.15,5,,C,R2F
Misc : WG1605187,ICAL18564
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 15 12:22:50 2022
Quant Method : I:\VOLATILES\VOA129\2022\220215A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V29220215A02.D•

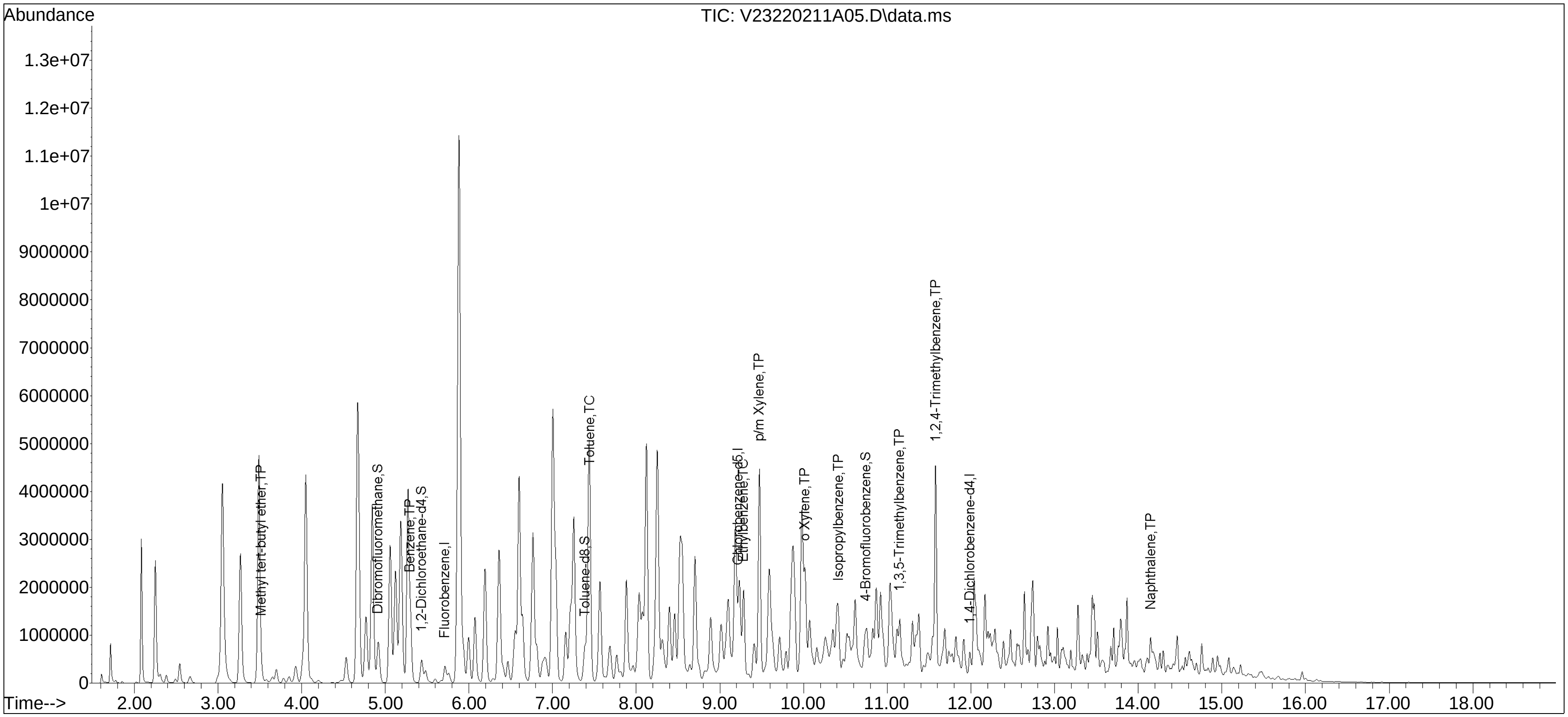


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A05.D
Acq On : 11 Feb 2022 09:41 am
Operator : VOA123:AJK
Sample : L2206606-07,31H,5.34,5,0.100,,A,R2F
Misc : WG1605129,ICAL18401
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 14 14:55:28 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•

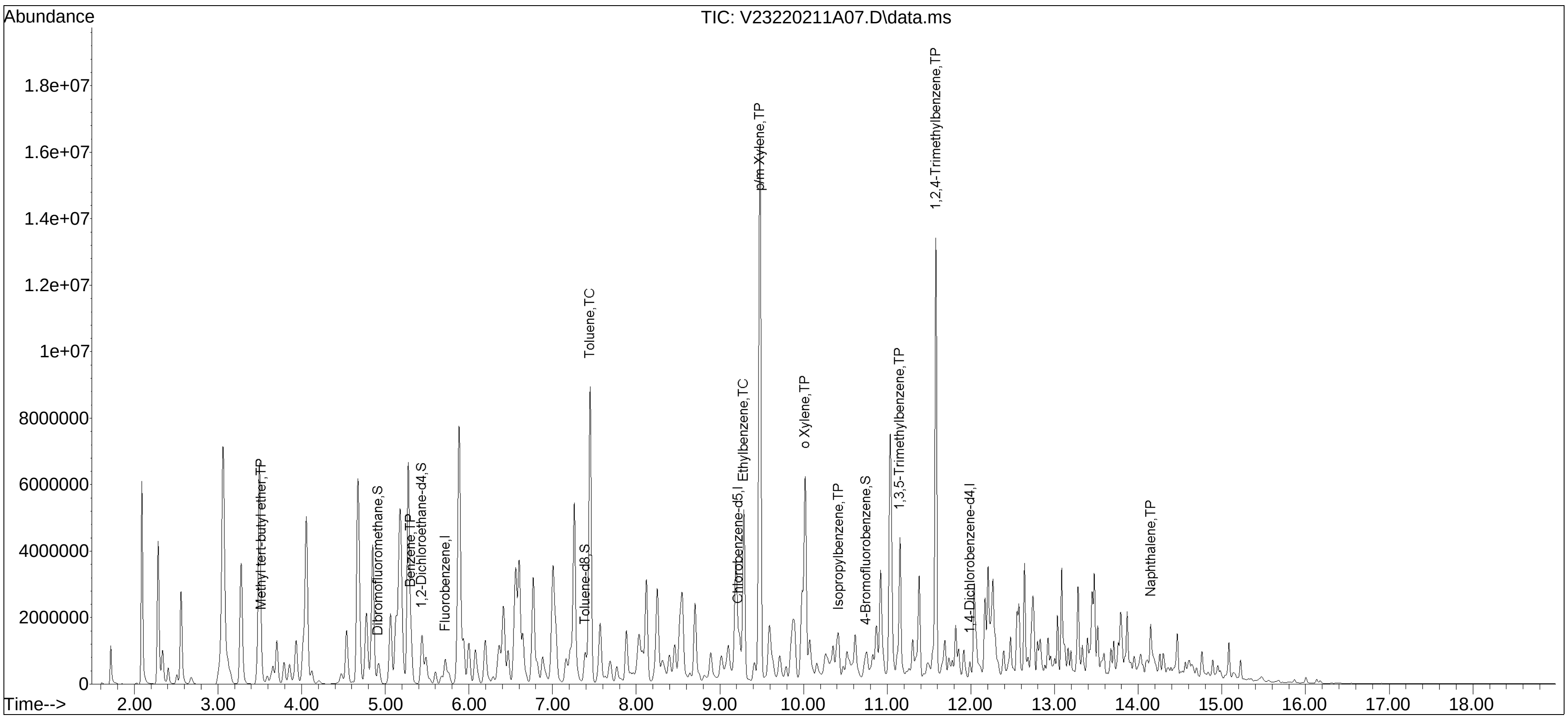


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A07.D
Acq On : 11 Feb 2022 10:31 am
Operator : VOA123:AJK
Sample : L2206606-13D2,31H,6.36,5,0.020,,A,R2F
Misc : WG1605129,ICAL18401
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 14 15:00:21 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•



Quantitation Report   (QT Reviewed)

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Data Path : I:\VOLATILES\VOA123\2022\220223N\
Data File : V23220223N06.D
Acq On    : 23 Feb 2022  09:38 pm
Operator  : VOA123:AJK
Sample    : l2206606-14D,31H,4.65,5,0.050,,a,r2f
Misc      : WG1608829,ICAL18401
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Mar 29 13:16:20 2022
Quant Method : I:\VOLATILES\VOA123\2022\220223N\V123_211020N_8260D.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list23N\V23220223N01.D•
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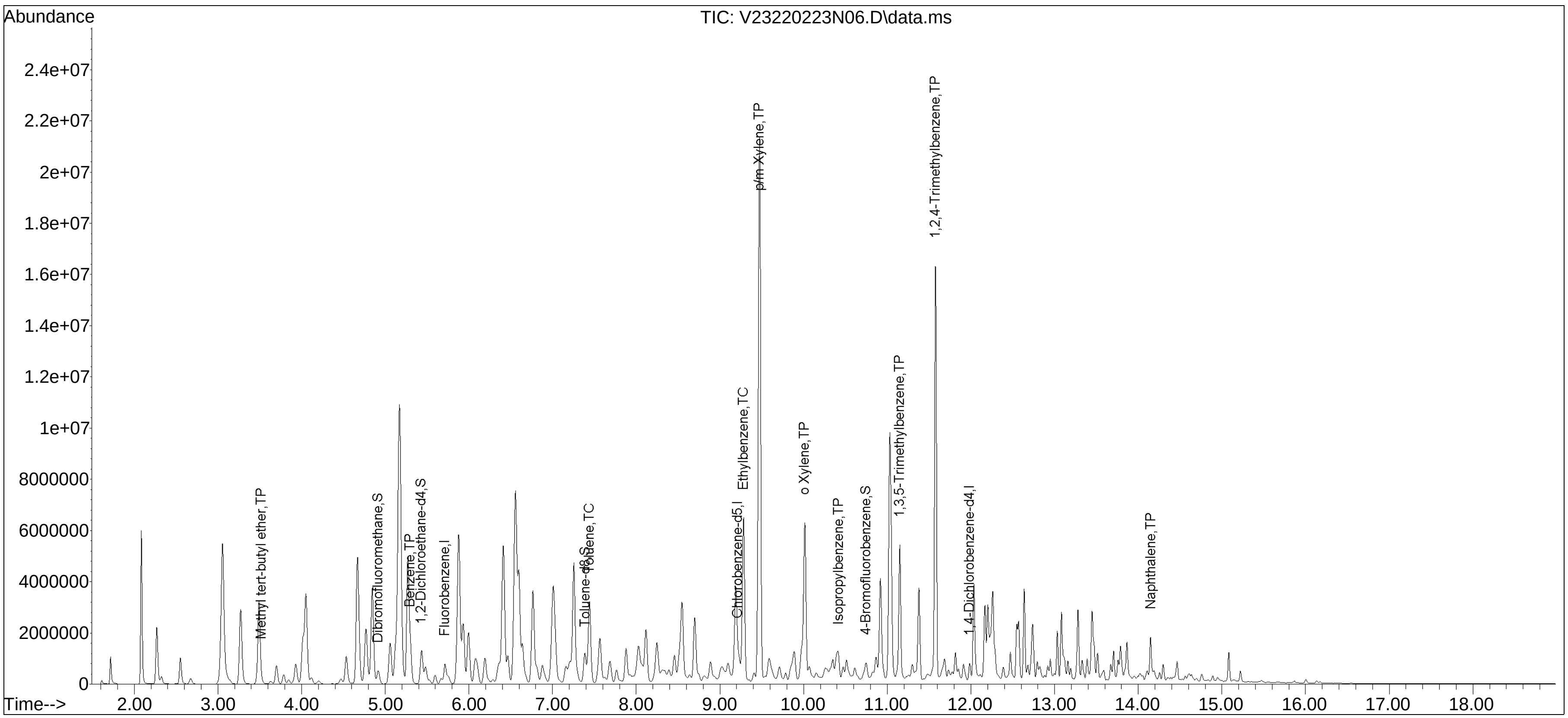

Quantitation Report (QT Reviewed)

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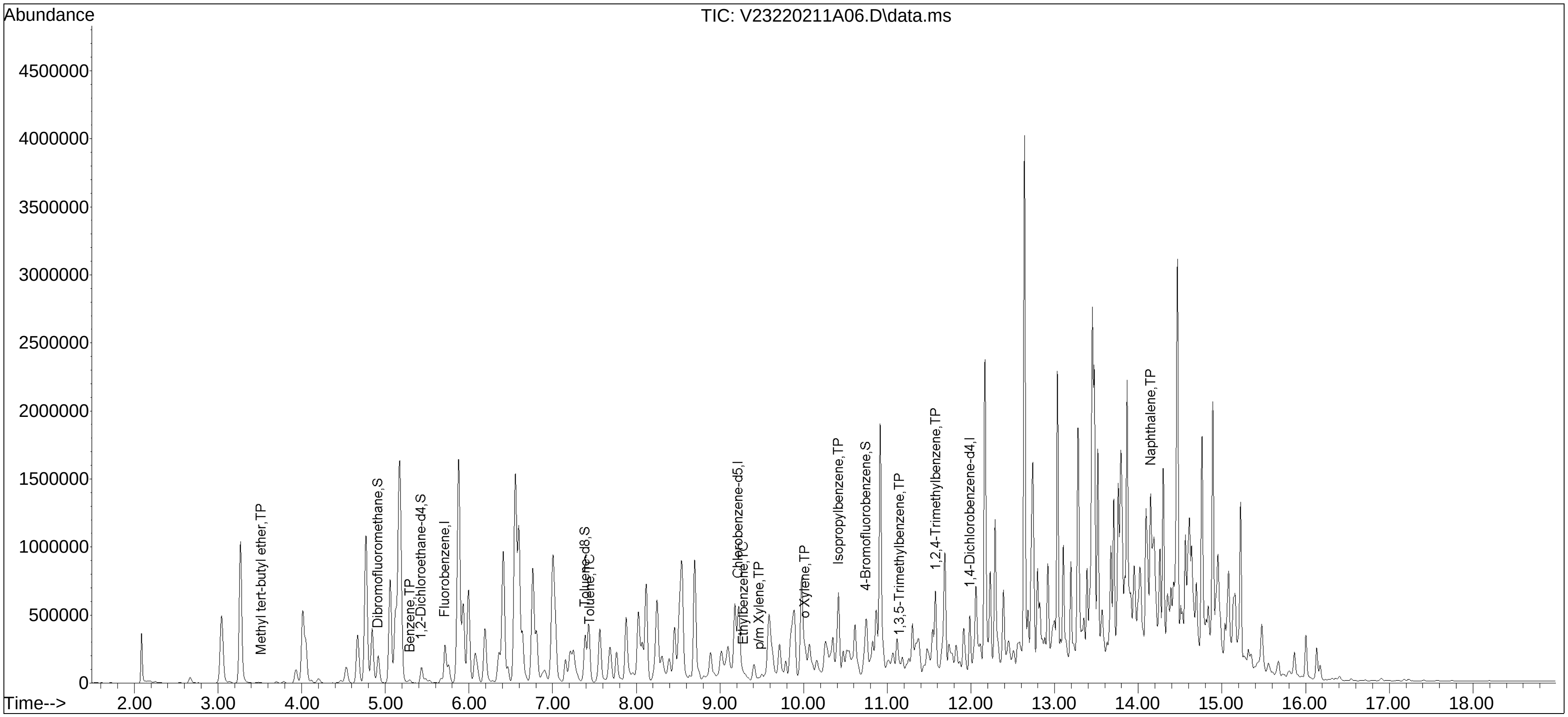
Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A06.D
Acq On    : 11 Feb 2022  10:06 am
Operator  : VOA123:AJK
Sample    : L2206606-16,31H,4.92,5,0.100,,A,R2F
Misc      : WG1605129,ICAL18401
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Feb 14 14:59:34 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2206607
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/15/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206607-01	PB-28-05-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:40	02/08/22
L2206607-02	PB-28-08-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:50	02/08/22
L2206607-03	FB-220208-1	WATER	PHILADELPHIA, PA	02/08/22 12:00	02/08/22
L2206607-04	FB-220208-2	WATER	PHILADELPHIA, PA	02/08/22 14:00	02/08/22
L2206607-05	TB-220208	WATER	PHILADELPHIA, PA	02/08/22 00:00	02/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206607-03, -04 and -05: The analysis of Microextractables was requested on the Chain of Custody; however, sample containers were not received. This was verified by the client.

Volatile Organics

L2206607-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206607-02: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (68%) and 4-bromofluorobenzene (132%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 02/15/22

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-01 D	Date Collected:	02/08/22 13:40
Client ID:	PB-28-05-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 15:13
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.23	J	mg/kg	0.62	0.063	5
Benzene	3.2		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.080	5
Toluene	2.1		mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.091	5
Ethylbenzene	15.		mg/kg	0.31	0.044	5
p/m-Xylene	32.		mg/kg	0.62	0.17	5
o-Xylene	5.0		mg/kg	0.31	0.091	5
Xylenes, Total	37.		mg/kg	0.31	0.091	5
Isopropylbenzene	3.4		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	19.		mg/kg	0.62	0.060	5
1,2,4-Trimethylbenzene	46.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 15:38
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.49		mg/kg	0.13	0.013	1
Benzene	1.3		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.54		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.45		mg/kg	0.067	0.0094	1
p/m-Xylene	1.6		mg/kg	0.13	0.037	1
o-Xylene	0.70		mg/kg	0.067	0.019	1
Xylenes, Total	2.3		mg/kg	0.067	0.019	1
Isopropylbenzene	0.024	J	mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.25		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.77		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 01:08
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.35	E	mg/kg	0.0023	0.00023	1
Benzene	0.92	E	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	0.0034		mg/kg	0.0012	0.00030	1
Toluene	0.45	E	mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.34		mg/kg	0.0012	0.00016	1
p/m-Xylene	1.2	E	mg/kg	0.0023	0.00065	1
o-Xylene	0.56		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.020		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.18		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**68**	Q	70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607

Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03
Client ID: FB-220208-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:00
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:12
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607

Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-04 Date Collected: 02/08/22 14:00
Client ID: FB-220208-2 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:33
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-05 Date Collected: 02/08/22 00:00
Client ID: TB-220208 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:53
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1603551-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 08:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-05 Batch: WG1603560-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1605096-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
1,2-Dichloroethane	92		103		70-130	11		30
Toluene	85		93		70-130	9		30
1,2-Dibromoethane	87		97		70-130	11		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
Isopropylbenzene	86		95		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-05 Batch: WG1603560-3 WG1603560-4								
Methyl tert butyl ether	94		98		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	105		110		70-130	5		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	99		100		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	102		100		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1605096-3 WG1605096-4								
Methyl tert butyl ether	79		82		66-130	4		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	78		80		70-130	3		30
Toluene	99		100		70-130	1		30
1,2-Dibromoethane	94		100		70-130	6		30
Ethylbenzene	96		98		70-130	2		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	107		108		70-130	1		30
1,3,5-Trimethylbenzene	107		109		70-130	2		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	79		80		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	104		106		70-130
Dibromofluoromethane	88		88		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-01	Date Collected:	02/08/22 13:40
Client ID:	PB-28-05-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/13/22 14:02		
Analyst:	SLR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.4	E	mg/kg	0.21	0.025	1
Fluorene	0.26		mg/kg	0.21	0.020	1
Phenanthrene	0.63		mg/kg	0.12	0.025	1
Anthracene	0.11	J	mg/kg	0.12	0.040	1
Pyrene	0.23		mg/kg	0.12	0.021	1
Benzo(a)anthracene	0.13		mg/kg	0.12	0.023	1
Chrysene	0.13		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	0.16		mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.12	J	mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.087	J	mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	78		18-120

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-01 D	Date Collected:	02/08/22 13:40
Client ID:	PB-28-05-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/15/22 13:42		
Analyst:	WR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.		mg/kg	1.0	0.13	5

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/13/22 18:26		
Analyst:	SLR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12	J	mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607

Project Number: 200.00135.005.03 **Report Date:** 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03
Client ID: FB-220208-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:00
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 12:26
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	86		41-149

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-04	Date Collected:	02/08/22 14:00
Client ID:	FB-220208-2	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 12:42		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	85		41-149

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/13/22 18:02	Extraction Date:	02/12/22 03:17
Analyst:	SLR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1604253-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/13/22 11:37	Extraction Date:	02/12/22 10:27
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03-04 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03-04 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

METALS

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01
Client ID: PB-28-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:40
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	461		mg/kg	12.3	0.661	5	02/09/22 22:45	02/13/22 18:46	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/15/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.67		mg/kg	2.39	0.128	1	02/09/22 22:45	02/13/22 16:37	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-03
Date Collected: 02/08/22 12:00
Client ID: FB-220208-1
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:21	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-04
Date Collected: 02/08/22 14:00
Client ID: FB-220208-2
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:26	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04 Batch: WG1603140-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:11	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1603164-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2206607

Report Date: 02/15/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 Batch: WG1603140-2								
Lead, Total	106		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03
Lab Number: L2206607
Report Date: 02/15/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1603140-3 QC Sample: L2206637-01 Client ID: MS Sample												
Lead, Total	1.260	530	568.2	107		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	**73**	Q	41.5	**65**	Q	75-125	9		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1603140-4 QC Sample: L2206637-01 Client ID: DUP Sample						
Lead, Total	1.260	1.326	ug/l	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-01
Client ID: PB-28-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:40
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	02/09/22 08:13	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/15/22

SAMPLE RESULTS

Lab ID: L2206607-02
Client ID: PB-28-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:50
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	02/09/22 08:13	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1602926-1 QC Sample: L2206608-01 Client ID: DUP Sample						
Solids, Total	91.4	90.8	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-01A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206607-01B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 06:40	PA-8260HLW(14)
L2206607-01C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260HLW(14)
L2206607-01D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-01F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-02A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206607-02B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-02F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-03A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-03E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-03F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-04A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-04E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/15/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-04F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-05A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-05B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206607

Project Information

Project Name: Philadelphia Refinery - Soil Characterization

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06607-01	PB-28-05-5501	2/8	1340	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
02	PB-28-08-5501		1350	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
03	FB-220208-1		1200	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
04	FB-220208-2		1400	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
05	TB-220208		-	W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		2
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1636	[signature] AAL	2/8 1636
[signature] AAL	2/8 1800	[signature]	2/8 1800
[signature]	2-8 2030	Yuthavy Tuon	2/8/22 2030
Yuthavy Tuon	2/8/22	[signature] AAL	2/8/22 2355
[signature] AAL	2/9/22 0155	[signature]	2/9/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

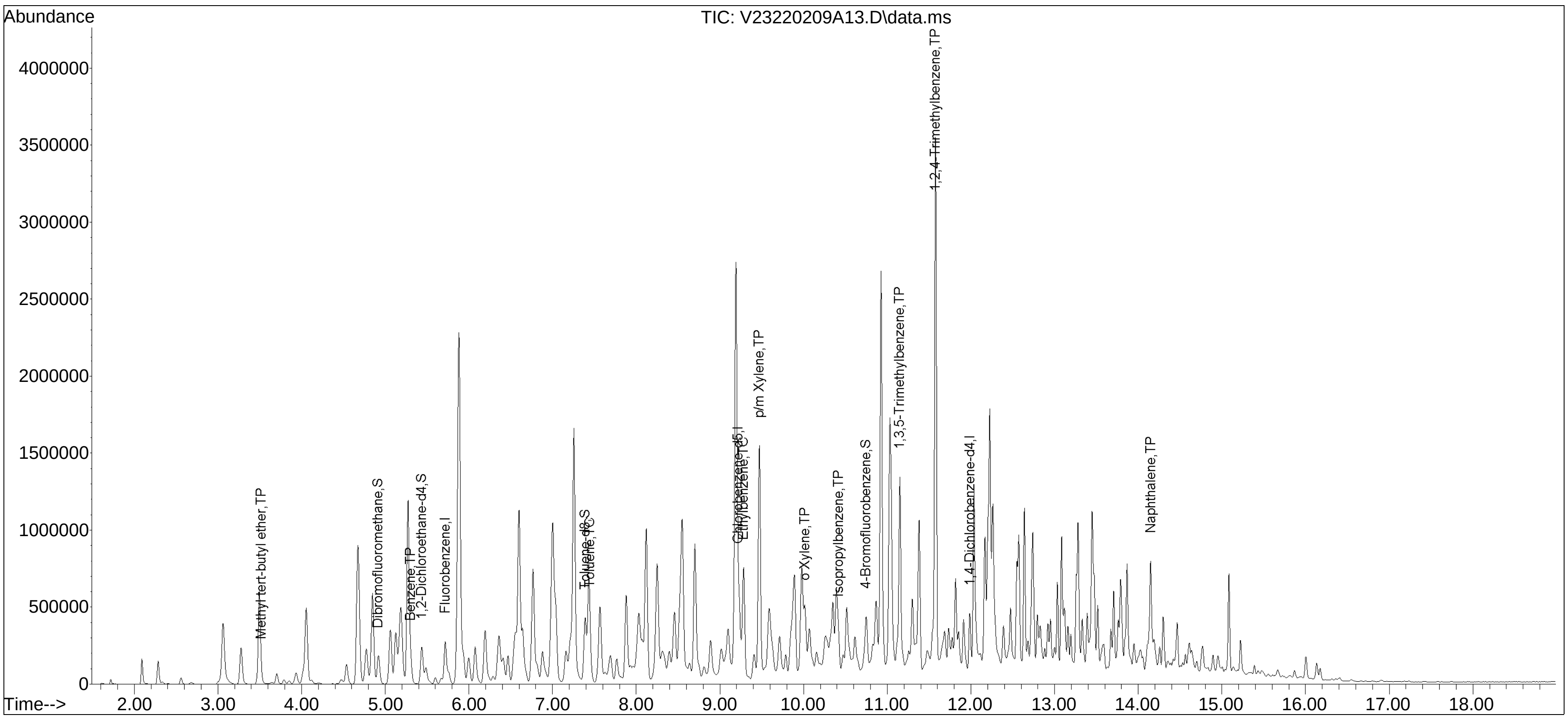
FORM NO. 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220209A\
Data File : V23220209A13.D
Acq On : 09 Feb 2022 03:13 pm
Operator : VOA123:AJK
Sample : L2206607-01D,31H,6.44,5,0.020,,A,R2F
Misc : WG1603551,ICAL18401
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 09 19:35:18 2022
Quant Method : I:\VOLATILES\VOA123\2022\220209A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V23220209A01.D•

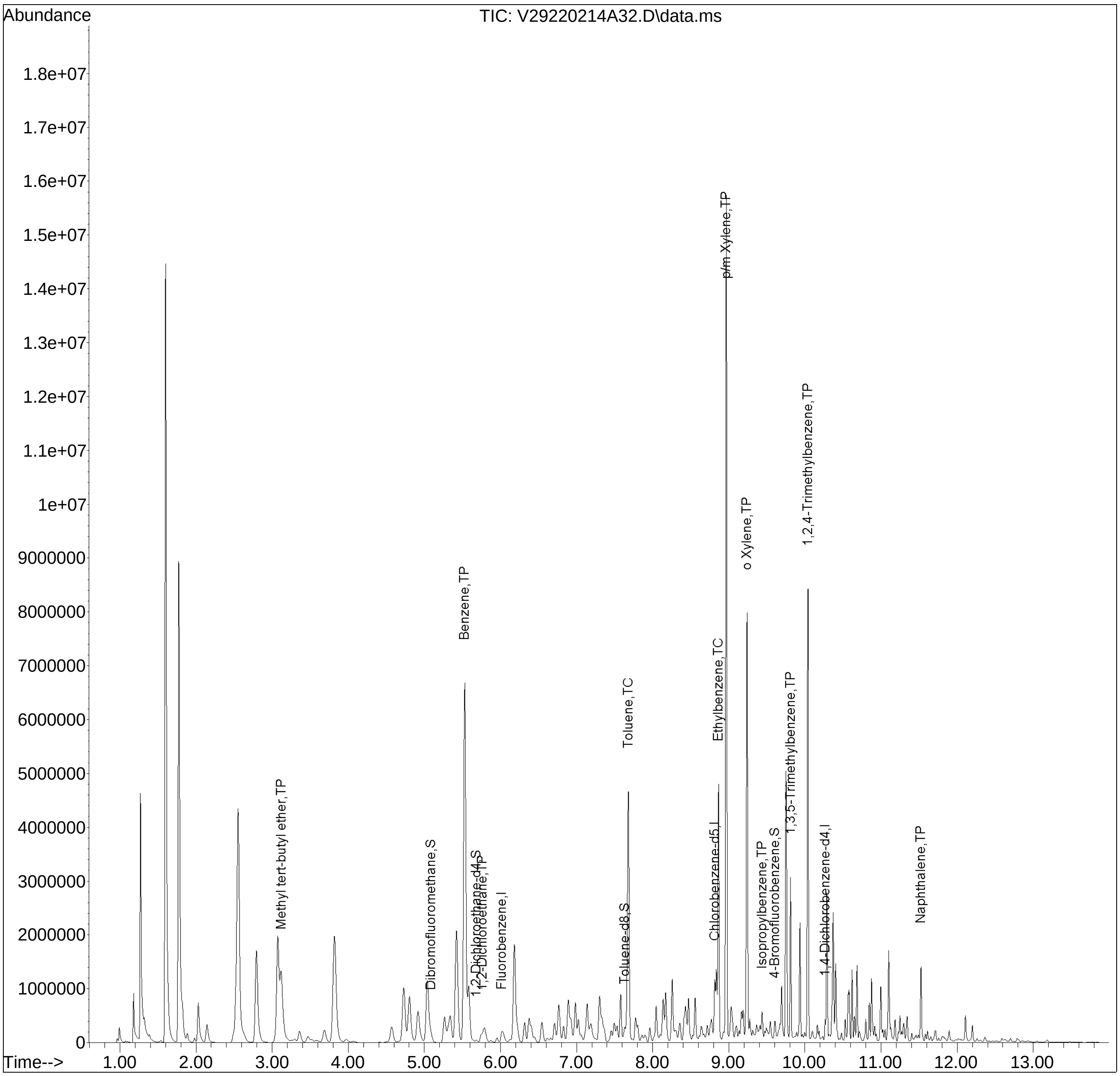


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA129\2022\220214A\
Data File : V29220214A32.D
Acq On    : 15 Feb 2022  01:08 am
Operator  : VOA129:JC
Sample    : L2206607-02,31,5.30,5,,B,R2F
Misc      : WG1605096,ICAL18564
ALS Vial  : 32   Sample Multiplier: 1

Quant Time: Feb 15 09:17:36 2022
Quant Method : I:\VOLATILES\VOA129\2022\220214A\V129_211213N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V29220214A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2206903
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	03/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206903-01	PB-28-19R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 10:20	02/09/22
L2206903-02	PB-28-19R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 10:40	02/09/22
L2206903-03	PB-37-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 12:35	02/09/22
L2206903-04	PB-37-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 12:45	02/09/22
L2206903-05	PB-37-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 13:10	02/09/22
L2206903-06	PB-37-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 13:15	02/09/22
L2206903-07	PB-37-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 13:20	02/09/22
L2206903-08	PB-38-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 14:30	02/09/22
L2206903-09	PB-38-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:35	02/09/22
L2206903-10	PB-38-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 14:40	02/09/22
L2206903-11	PB-38-13R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:50	02/09/22
L2206903-12	PB-38-13R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 15:00	02/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

March 02, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206903-02, -04, and -12; and the results of the Total Lead analysis performed on L2206903-07.

February 22, 2022: This is a preliminary report. Report Revision: At the client's request, the Volatile Organics reporting list has been amended on L2206903-01.

February 16, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2206903-04: The sample was analyzed with the method required holding time exceeded.

L2206903-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (326%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2206903-01: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

Total Metals

The WG1603728-3 MS recovery, performed on L2206903-05, is outside the acceptance criteria for lead (68%). A post digestion spike was performed and yielded an unacceptable recovery for lead (49%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the

Case Narrative (continued)

native sample should be considered estimated.

The WG1603728-6 serial dilution analysis, associated with L2206903-05, had a %D above the acceptance criteria for lead (35%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 03/02/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-01 D	Date Collected:	02/09/22 10:20
Client ID:	PB-28-19R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:44
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	24.		mg/kg	1.6	0.52	50
Toluene	510		mg/kg	3.2	1.7	50
Ethylbenzene	120		mg/kg	3.2	0.44	50
p/m-Xylene	550		mg/kg	6.3	1.8	50
o-Xylene	200		mg/kg	3.2	0.92	50
Xylenes, Total	750		mg/kg	3.2	0.92	50
1,3,5-Trimethylbenzene	79.		mg/kg	6.3	0.61	50
1,2,4-Trimethylbenzene	240		mg/kg	6.3	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903

Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-02	D	Date Collected:	02/09/22 10:40
Client ID:	PB-28-19R-14.0-14.5		Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:13
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	51.		mg/kg	0.32	0.11	10
Toluene	9.9		mg/kg	0.65	0.35	10
Ethylbenzene	95.		mg/kg	0.65	0.092	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-03 D	Date Collected:	02/09/22 12:35
Client ID:	PB-37-05R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/11/22 14:04
Analyst:	JC
Percent Solids:	90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	11.		mg/kg	1.7	0.58	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-04	Date Collected:	02/09/22 12:45
Client ID:	PB-37-05R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 20:56
Analyst: MKS
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0080		mg/kg	0.00050	0.00017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**326**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-11	Date Collected:	02/09/22 14:50
Client ID:	PB-38-13R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:25
Analyst: JC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	3.0		mg/kg	0.024	0.0078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	82		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-12	Date Collected:	02/09/22 15:00
Client ID:	PB-38-13R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:41
Analyst: KDU
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.16		mg/kg	0.035	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,11 Batch: WG1604658-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1608829-10					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:26
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1610140-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,11 Batch: WG1604658-3 WG1604658-4								
Benzene	85		85		70-130	0		30
Toluene	91		89		70-130	2		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1608829-8 WG1608829-9								
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
Ethylbenzene	98		100		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206903

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1610140-3 WG1610140-4								
Benzene	87		84		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	98		98		70-130

SEMIVOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-01	Date Collected:	02/09/22 10:20
Client ID:	PB-28-19R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/15/22 21:06
Analytical Date:	02/16/22 11:36		
Analyst:	IM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	23.		mg/kg	0.58	0.071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	82		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/16/22 01:12
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 02/15/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206903

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120

METALS

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-05
Client ID: PB-37-11R-0.0-0.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 13:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	161		mg/kg	2.30	0.123	1	02/11/22 09:25	02/13/22 17:41	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-06 Date Collected: 02/09/22 13:15
Client ID: PB-37-11R-6.0-6.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	854		mg/kg	2.26	0.121	1	02/11/22 09:25	02/13/22 17:05	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-07
Date Collected: 02/09/22 13:20
Client ID: PB-37-11R-14.0-14.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	52.2		mg/kg	2.38	0.128	1	02/23/22 22:40	03/02/22 11:35	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-08 Date Collected: 02/09/22 14:30
Client ID: PB-38-11R-0.0-0.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.7		mg/kg	2.15	0.115	1	02/11/22 09:25	02/13/22 17:18	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-09	Date Collected:	02/09/22 14:35
Client ID:	PB-38-11R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	22.6		mg/kg	2.21	0.118	1	02/11/22 09:25	02/13/22 17:23	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 05-06,08-09 Batch: WG1603728-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 07 Batch: WG1608436-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03
Lab Number: L2206903
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 07 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03
Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5												
Lead, Total	161	48.8	194	**68**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	**44**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	190	mg/kg	17		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	**23**	Q	20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	218	mg/kg	**35**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-01	Date Collected:	02/09/22 10:20
Client ID:	PB-28-19R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-02
Date Collected: 02/09/22 10:40
Client ID: PB-28-19R-14.0-14.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-03
Date Collected: 02/09/22 12:35
Client ID: PB-37-05R-6.0-6.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-04
Date Collected: 02/09/22 12:45
Client ID: PB-37-05R-14.0-14.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-05 Date Collected: 02/09/22 13:10
Client ID: PB-37-11R-0.0-0.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-06 Date Collected: 02/09/22 13:15
Client ID: PB-37-11R-6.0-6.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-07	Date Collected:	02/09/22 13:20
Client ID:	PB-37-11R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-08	Date Collected:	02/09/22 14:30
Client ID:	PB-38-11R-0.0-0.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2206903-09	Date Collected:	02/09/22 14:35
Client ID:	PB-38-11R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-11
Date Collected: 02/09/22 14:50
Client ID: PB-38-13R-6.0-6.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2206903-12
Client ID: PB-38-13R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 15:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,05-06,08-09,11 QC Batch ID: WG1603384-1 QC Sample: L2206903-01 Client ID: PB-28-19R-6.0-6.5						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,07,12 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206903-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206903-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-01E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206903-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7),HOLD-8270(14)
L2206903-02E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		HOLD-8270(14)
L2206903-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-05A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-05B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-06A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-06B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206903-07A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-07B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-08A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-08B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-09A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-09B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-10A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2206903-10B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		HOLD-METAL(180)
L2206903-11A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-11B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2206903-12A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-12B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206903

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Sampling

Criteria:

Turn-Around Time

~~☒ Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYLBENZENE	XYLENES			Sample Specific Comments	TOTAL # BOTTLES
06903-01	PB-28-19R-6.0-6.5	2/9	1020	S	TS	☐	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐		5
02	PB-28-19R-14.0-14.5		1040			☐	☑	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	HOLD	4
03	PB-37-05R-6.0-6.5		1235			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
04	PB-37-05R-14.0-14.5		1245			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
05	PB-37-11R-0.0-0.5		1310			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
06	PB-37-11R-6.0-6.5		1315			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
07	PB-37-11R-14.0-14.5		1320			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2
08	PB-38-11R-0.0-0.5		1430			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
09	PB-38-11R-6.0-6.5		1435			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
10	PB-38-11R-14.0-14.5		1440			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature] AAL	2/9 1540
[signature] AAL	2/9 1800	[signature] AAL	2/9/22 1800
[signature] AAL	2/9/22	Anthony Tree	2/9/22 2030
Anthony Tree	2/9/22	[signature] AAL	2/10/22 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206903

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ TS ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene							Sample Specific Comments	TOTAL # BOTTLES
06903-11	PB-38-13R-6.0-6.5	2/4	1450	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
12	PB-38-13R-14.0-14.5	2/4	1500	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature]	2/9 1540
[signature] AAL	2/9 1800	[signature] AAL	2/9/22 1800
[signature] AAL	2/9/22	Anthony J. [signature]	2/9/22 2030
Anthony J. [signature]	2/9/22	[signature] AAL	2/10/22 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

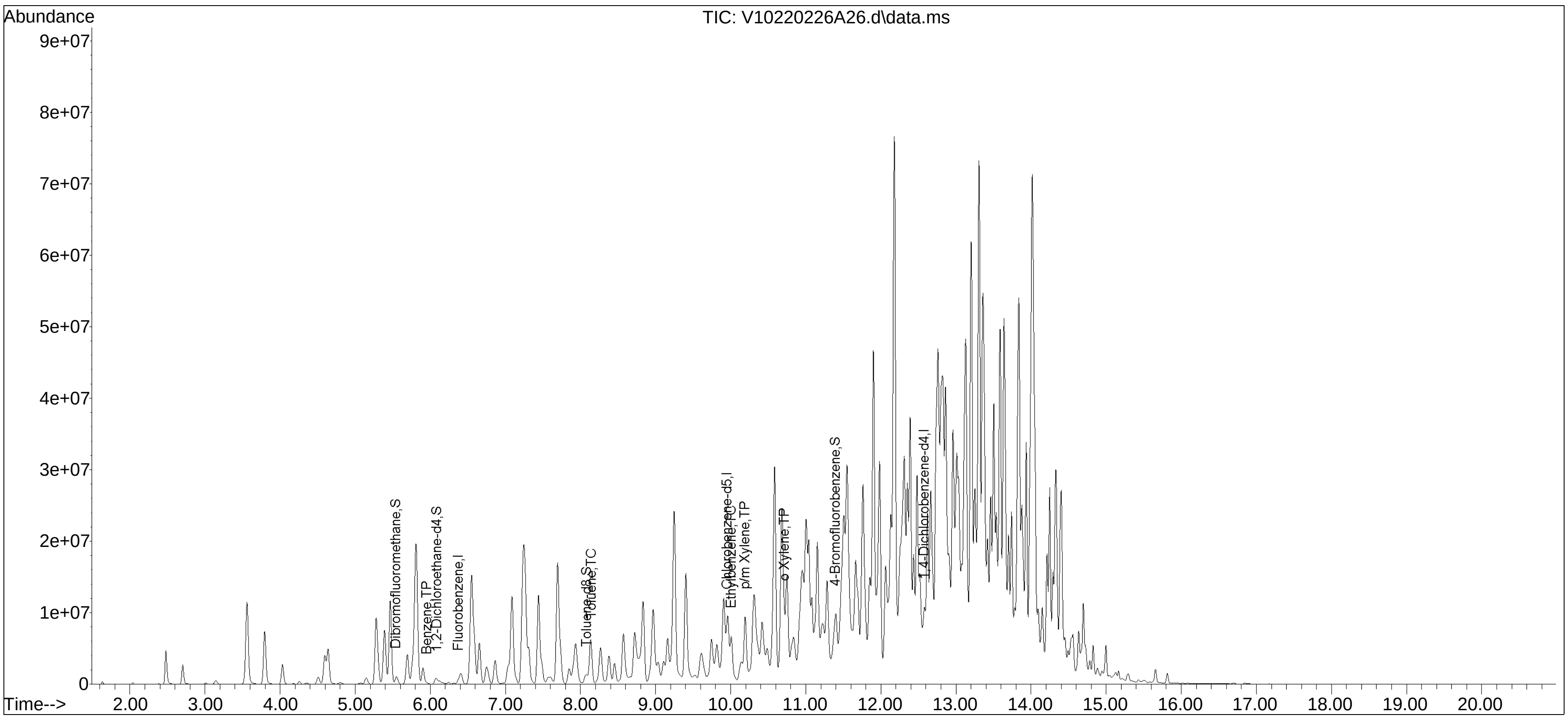
FORM NO: 01-01(HAN) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220226A\
Data File : V10220226A26.d
Acq On : 26 Feb 2022 8:56 pm
Operator : VOA110:MKS
Sample : L2206903-04,31,5.41,5,,B,R2F
Misc : WG1610140,ICAL18690
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Feb 28 17:06:29 2022
Quant Method : I:\VOLATILES\VOA110\2022\220226A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-BTEX - Standard BTEX List20226A\V10220226A01.d•



ANALYTICAL REPORT

Lab Number:	L2206907
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/16/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206907-01	PB-28-09-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:30	02/09/22
L2206907-02	PB-28-10-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:50	02/09/22
L2206907-03	PB-28-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:10	02/09/22
L2206907-04	PB-28-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:20	02/09/22
L2206907-05	PB-37-04-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:10	02/09/22
L2206907-06	PB-37-07-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:20	02/09/22
L2206907-07	PB-37-08-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:30	02/09/22
L2206907-08	PB-37-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:40	02/09/22
L2206907-09	PB-37-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:50	02/09/22
L2206907-10	FB-220209	WATER	PHILADELPHIA, PA	02/09/22 12:00	02/09/22
L2206907-11	TB-220209	WATER	PHILADELPHIA, PA	02/09/22 00:00	02/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206907-10: Sample containers for the Microextractables analysis were received for the "FB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

L2206907-11: Sample containers for the Microextractables analysis were received for the "TB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206907-01: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2206907-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (225%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206907-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (63%) and dibromofluoromethane (63%) due to interference with the Internal Standard.

L2206907-02D, -03D, and -09D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2206907-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206907-03D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2206907-06: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (60%) and dibromofluoromethane (63%) due to interference with the Internal Standard.
L2206907-08: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2206907-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206907-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 02/16/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-01	Date Collected:	02/09/22 08:30
Client ID:	PB-28-09-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:37
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.44	E	mg/kg	0.0020	0.00020	1
Benzene	0.55	E	mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0078		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.10		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.061		mg/kg	0.0020	0.00056	1
o-Xylene	0.0036		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.065		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.059		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0051		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0089		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**63**	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**225**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01 Date Collected: 02/09/22 08:30
Client ID: PB-28-09-SS01 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 18:17
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.76		mg/kg	0.12	0.012	1
Benzene	1.1		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.034	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.26		mg/kg	0.060	0.0084	1
p/m-Xylene	0.20		mg/kg	0.12	0.033	1
o-Xylene	0.028	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.23	J	mg/kg	0.060	0.017	1
Isopropylbenzene	0.14		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.097	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02 D
Client ID: PB-28-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	1.4		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	0.37		mg/kg	0.13	0.072	2
1,2-Dibromoethane	ND		mg/kg	0.066	0.039	2
Ethylbenzene	5.3		mg/kg	0.13	0.019	2
p/m-Xylene	4.8		mg/kg	0.26	0.074	2
o-Xylene	0.59		mg/kg	0.13	0.038	2
Xylenes, Total	5.4		mg/kg	0.13	0.038	2
Isopropylbenzene	2.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.77		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	4.9		mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03 D
Client ID: PB-28-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 09:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 11:18
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.27	0.027	2
Benzene	0.030	J	mg/kg	0.067	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.073	2
1,2-Dibromoethane	ND		mg/kg	0.067	0.039	2
Ethylbenzene	2.6		mg/kg	0.13	0.019	2
p/m-Xylene	0.15	J	mg/kg	0.27	0.075	2
o-Xylene	0.039	J	mg/kg	0.13	0.039	2
Xylenes, Total	0.19	J	mg/kg	0.13	0.039	2
Isopropylbenzene	1.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	1.2		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	3.7		mg/kg	0.27	0.045	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-04	Date Collected:	02/09/22 09:20
Client ID:	PB-28-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 11:39
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00047	J	mg/kg	0.0025	0.00025	1
Benzene	0.20		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0041		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.020		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.025		mg/kg	0.0025	0.00070	1
o-Xylene	0.0032		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.028		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.012		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.048		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-05	Date Collected:	02/09/22 11:10
Client ID:	PB-37-04-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:00
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0029		mg/kg	0.0018	0.00018	1
Benzene	0.00024	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.00016	J	mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00040	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Client ID: PB-37-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 11:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:21
Analyst: JC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0018	0.00018	1
Benzene	0.021		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.012		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.081		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.13		mg/kg	0.0018	0.00050	1
o-Xylene	0.0080		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.14		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.031		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**60**	Q	70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:41
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00072	J	mg/kg	0.0020	0.00020	1
Benzene	0.00019	J	mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.00015	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-08	Date Collected:	02/09/22 11:40
Client ID:	PB-37-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:02
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.017	J	mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.050	0.013	1
Toluene	0.034	J	mg/kg	0.050	0.027	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.19		mg/kg	0.050	0.0071	1
p/m-Xylene	0.18		mg/kg	0.10	0.028	1
o-Xylene	0.039	J	mg/kg	0.050	0.015	1
Xylenes, Total	0.22	J	mg/kg	0.050	0.015	1
Isopropylbenzene	0.27		mg/kg	0.050	0.0055	1
1,3,5-Trimethylbenzene	0.042	J	mg/kg	0.10	0.0097	1
1,2,4-Trimethylbenzene	0.13		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**164**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09 D
Client ID: PB-37-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:23
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92	J	mg/kg	1.1	0.11	10
Benzene	1.7		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	ND		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	0.56		mg/kg	0.56	0.079	10
p/m-Xylene	ND		mg/kg	1.1	0.32	10
o-Xylene	ND		mg/kg	0.56	0.16	10
Xylenes, Total	ND		mg/kg	0.56	0.16	10
Isopropylbenzene	3.8		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	ND		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	ND		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
Client ID: FB-220209
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/11/22 16:56
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 02/11/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-10	Date Collected:	02/09/22 12:00
Client ID:	FB-220209	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/10/22 10:23
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-11	Date Collected:	02/09/22 00:00
Client ID:	TB-220209	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/11/22 14:30
Analytical Date:	02/11/22 17:04		
Analyst:	GT		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-11	Date Collected:	02/09/22 00:00
Client ID:	TB-220209	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/10/22 10:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/10/22 08:21
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1604023-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/11/22 15:57
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 02/11/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 10-11 Batch: WG1604118-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08-09 Batch: WG1604658-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-07 Batch: WG1604660-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1604023-3 WG1604023-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		110		70-130	10		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		100		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	98		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 10-11 Batch: WG1604118-2									
1,2-Dibromoethane	110		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08-09 Batch: WG1604658-3 WG1604658-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-07 Batch: WG1604660-3 WG1604660-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

SEMIVOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-01	Date Collected:	02/09/22 08:30
Client ID:	PB-28-09-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:52		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	54		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-02	Date Collected:	02/09/22 08:50
Client ID:	PB-28-10-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 17:15		
Analyst:	WR		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.19	J	mg/kg	0.20	0.024	1
Fluorene	0.45		mg/kg	0.20	0.020	1
Phenanthrene	0.74		mg/kg	0.12	0.024	1
Anthracene	0.086	J	mg/kg	0.12	0.039	1
Pyrene	0.030	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	53		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
Client ID: PB-28-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/14/22 17:37
Analyst: WR
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.6		mg/kg	0.21	0.025	1
Fluorene	0.19	J	mg/kg	0.21	0.020	1
Phenanthrene	0.27		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	0.023	J	mg/kg	0.12	0.021	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.051	1
Benzo(ghi)perylene	ND		mg/kg	0.17	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	58		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
Client ID: PB-28-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 09:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/14/22 18:00
Analyst: WR
Percent Solids: 80%
Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.025	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	74		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-05	Date Collected:	02/09/22 11:10
Client ID:	PB-37-04-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 18:22		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	81		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Client ID: PB-37-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/14/22 18:45
Analyst: WR
Percent Solids: 93%

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	47		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 19:07		
Analyst:	WR		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-08	Date Collected:	02/09/22 11:40
Client ID:	PB-37-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 19:29		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-09	Date Collected:	02/09/22 11:50
Client ID:	PB-37-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/15/22 21:06
Analytical Date:	02/16/22 11:59		
Analyst:	IM		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	81		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
Client ID: FB-220209
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 12:58
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:42

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	72		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 18:02
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG1604253-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 11:37
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 10 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/16/22 01:12
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 02/15/22 08:00

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 09 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 10 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 09 Batch: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120

METALS

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
Date Collected: 02/09/22 08:30
Client ID: PB-28-09-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.50		mg/kg	2.31	0.124	1	02/11/22 09:25	02/13/22 17:28	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-02	Date Collected:	02/09/22 08:50
Client ID:	PB-28-10-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.65		mg/kg	2.33	0.125	1	02/11/22 09:25	02/13/22 17:32	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-03	Date Collected:	02/09/22 09:10
Client ID:	PB-28-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.82		mg/kg	2.37	0.127	1	02/11/22 09:25	02/13/22 17:37	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
Date Collected: 02/09/22 09:20
Client ID: PB-28-14-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	35.5		mg/kg	2.41	0.129	1	02/11/22 09:25	02/13/22 18:13	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05 Date Collected: 02/09/22 11:10
Client ID: PB-37-04-SS01 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.4		mg/kg	2.04	0.109	1	02/11/22 09:25	02/13/22 18:18	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Client ID: PB-37-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 11:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.19		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:22	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.9		mg/kg	2.12	0.114	1	02/11/22 09:25	02/13/22 18:27	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08 Date Collected: 02/09/22 11:40
Client ID: PB-37-13-SS01 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	58.5		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:32	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-09	Date Collected:	02/09/22 11:50
Client ID:	PB-37-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.42		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:37	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
Date Collected: 02/09/22 12:00
Client ID: FB-220209
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/10/22 13:15	02/10/22 20:25	EPA 3005A	1,6020B	SV

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10 Batch: WG1603545-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/10/22 13:15	02/10/22 18:08	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1603728-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1603545-2								
Lead, Total	96		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-3 QC Sample: L2206783-01 Client ID: MS Sample												
Lead, Total	1.486	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: MS Sample												
Lead, Total	161	48.8	194	**68**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-4 QC Sample: L2206783-01 Client ID: DUP Sample						
Lead, Total	1.486	1.504	ug/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	190	mg/kg	17		20

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	218	mg/kg	**35**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
Date Collected: 02/09/22 08:30
Client ID: PB-28-09-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02
Client ID: PB-28-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
Client ID: PB-28-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-04	Date Collected:	02/09/22 09:20
Client ID:	PB-28-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
Date Collected: 02/09/22 11:10
Client ID: PB-37-04-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Date Collected: 02/09/22 11:20
Client ID: PB-37-07-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08 Date Collected: 02/09/22 11:40
Client ID: PB-37-13-SS01 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.5		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09
Client ID: PB-37-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1603381-1 QC Sample: L2205996-17 Client ID: DUP Sample						
Solids, Total	96.8	97.2	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206907-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-01F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-02F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-03F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-04F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-05A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-05B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-05E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-06A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-06B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-06E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-07A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-07B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-07E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-08A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-08B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-08E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-09A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-09B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-09E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-10A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-10B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10C	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10E	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10F	Plastic 250ml HNO3 preserved	B	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2206907-10G	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-10H	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-11A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11C	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-11D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206907

Project Information

Project Name: Philadelphia Refinery SOIL CHARACTERIZATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ ☒ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06907-01	PB-28-09-SS01	2/9	830	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
02	PB-28-10-SS01		850	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
03	PB-28-13-SS01		910	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
04	PB-28-14-SS01		920	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
05	PB-37-04-SS01		1110	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
06	PB-37-07-SS01		1120	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
07	PB-37-08-SS01		1130	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
08	PB-37-13-SS01		1140	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
09	PB-37-14-SS01		1150	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
10	FB-220209		1200	W	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature] AAL	2/9 1540
[signature] AAL	2/9 1800	[signature] AAL	2/9/22 1800
[signature] AAL	2/9/22	Anthony Hee	2/9/22 2030
Anthony Hee	2/9/22	[signature] AAL	2/9/22 0100
[signature] AAL	2/10/22		2/10/22 0255

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206907

Project Information

Project Name: Philadelphia Refinery
Soil Characterization

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

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Client: Ransom Consulting, LLC

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Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Turn-Around Time

☒ ~~Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06907-11	TB-220209	2/9	–	W	TJ	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	2/9 1400	[illegible] AAC	2/9 1540
AAC	2/9 1800	[illegible] AAC	2/9/22 1800
AAC	2/9/22	Anthony Jiree	2/9/22 2000
Anthony Jiree	2/9/22	[illegible] AAC	2/10/22 0100
[illegible]			2/10/22 0735

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

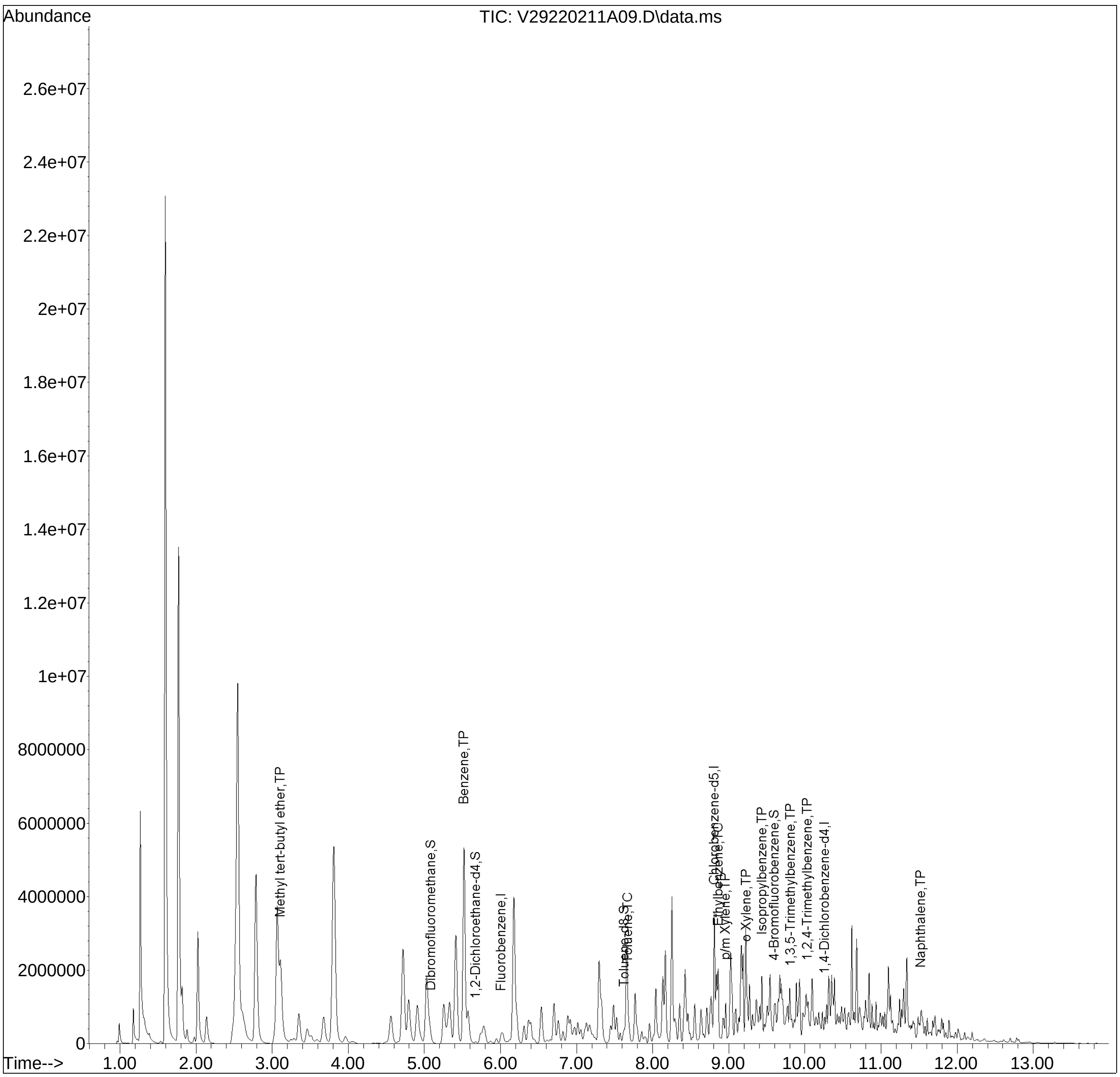
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A09.D
Acq On   : 11 Feb 2022 10:37 am
Operator : VOA129:JC
Sample   : L2206907-01,31,6.14,5,,C,R2F
Misc   : WG1604660,ICAL18564
ALS Vial : 9   Sample Multiplier: 1

Quant Time: Feb 14 07:53:53 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•



Quantitation Report (QT Reviewed)

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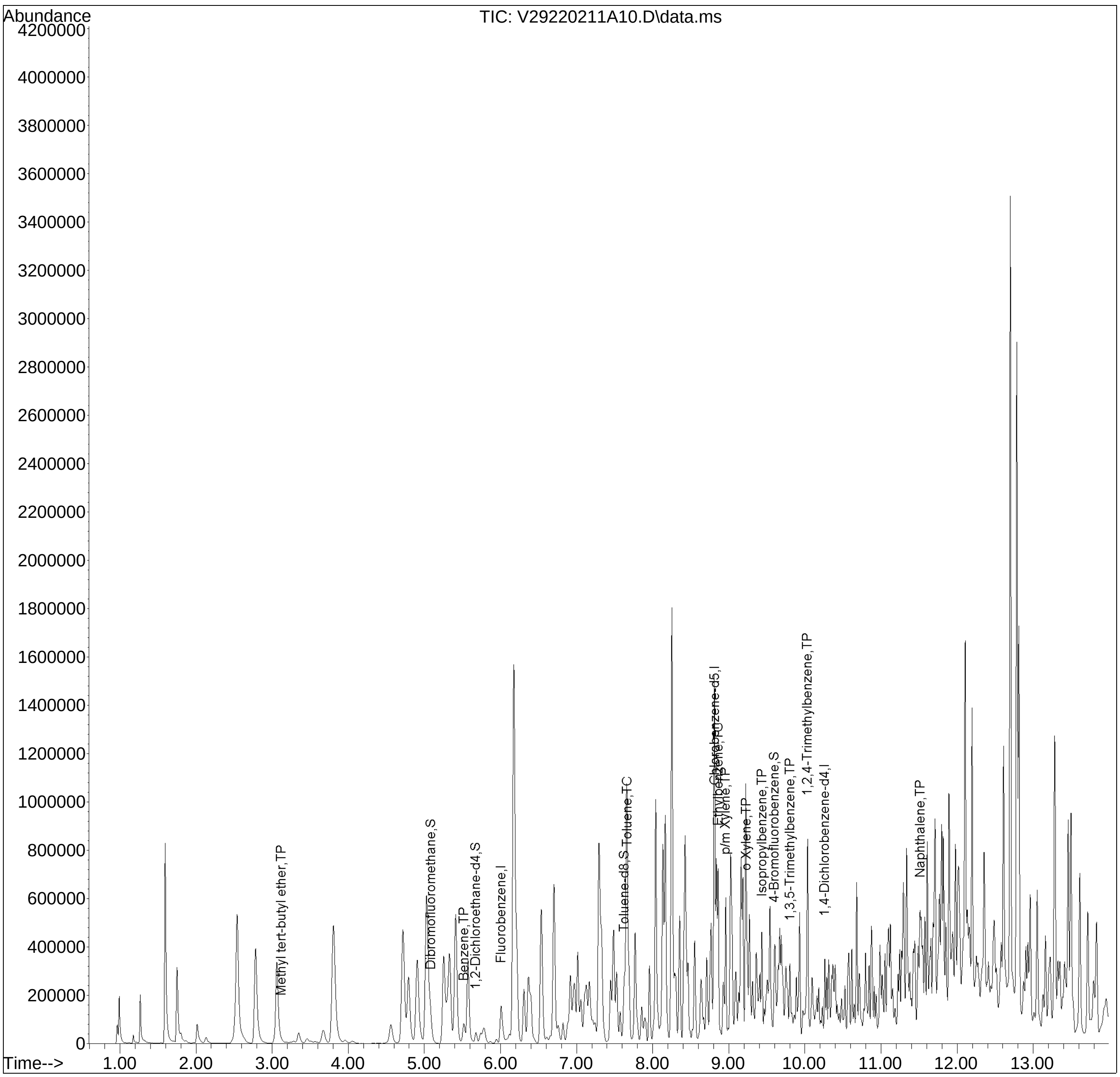
Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A10.D
Acq On    : 11 Feb 2022  10:58 am
Operator  : VOA129:JC
Sample    : L2206907-02D,31H,5.63,5,0.050,,A,R2F
Misc      : WG1604658,ICAL18564
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Feb 14 06:32:26 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•
```

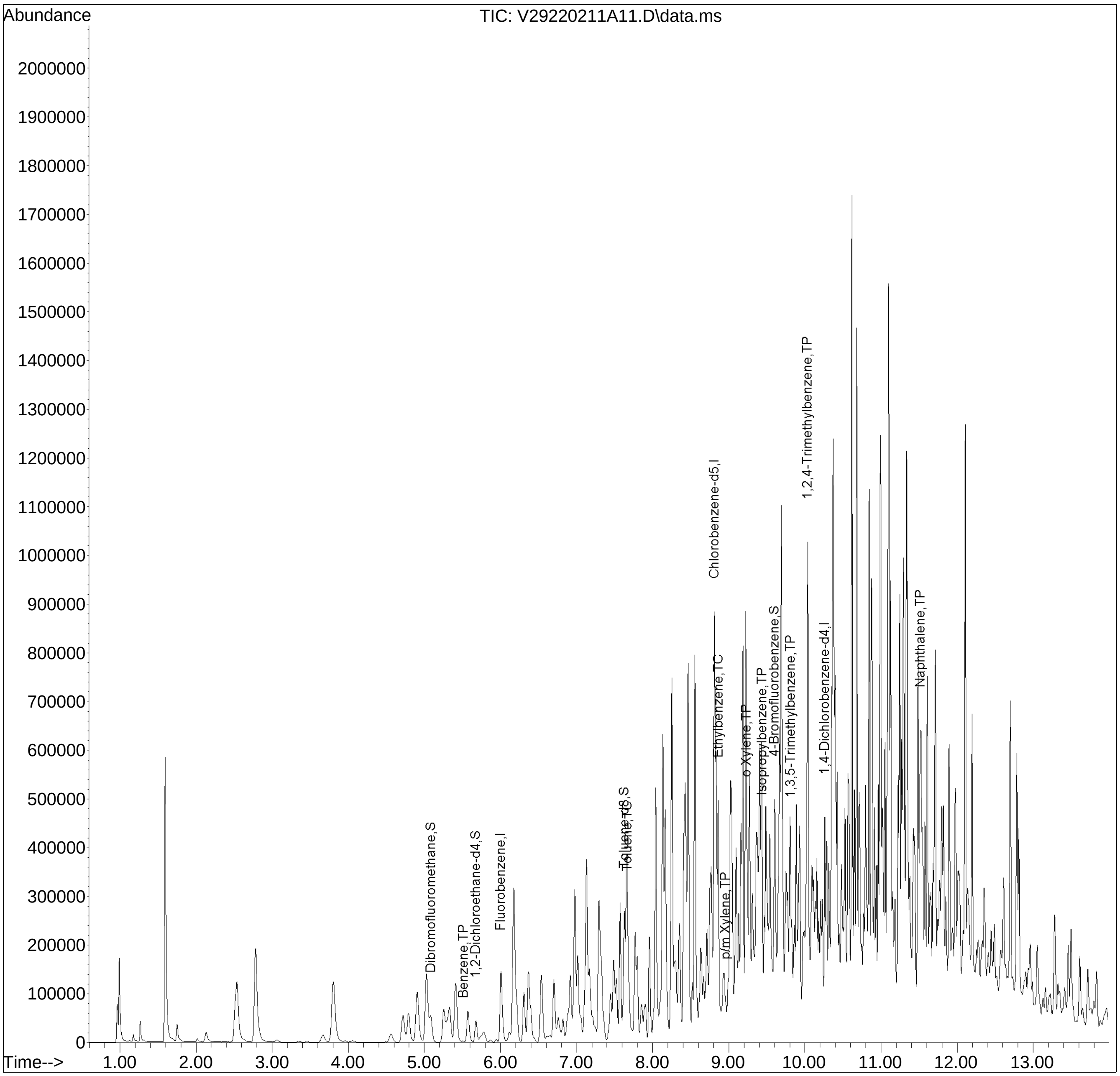


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A11.D
Acq On   : 11 Feb 2022 11:18 am
Operator : VOA129:JC
Sample   : L2206907-03D,31H,5.80,5,0.050,,A,R2F
Misc   : WG1604658,ICAL18564
ALS Vial : 11   Sample Multiplier: 1

Quant Time: Feb 14 07:55:41 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

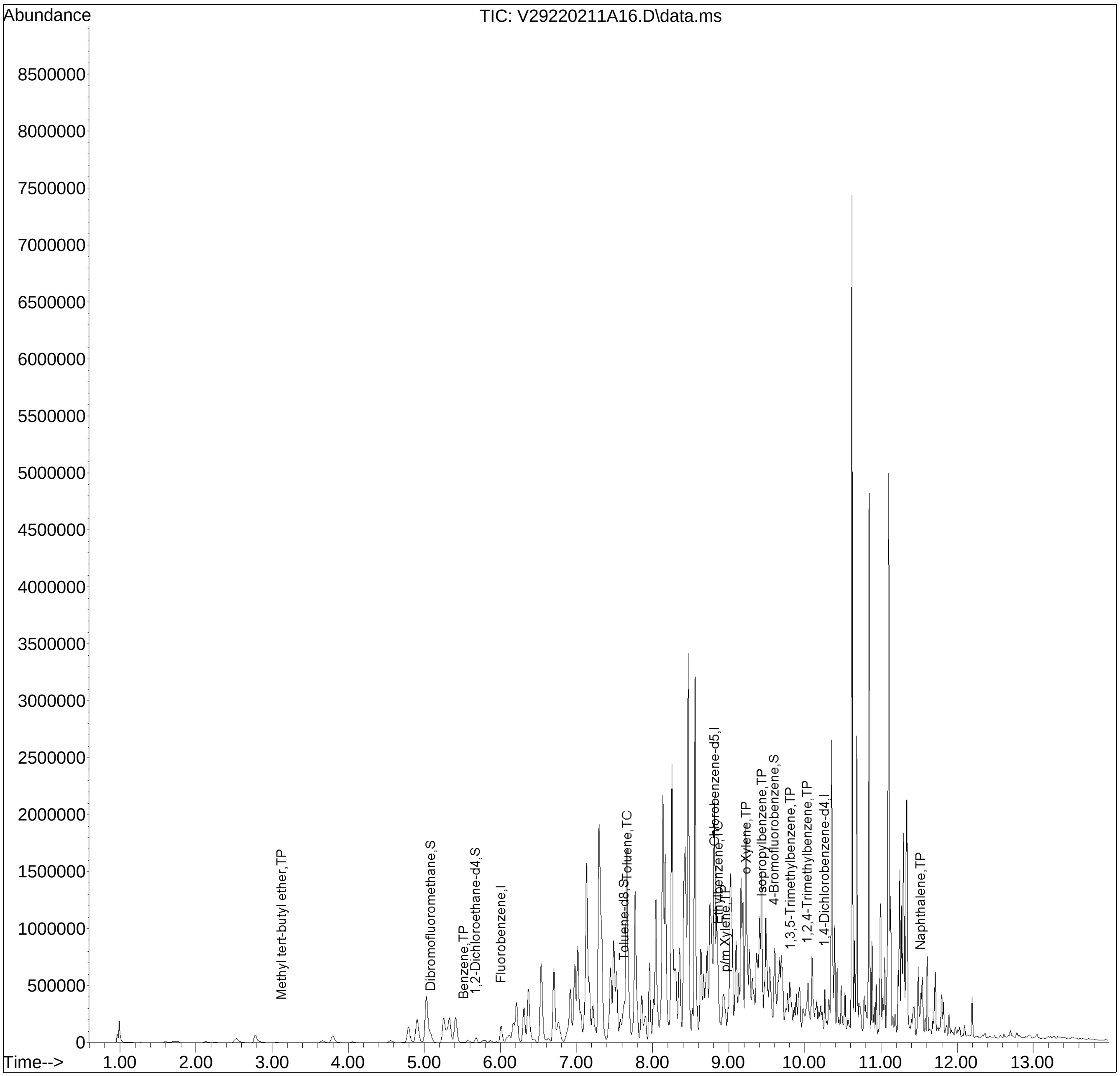


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A16.D
Acq On : 11 Feb 2022 01:02 pm
Operator : VOA129:JC
Sample : L2206907-08,31H,5.69,5,0.100,,A,R2F
Misc : WG1604658,ICAL18564
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 07:58:50 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

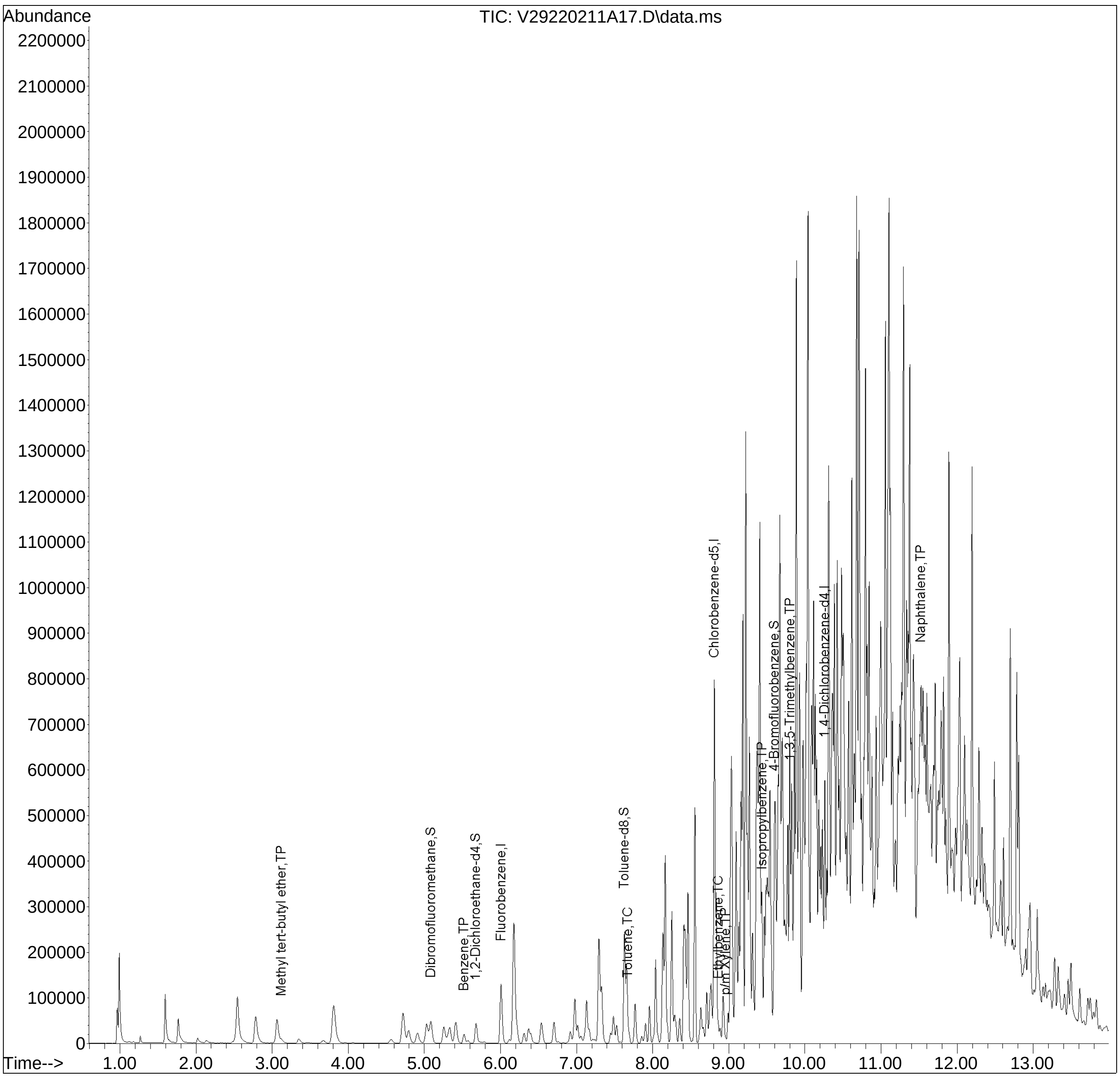


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A17.D
Acq On : 11 Feb 2022 01:23 pm
Operator : VOA129:JC
Sample : L2206907-09D,31H,5.02,5,0.010,,A,R2F
Misc : WG1604658,ICAL18564
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Feb 14 07:59:20 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•



ANALYTICAL REPORT

Lab Number:	L2207184
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	03/01/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 03/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207184-01	PB-39-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:15	02/10/22
L2207184-02	PB-39-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:25	02/10/22
L2207184-03	PB-85-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:45	02/10/22
L2207184-04	PB-85-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:55	02/10/22
L2207184-05	PB-36-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:00	02/10/22
L2207184-06	PB-36-07R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 11:40	02/10/22
L2207184-07	PB-36-07R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/10/22 11:30	02/10/22
L2207184-08	PB-36-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:50	02/10/22
L2207184-09	PB-35-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-10	PB-35-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-11	PB-36-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 10:45	02/10/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207184-02, -04, and -09.

Report Revision

February 22, 2022. This is a preliminary report. At the client's request, the Volatile Organics reporting list has been amended on L2207184-11, and the Client IDs have been revised on L2207184-07 and -08.

Report Submission

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207184-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207184-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207184-06D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2207184-06D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 03/01/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-01	Date Collected:	02/10/22 09:15
Client ID:	PB-39-12R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 16:41
Analyst: KD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.7		mg/kg	0.031	0.010	1
Toluene	7.1		mg/kg	0.062	0.034	1
Ethylbenzene	0.35		mg/kg	0.062	0.0087	1
1,3,5-Trimethylbenzene	0.094	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.46		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-02 D	Date Collected:	02/10/22 09:25
Client ID:	PB-39-12R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 22:36
Analyst: KDU
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	45.		mg/kg	0.70	0.23	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-03 D	Date Collected:	02/10/22 09:45
Client ID:	PB-85-06R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/15/22 17:06
Analyst:	KD
Percent Solids:	85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	18.		mg/kg	0.52	0.17	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-04	Date Collected:	02/10/22 09:55
Client ID:	PB-85-06R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 02/24/22 21:13

Analyst: NLK

Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0031		mg/kg	0.00047	0.00015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-06 D	Date Collected:	02/10/22 11:40
Client ID:	PB-36-07R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/15/22 17:31
Analyst:	KD
Percent Solids:	93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	2.9		mg/kg	0.14	0.020	2.5
p/m-Xylene	4.4		mg/kg	0.28	0.078	2.5
o-Xylene	0.31		mg/kg	0.14	0.041	2.5
Xylenes, Total	4.7		mg/kg	0.14	0.041	2.5
1,3,5-Trimethylbenzene	2.0		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	17.		mg/kg	0.28	0.047	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-09	Date Collected:	02/10/22 14:30
Client ID:	PB-35-08R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 00:24
Analyst: KDU
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.24		mg/kg	0.051	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-10 D
Client ID: PB-35-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:56
Analyst: KD
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	2.5		mg/kg	0.15	0.051	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-11	Date Collected:	02/10/22 10:45
Client ID:	PB-36-03R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 18:21
Analyst: KD
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.00074		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.00041	J	mg/kg	0.0024	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11 Batch: WG1605544-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06,10 Batch: WG1605547-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,09 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/24/22 20:46
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1609164-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11 Batch: WG1605544-3 WG1605544-4								
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06,10 Batch: WG1605547-3 WG1605547-4								
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
Ethylbenzene	103		101		70-130	2		30
p/m-Xylene	103		101		70-130	2		30
o-Xylene	104		101		70-130	3		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,09 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1609164-3 WG1609164-4								
Benzene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		90		70-130
Toluene-d8	92		91		70-130
4-Bromofluorobenzene	85		85		70-130
Dibromofluoromethane	98		102		70-130

SEMIVOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-06	Date Collected:	02/10/22 11:40
Client ID:	PB-36-07R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 13:19
Analytical Date:	02/18/22 00:32		
Analyst:	WR		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.2		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-07
Client ID: PB-36-07R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 08:03
Analyst: IM
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 17:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	69		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/17/22 13:34
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 02/16/22 22:53

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-01	Date Collected:	02/10/22 09:15
Client ID:	PB-39-12R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-02 Date Collected: 02/10/22 09:25
Client ID: PB-39-12R-14.0-14.5 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-03
Client ID: PB-85-06R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 09:45
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-04	Date Collected:	02/10/22 09:55
Client ID:	PB-85-06R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207184-06	Date Collected:	02/10/22 11:40
Client ID:	PB-36-07R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207184

Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-07

Client ID: PB-36-07R-0.0-0.5

Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 11:30

Date Received: 02/10/22

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-09
Client ID: PB-35-08R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 14:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-10
Client ID: PB-35-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 14:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207184-11
Client ID: PB-36-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 10:45
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207184

Report Date: 03/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,06-07,10-11 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: PB-39-12R-6.0-6.5						
Solids, Total	80.4	82.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,09 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207184-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-01B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-02B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-03B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-04B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-05B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-06B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207184-06C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-06D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-06E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		PA-PAH(14)
L2207184-07A	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		TS(7),PA-PAH(14)
L2207184-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-08B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-08E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		HOLD-8270(14)
L2207184-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-11A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-11B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207184

Project Information

Project Name: PES Refinery - ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	~~Benzo(a)pyrene~~ TS	~~Benzo(b)fluoranthene~~ TS	Naphthalene	1,2,4-TMB	1,3,5-TMB	Ethyl Benzene	Xylenes			Sample Specific Comments	Total # Bottles
07184-01	PB-34-12R-6.0-6.5	2/10	09:15	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☐	☐	☐		4
-02	PB-34-12R-14.0-14.5		09:25	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☐	☐	☐	HOLD	4
-03	PB-85-062-6.0-6.5		0945	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-04	PB-85-062-14.0-14.5		0955	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
-05	PB-36-032-14.0-14.5		1100	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☐	HOLD	4
-06	PB-36-072-6.0-6.5		1140	S	TS	☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☐	☐		
-07	PB-37-072-0.0-0.5		1130	S	TS	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
-08	PB-37-072-14.0-14.5		1150	S	TS	☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☐	☐	HOLD	
-09	PB-35-082-14.0-14.5		1420	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
-10	PB-35-082-6.0-6.5		1430	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	STOR. AAL	2/10/22 15:10
[signature] AAL	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	[signature]	2/10/22 2030
[signature]	2/10/22	[signature] AAL	2/11/22 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(rev. 5-JAN-12)

Serial_No:03012219:09

CHAIN OF COUNTODY

PAGE 2 OF 2

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207184

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

~~☒ Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ S

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB					Sample Specific Comments	TOTAL # BOTTLES
07184-11	PB-36-032-6.0-6.5	2/10	~~1055~~ 1045 TS	S	TS	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	STS AAL	2/10/22 15:10
[signature]	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	[signature]	2/10/22 2030
[signature]	2/10/22	[signature] AAL	2/11/22 2005
[signature] AAL	2/11/22 2005	[signature]	2/11/22 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

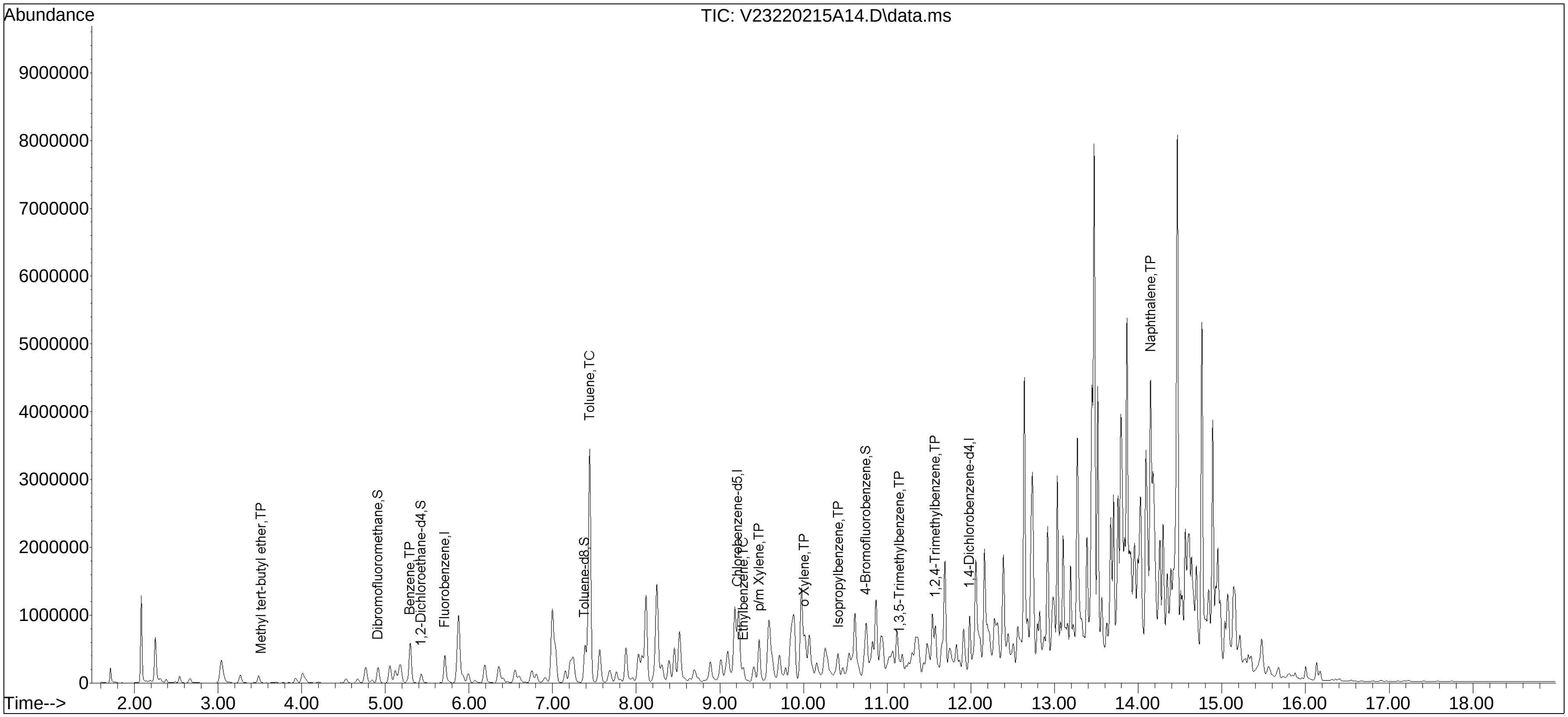
FORM NO: 01-01(I) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A14.D
Acq On : 15 Feb 2022 04:41 pm
Operator : VOA123:KD
Sample : l2207184-01,31H,6.25,5,0.100,,a,r2f
Misc : WG1605547,ICAL18401
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 15 17:36:19 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•

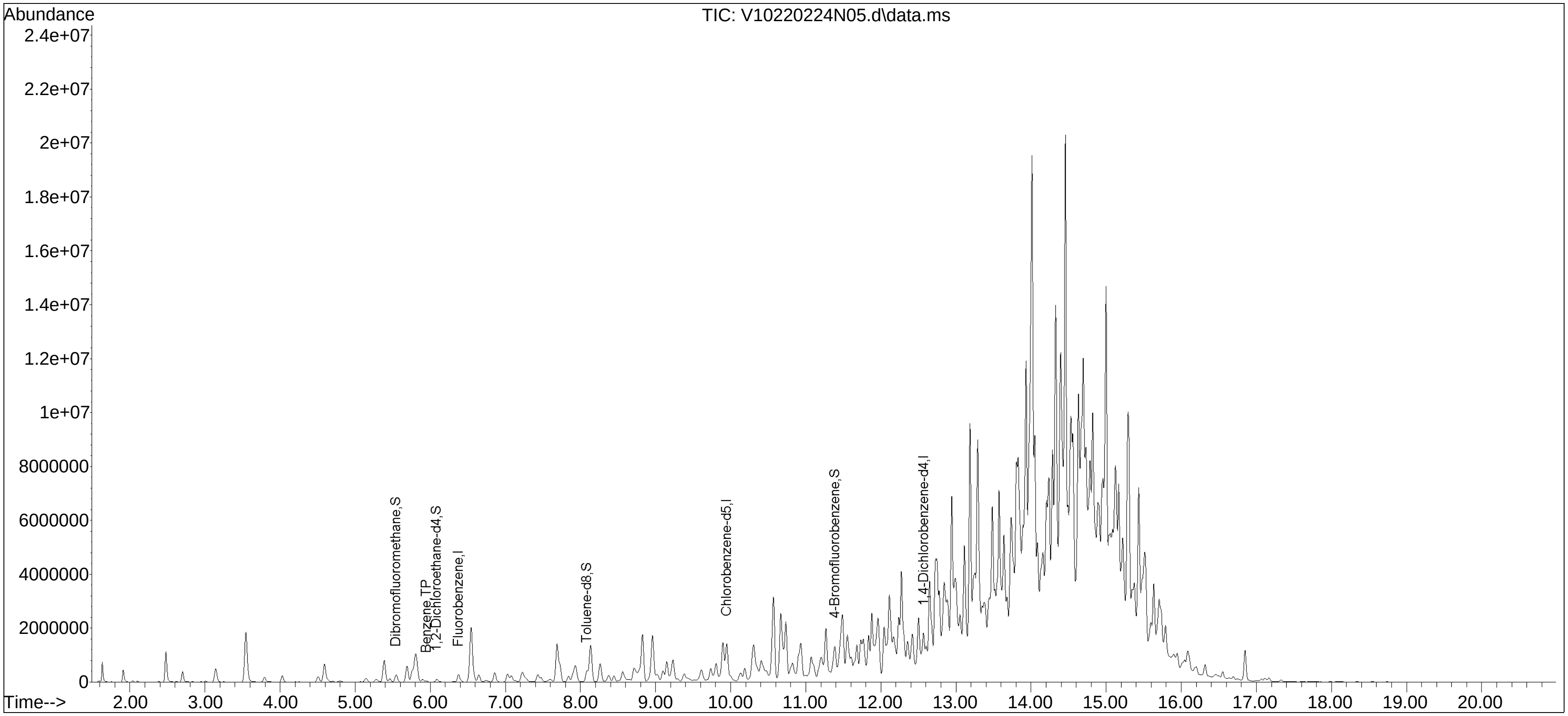


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2022\220224N\
Data File : V10220224N05.d
Acq On    : 24 Feb 2022   9:13 pm
Operator  : VOA110:NLK
Sample    : L2207184-04,31,6.23,5,,B,R2F
Misc      : WG1609164,ICAL18690
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Feb 24 21:34:55 2022
Quant Method : I:\VOLATILES\VOA110\2022\220224N\V110_220125N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List     : 8260-Benzene - benzene only2\220224N\V10220224N01.d•
```

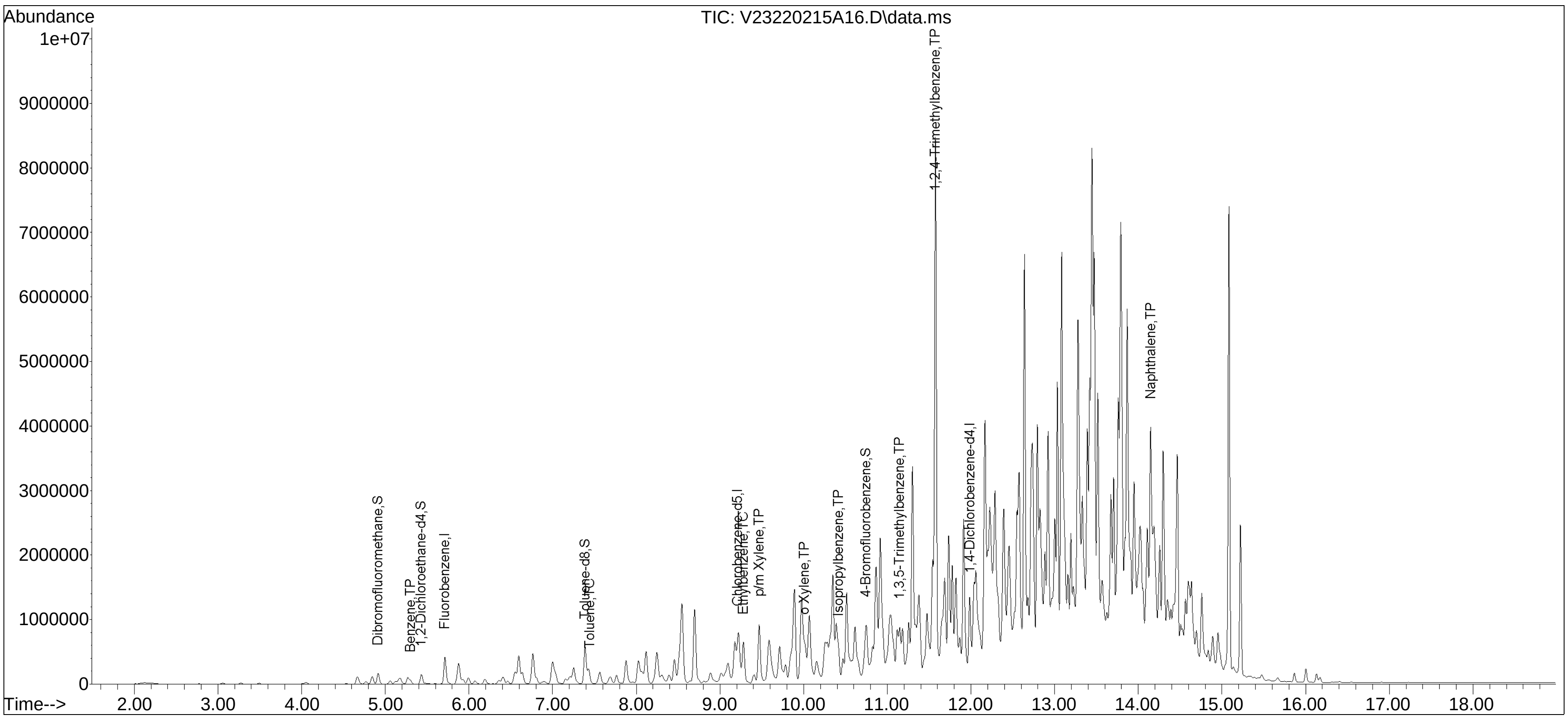


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A16.D
Acq On : 15 Feb 2022 05:31 pm
Operator : VOA123:KD
Sample : l2207184-06D,31H,5.10,5,0.040,,a,r2f
Misc : WG1605547,ICAL18401
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 15 18:16:26 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•



ANALYTICAL REPORT

Lab Number:	L2207185
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/17/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207185-01	PB-36-04-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:10	02/10/22
L2207185-02	PB-36-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:30	02/10/22
L2207185-03	PB-36-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:40	02/10/22
L2207185-04	PB-36-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:50	02/10/22
L2207185-05	PB-35-06-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:10	02/10/22
L2207185-06	PB-35-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:20	02/10/22
L2207185-07	PB-35-10-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:30	02/10/22
L2207185-08	PB-35-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:40	02/10/22
L2207185-09	PB-35-13-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:50	02/10/22
L2207185-10	PB-35-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 14:00	02/10/22
L2207185-11	FB-220210	WATER	PHILADELPHIA, PA	02/10/22 15:00	02/10/22
L2207185-12	TB-220210	WATER	PHILADELPHIA, PA	02/10/22 00:00	02/10/22
L2207185-13	DUP-26	SOIL	PHILADELPHIA, PA	02/10/22 00:00	02/10/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207185-02D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (188%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (156%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-04: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2207185-05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207185-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2207185-06 (Low): The surrogate recovery is outside the acceptance criteria for toluene-d8 (158%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-07 and -10: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed

Case Narrative (continued)

to vial discrepancies.
L2207185-07 (Low): The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard.
L2207185-07 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207185-08: The internal standard (IS) response for fluorobenzene (257%) and the surrogate recovery for dibromofluoromethane (31%), toluene-d8 (332%) and 4-bromofluorobenzene (8050%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2207185-09: The internal standard (IS) response for fluorobenzene (451%) and the surrogate recoveries for 4-bromofluorobenzene (49%), dibromofluoromethane (19%), and toluene-d8 (492%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response wasabove method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2207185-10 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (321%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207185-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (62%) due to interference with the Internal Standard.

Case Narrative (continued)

Total Metals

L2207185-06, -10, and -13: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG1604051-3 MS recovery, performed on L2207185-01, is outside the acceptance criteria for lead (139%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 02/17/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01 Date Collected: 02/10/22 12:10
Client ID: PB-36-04-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 12:13
Analyst: MKS
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.59		mg/kg	0.13	0.013	1
Benzene	1.2		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.4		mg/kg	0.065	0.0091	1
p/m-Xylene	0.40		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.065	0.019	1
Xylenes, Total	0.52		mg/kg	0.065	0.019	1
Isopropylbenzene	0.58		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	6.1		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02 D2	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:49
Analyst: KD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40		mg/kg	0.32	0.032	2.5
Benzene	35.		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	ND		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	12.		mg/kg	0.16	0.023	2.5
p/m-Xylene	14.		mg/kg	0.32	0.090	2.5
o-Xylene	0.87		mg/kg	0.16	0.047	2.5
Xylenes, Total	15.		mg/kg	0.16	0.047	2.5
Isopropylbenzene	5.7		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	29.		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	73.	E	mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	**188**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02	D	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01		Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 12:39
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	100		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03
Client ID: PB-36-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 12:40
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:29
Analyst: KD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.030	J	mg/kg	0.12	0.012	1
Benzene	0.019	J	mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	ND		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.67		mg/kg	0.061	0.0086	1
p/m-Xylene	1.3		mg/kg	0.12	0.034	1
o-Xylene	0.031	J	mg/kg	0.061	0.018	1
Xylenes, Total	1.3	J	mg/kg	0.061	0.018	1
Isopropylbenzene	0.95		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	8.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03 D	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:05
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	19.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:31
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.14		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.072		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	2.0		mg/kg	0.072	0.010	1
p/m-Xylene	1.5		mg/kg	0.14	0.040	1
o-Xylene	0.076		mg/kg	0.072	0.021	1
Xylenes, Total	1.6		mg/kg	0.072	0.021	1
Isopropylbenzene	0.16		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	1.7		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.83		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 12:10
Analyst: KD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0088		mg/kg	0.0018	0.00018	1
Benzene	0.12		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	0.014		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.67	E	mg/kg	0.00091	0.00013	1
p/m-Xylene	0.90	E	mg/kg	0.0018	0.00051	1
o-Xylene	0.022		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.41	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-05	Date Collected:	02/10/22 13:10
Client ID:	PB-35-06-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:57
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.082	J	mg/kg	0.16	0.016	1
Benzene	0.89		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.079	0.020	1
Toluene	0.070	J	mg/kg	0.079	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	1.8		mg/kg	0.079	0.011	1
p/m-Xylene	0.20		mg/kg	0.16	0.044	1
o-Xylene	0.037	J	mg/kg	0.079	0.023	1
Xylenes, Total	0.24	J	mg/kg	0.079	0.023	1
Isopropylbenzene	0.37		mg/kg	0.079	0.0086	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.095	J	mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:23
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.077	J	mg/kg	0.10	0.010	1
Benzene	0.31		mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.10		mg/kg	0.051	0.0072	1
p/m-Xylene	0.21		mg/kg	0.10	0.028	1
o-Xylene	0.14		mg/kg	0.051	0.015	1
Xylenes, Total	0.35		mg/kg	0.051	0.015	1
Isopropylbenzene	0.035	J	mg/kg	0.051	0.0055	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.10	0.0098	1
1,2,4-Trimethylbenzene	0.62		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:54
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.039		mg/kg	0.0020	0.00020	1
Benzene	0.14		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0097		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00057	1
o-Xylene	0.14		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.31		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.030		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.48	E	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
Client ID: PB-35-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:48
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.035	J	mg/kg	0.14	0.014	1
Benzene	1.2		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.060	J	mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.90		mg/kg	0.072	0.010	1
p/m-Xylene	0.096	J	mg/kg	0.14	0.040	1
o-Xylene	0.024	J	mg/kg	0.072	0.021	1
Xylenes, Total	0.12	J	mg/kg	0.072	0.021	1
Isopropylbenzene	0.30		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.090	J	mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:34
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0028	0.00028	1
Benzene	0.20		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	0.010		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	0.15		mg/kg	0.0014	0.00019	1
p/m-Xylene	0.014		mg/kg	0.0028	0.00077	1
o-Xylene	0.0043		mg/kg	0.0014	0.00040	1
Xylenes, Total	0.018		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.050		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0028	0.00026	1
1,2,4-Trimethylbenzene	0.0095		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**134**	Q	70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08 Date Collected: 02/10/22 13:40
Client ID: PB-35-11-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:14
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.066	J	mg/kg	0.10	0.011	1
Benzene	0.73		mg/kg	0.026	0.0088	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	ND		mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.016	1
Ethylbenzene	0.15		mg/kg	0.053	0.0075	1
p/m-Xylene	ND		mg/kg	0.10	0.030	1
o-Xylene	ND		mg/kg	0.053	0.015	1
Xylenes, Total	ND		mg/kg	0.053	0.015	1
Isopropylbenzene	0.030	J	mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.052	J	mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-08	Date Collected:	02/10/22 13:40
Client ID:	PB-35-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:13
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.034		mg/kg	0.0034	0.00034	1
Benzene	1.9	E	mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	0.64	E	mg/kg	0.0017	0.00093	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	3.1	E	mg/kg	0.0017	0.00024	1
p/m-Xylene	0.11		mg/kg	0.0034	0.00096	1
o-Xylene	0.19		mg/kg	0.0017	0.00050	1
Xylenes, Total	0.30		mg/kg	0.0017	0.00050	1
Isopropylbenzene	0.99	E	mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	0.0099		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	**332**	Q	70-130
4-Bromofluorobenzene	**8050**	Q	70-130
Dibromofluoromethane	**31**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
Client ID: PB-35-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 13:50
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:40
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.89		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.074		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.0		mg/kg	0.058	0.0082	1
p/m-Xylene	0.31		mg/kg	0.12	0.033	1
o-Xylene	0.034	J	mg/kg	0.058	0.017	1
Xylenes, Total	0.34	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.29		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 02/15/22 14:53

Analyst: KJD

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.18		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.078		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	1.4	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00058	1
o-Xylene	0.032		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.20		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.46	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0081		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.083		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	**492**	Q	70-130
4-Bromofluorobenzene	**49**	Q	70-130
Dibromofluoromethane	**19**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-10	Date Collected:	02/10/22 14:00
Client ID:	PB-35-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 16:06
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.54		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	0.050	J	mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.037	J	mg/kg	0.066	0.0092	1
p/m-Xylene	0.052	J	mg/kg	0.13	0.037	1
o-Xylene	0.027	J	mg/kg	0.066	0.019	1
Xylenes, Total	0.079	J	mg/kg	0.066	0.019	1
Isopropylbenzene	0.24		mg/kg	0.066	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-10	Date Collected:	02/10/22 14:00
Client ID:	PB-35-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 14:12
Analyst: KJD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00091	J	mg/kg	0.0010	0.00011	1
Benzene	0.089		mg/kg	0.00026	0.00008	1
1,2-Dichloroethane	ND		mg/kg	0.00053	0.00014	1
Toluene	0.0079		mg/kg	0.00053	0.00029	1
1,2-Dibromoethane	ND		mg/kg	0.00026	0.00016	1
Ethylbenzene	0.0030		mg/kg	0.00053	0.00007	1
p/m-Xylene	0.0064		mg/kg	0.0010	0.00030	1
o-Xylene	0.0037		mg/kg	0.00053	0.00015	1
Xylenes, Total	0.010		mg/kg	0.00053	0.00015	1
Isopropylbenzene	0.026		mg/kg	0.00053	0.00005	1
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0010	0.00010	1
1,2,4-Trimethylbenzene	0.00050	J	mg/kg	0.0010	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	**166**	Q	70-130
4-Bromofluorobenzene	**321**	Q	70-130
Dibromofluoromethane	**62**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
Client ID: FB-220210
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 15:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/14/22 14:35
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
Client ID: FB-220210
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:24
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-12	Date Collected:	02/10/22 00:00
Client ID:	TB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/14/22 10:52
Analytical Date:	02/14/22 14:44		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-12
Client ID: TB-220210
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:50
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
Client ID: DUP-26
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:57
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	2.6		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.086	0.022	1
Toluene	41.	E	mg/kg	0.086	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	19.		mg/kg	0.086	0.012	1
p/m-Xylene	84.	E	mg/kg	0.17	0.048	1
o-Xylene	25.		mg/kg	0.086	0.025	1
Isopropylbenzene	1.2		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	13.		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.17	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13 D
Client ID: DUP-26
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 00:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 16:32
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	42.		mg/kg	0.86	0.46	10
p/m-Xylene	85.		mg/kg	1.7	0.48	10
Xylenes, Total	110		mg/kg	0.086	0.025	10
1,2,4-Trimethylbenzene	37.		mg/kg	1.7	0.29	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/14/22 13:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 11-12 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 11-12 Batch: WG1604746-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 10:55
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-10,13 Batch: WG1605183-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06-10 Batch: WG1605212-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1606083-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03 Batch: WG1606084-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 11-12 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 11-12 Batch: WG1604746-3 WG1604746-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	105		100		70-130	5		20
Isopropylbenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	101		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1605183-3 WG1605183-4								
Methyl tert butyl ether	90		88		66-130	2		30
Benzene	97		94		70-130	3		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	98		94		70-130	4		30
1,2-Dibromoethane	96		92		70-130	4		30
Ethylbenzene	96		94		70-130	2		30
p/m-Xylene	102		99		70-130	3		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	99		96		70-130	3		30
1,3,5-Trimethylbenzene	98		94		70-130	4		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06-10 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2207185

Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1606083-3 WG1606083-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		92		70-130
Dibromofluoromethane	99		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03 Batch: WG1606084-3 WG1606084-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	99		97		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 11:07		
Analyst:	JG		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 12:15		
Analyst:	JG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.7		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**164**	Q	23-120
2-Fluorobiphenyl	38		30-120
4-Terphenyl-d14	43		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 12:38		
Analyst:	JG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:00		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.073	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-05	Date Collected:	02/10/22 13:10
Client ID:	PB-35-06-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:23		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.48		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:45		
Analyst:	JG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.9		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	67		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 14:30		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	60		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-08	Date Collected:	02/10/22 13:40
Client ID:	PB-35-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 14:53		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.62		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**282**	Q	23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	59		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 15:16		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.9		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	64		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-10	Date Collected:	02/10/22 14:00
Client ID:	PB-35-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 15:38		
Analyst:	JG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-11	Date Collected:	02/10/22 15:00
Client ID:	FB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/17/22 01:51
Analytical Date:	02/17/22 14:12		
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	87		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-13	Date Collected:	02/10/22 00:00
Client ID:	DUP-26	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 16:01		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.13	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	62		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/15/22 10:00
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 02/14/22 23:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,13 Batch: WG1604892-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	63		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/17/22 13:53
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 02/17/22 01:51

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 11 Batch: WG1605880-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	78		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1604892-2 WG1604892-3								
Naphthalene	61		69		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		100		23-120
2-Fluorobiphenyl	65		72		30-120
4-Terphenyl-d14	70		80		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 11 Batch: WG1605880-2 WG1605880-3								
Naphthalene	80		77		40-140	4		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		80		23-120
2-Fluorobiphenyl	80		75		15-120
4-Terphenyl-d14	82		75		41-149

METALS

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.3		mg/kg	4.90	0.263	2	02/14/22 17:26	02/16/22 12:27	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02 Date Collected: 02/10/22 12:30
Client ID: PB-36-09-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.84		mg/kg	2.32	0.124	1	02/14/22 17:26	02/16/22 14:50	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.57		mg/kg	2.36	0.126	1	02/14/22 17:26	02/16/22 14:55	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04 Date Collected: 02/10/22 12:50
Client ID: PB-36-14-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	218		mg/kg	2.22	0.119	1	02/14/22 17:26	02/16/22 14:59	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA | **Lab Number:** L2207185
Project Number: 200.00135.005.03 | **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05 | Date Collected: 02/10/22 13:10
Client ID: PB-35-06-SS01 | Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	79.2		mg/kg	2.31	0.124	1	02/14/22 17:26	02/16/22 15:04	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06
Date Collected: 02/10/22 13:20
Client ID: PB-35-09-SS01
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1520		mg/kg	11.5	0.615	5	02/14/22 17:26	02/16/22 19:22	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07 Date Collected: 02/10/22 13:30

Client ID: PB-35-10-SS01 Date Received: 02/10/22

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	57.6		mg/kg	2.33	0.125	1	02/14/22 17:26	02/16/22 15:14	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08 Date Collected: 02/10/22 13:40
Client ID: PB-35-11-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	173		mg/kg	2.29	0.123	1	02/14/22 17:26	02/16/22 15:18	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.2		mg/kg	2.27	0.122	1	02/14/22 17:26	02/16/22 15:23	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10 Date Collected: 02/10/22 14:00
Client ID: PB-35-14-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.51	J	mg/kg	11.6	0.621	5	02/14/22 17:26	02/16/22 19:27	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
Date Collected: 02/10/22 15:00
Client ID: FB-220210
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 13:32	EPA 3005A	1,6020B	SV

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13 Date Collected: 02/10/22 00:00
Client ID: DUP-26 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1500		mg/kg	11.5	0.618	5	02/14/22 17:26	02/16/22 19:32	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10,13 Batch: WG1604051-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/14/22 17:26	02/16/22 11:07	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 11 Batch: WG1604932-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2207185

Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 Batch: WG1604051-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 11 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-3 QC Sample: L2207185-01 Client ID: PB-36-04-SS01												
Lead, Total	13.3	51.4	84.7	**139**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-4 QC Sample: L2207185-01 Client ID: PB-36-04-SS01						
Lead, Total	13.3	14.0	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-03
Client ID: PB-36-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:40
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04 Date Collected: 02/10/22 12:50
Client ID: PB-36-14-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05 Date Collected: 02/10/22 13:10
Client ID: PB-35-06-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06 Date Collected: 02/10/22 13:20
Client ID: PB-35-09-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA

Lab Number: L2207185

Project Number: 200.00135.005.03

Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
Date Collected: 02/10/22 13:30
Client ID: PB-35-10-SS01
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08 Date Collected: 02/10/22 13:40
Client ID: PB-35-11-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
Date Collected: 02/10/22 13:50
Client ID: PB-35-13-SS01
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
Date Collected: 02/10/22 14:00
Client ID: PB-35-14-SS01
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-13	Date Collected:	02/10/22 00:00
Client ID:	DUP-26	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-10,13 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: DUP Sample						
Solids, Total	80.4	82.4	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-01A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-01B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-01F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-02A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-02B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-02F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-03A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-03B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-03F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-04A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-04B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-04E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-04F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-05A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-05B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-05F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-06B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-06F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-07A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-07B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-07F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-08A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-08B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-08F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-09F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-10F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-11A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11F	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2207185-11G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-11H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-12A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-12B	Vial HCl preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-13B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-13F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207185

Project Information

Project Name: Philadelphia Refinery Soil Characterization
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com
☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
5-DAY
Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07185-01	PB-36-04-SS01	2/10	1210	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-36-09-SS01		1230			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-36-11-SS01		1240			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-36-14-SS01		1250			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB-35-06-SS01		1310			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	PB-35-09-SS01		1320			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-07	PB-35-10-SS01		1330			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-08	PB-35-11-SS01		1340			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-09	PB-35-13-SS01		1350			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-10	PB-35-14-SS01		1400			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
				Container Type		G	G	G	-	-	-	-	-	-	-	-	-		
				Preservative		F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	ST AAY	2/10/22 1510
S [signature]	2/10/22 1510	[signature]	2/10/22 1510
[signature] AAL	2/10/22	Anthony Pace	2/10/22 2030
Anthony Pace	2/10/22	[signature] AAL	2/11/22 2005
[signature] AAL	2/11/22 2025	[signature]	2/11/22 2205

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207185

Project Information

Project Name: Philadelphia Refinery - Soil Characterization

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	Total # Bottles
07185-11	FB-220210	2/10	1500	W	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
-12	TB-220210	2/10	-	W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-13	DUP-26	2/10	-	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	ST — AAL	2/10/22 15:10
[signature]	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	Anthony Nieves	2/10/22 2030
Anthony Nieves	2/10/22	[signature] AAL	2/11/22 0005
[signature] AAL	2/11/22 0205	[signature]	2/11/22 0205

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

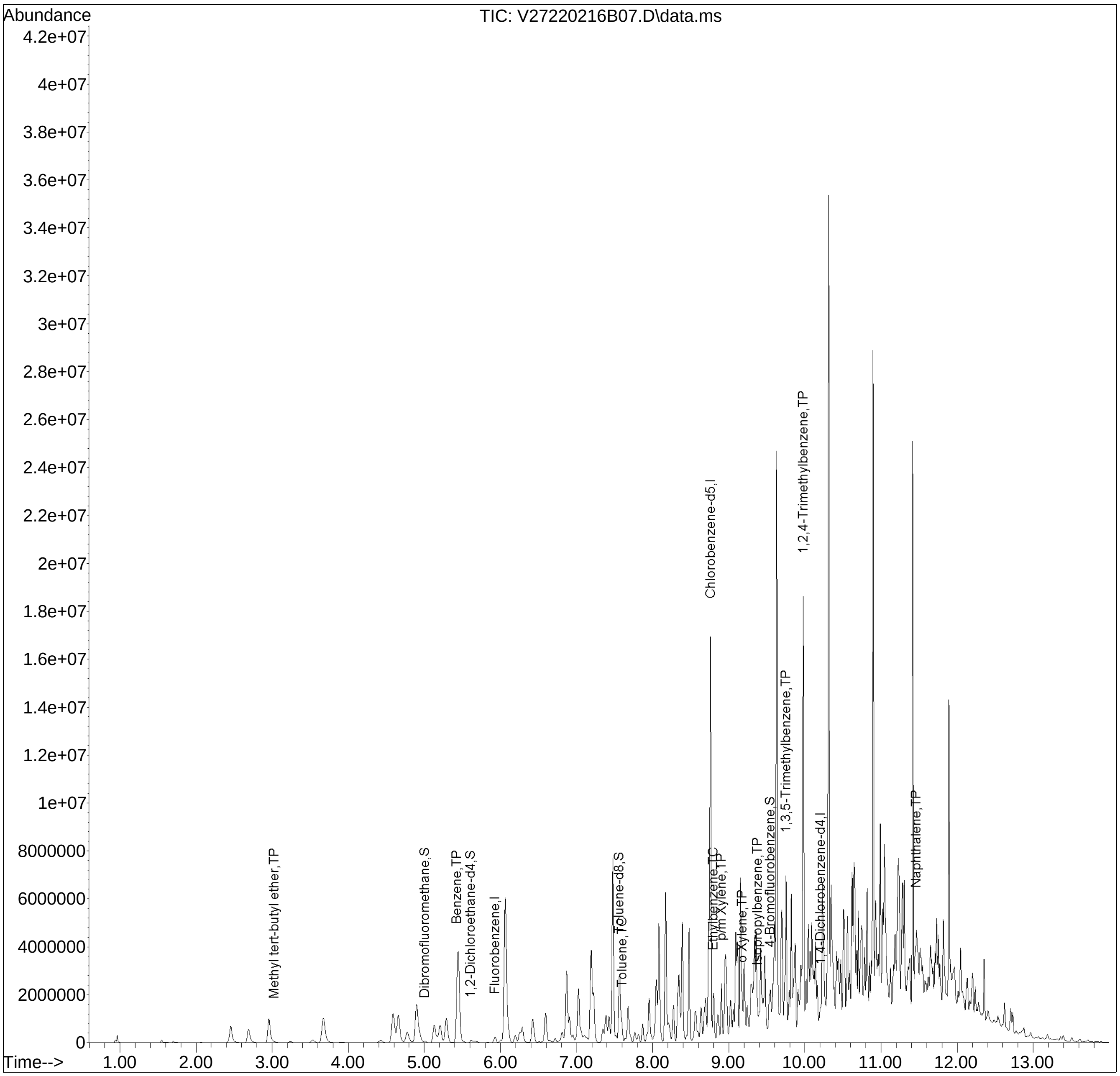
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220216B\
Data File : V27220216B07.D
Acq On    : 16 Feb 2022  11:49 am
Operator  : VOA127:KD
Sample    : l2207185-02D2,31H,5.79,5,0.040,,a,r2f
Misc      : WG1606084,ICAL18638
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Feb 16 15:22:48 2022
Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•
```

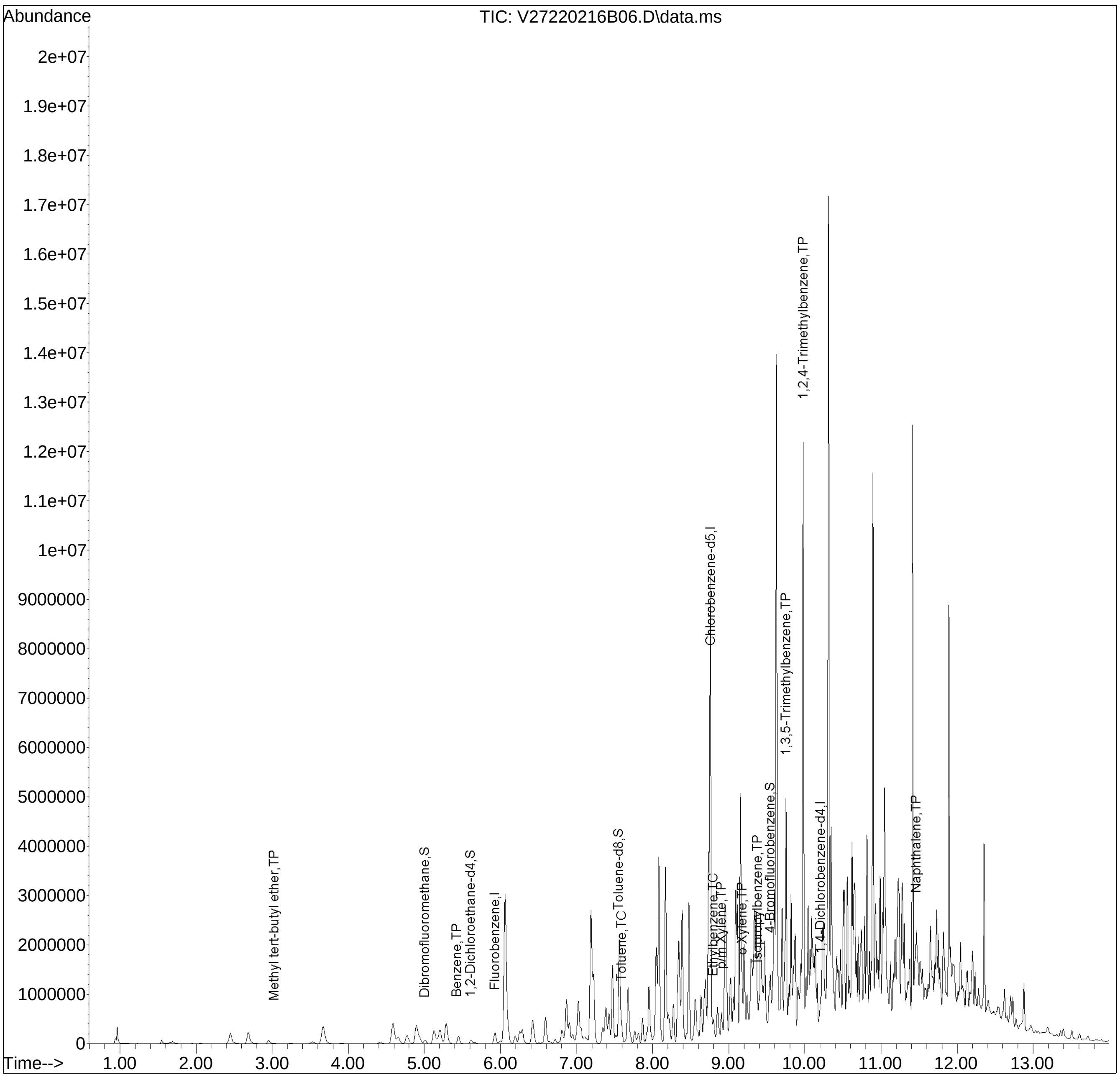


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220216B\
Data File : V27220216B06.D
Acq On    : 16 Feb 2022  11:29 am
Operator  : VOA127:KD
Sample    : l2207185-03,31H,5.96,5,0.100,,a,r2f
Misc      : WG1606084,ICAL18638
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Feb 17 11:39:46 2022
Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•
```

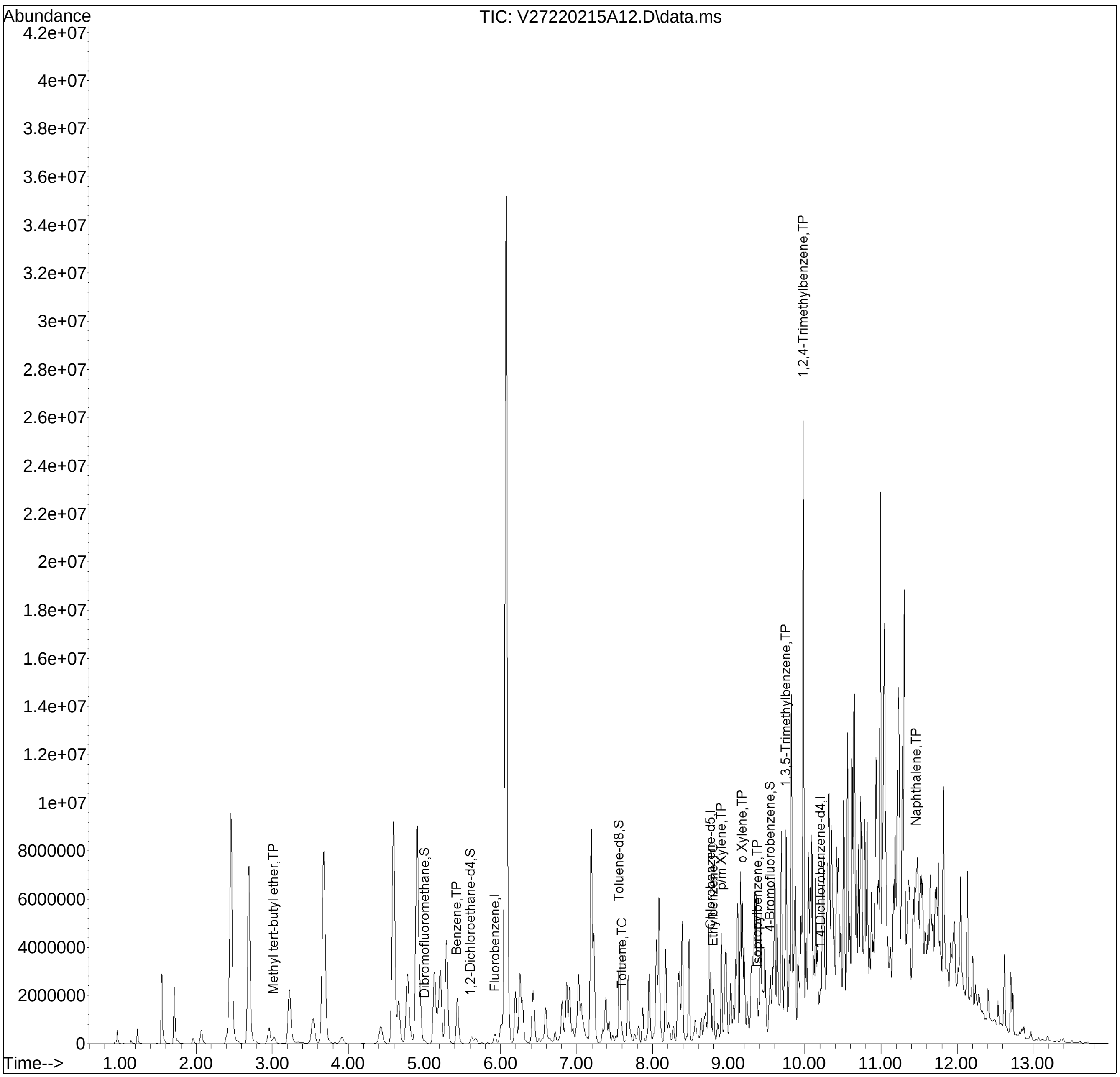


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A12.D
Acq On : 15 Feb 2022 03:54 pm
Operator : VOA127:KJD
Sample : l2207185-06,31,5.95,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Feb 15 20:53:06 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

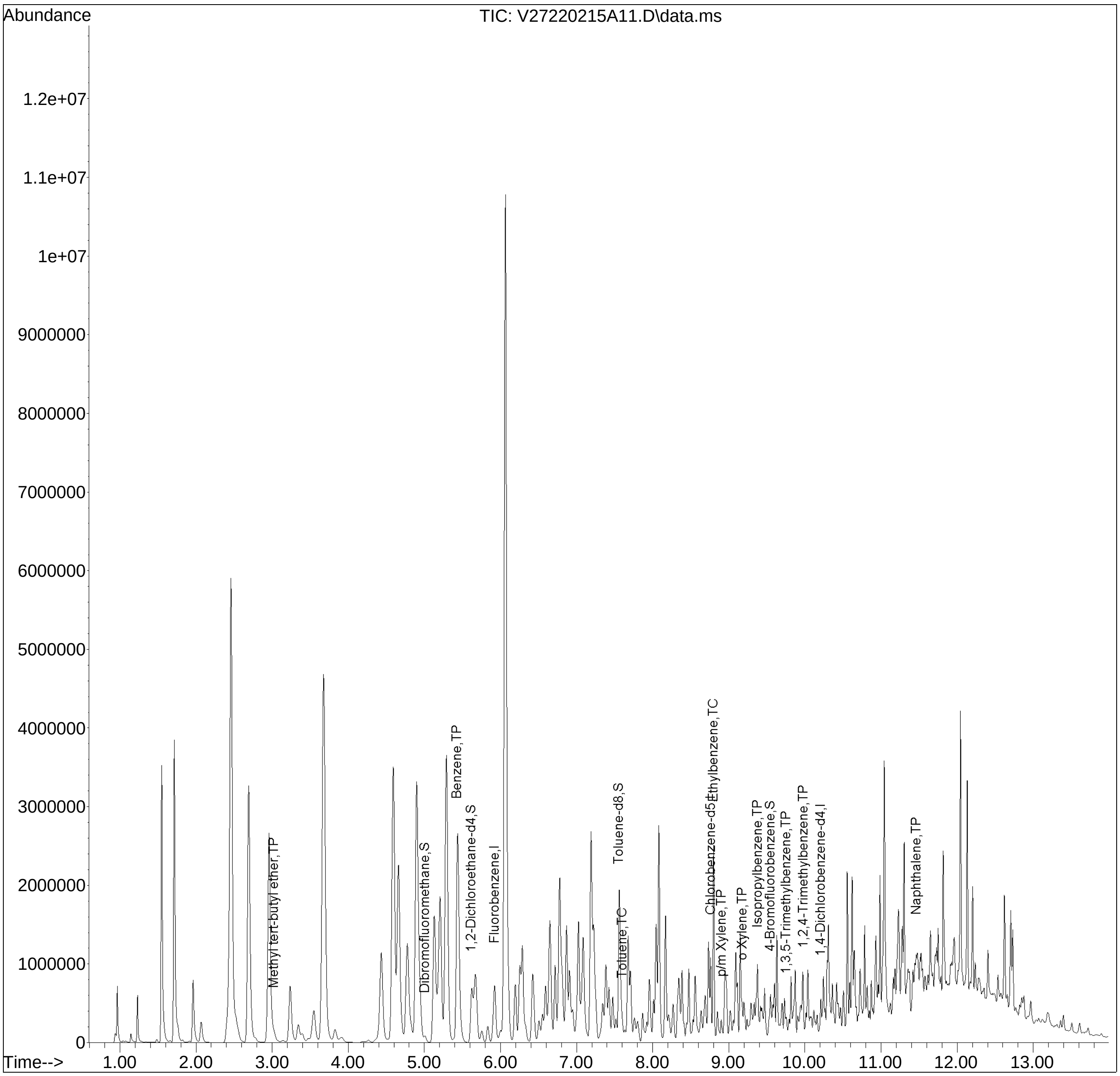


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A11.D
Acq On : 15 Feb 2022 03:34 pm
Operator : VOA127:KJD
Sample : l2207185-07,31,4.29,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 15 20:51:48 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

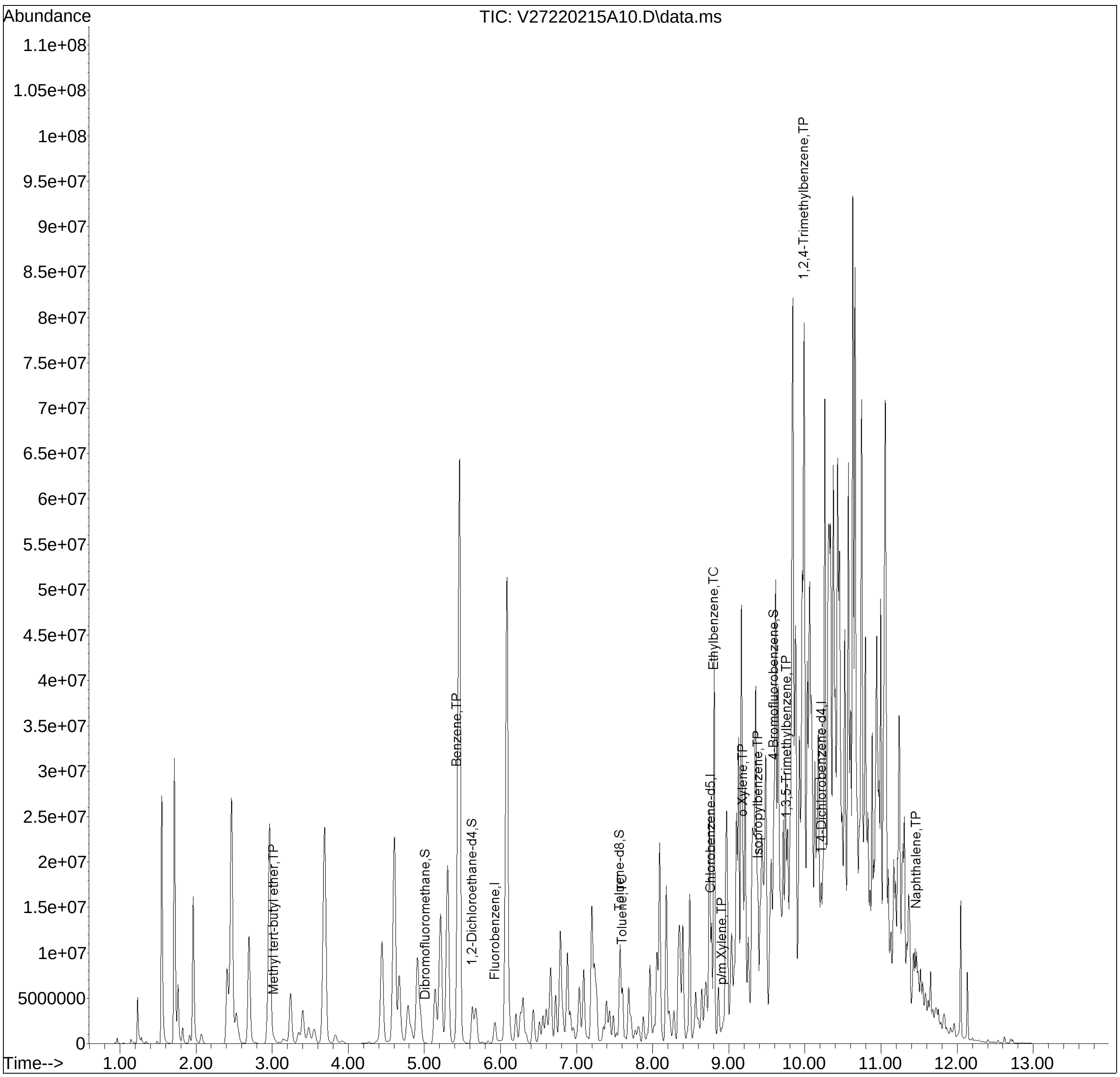


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A10.D
Acq On : 15 Feb 2022 03:13 pm
Operator : VOA127:KJD
Sample : l2207185-08,31,3.45,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 15 20:50:52 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

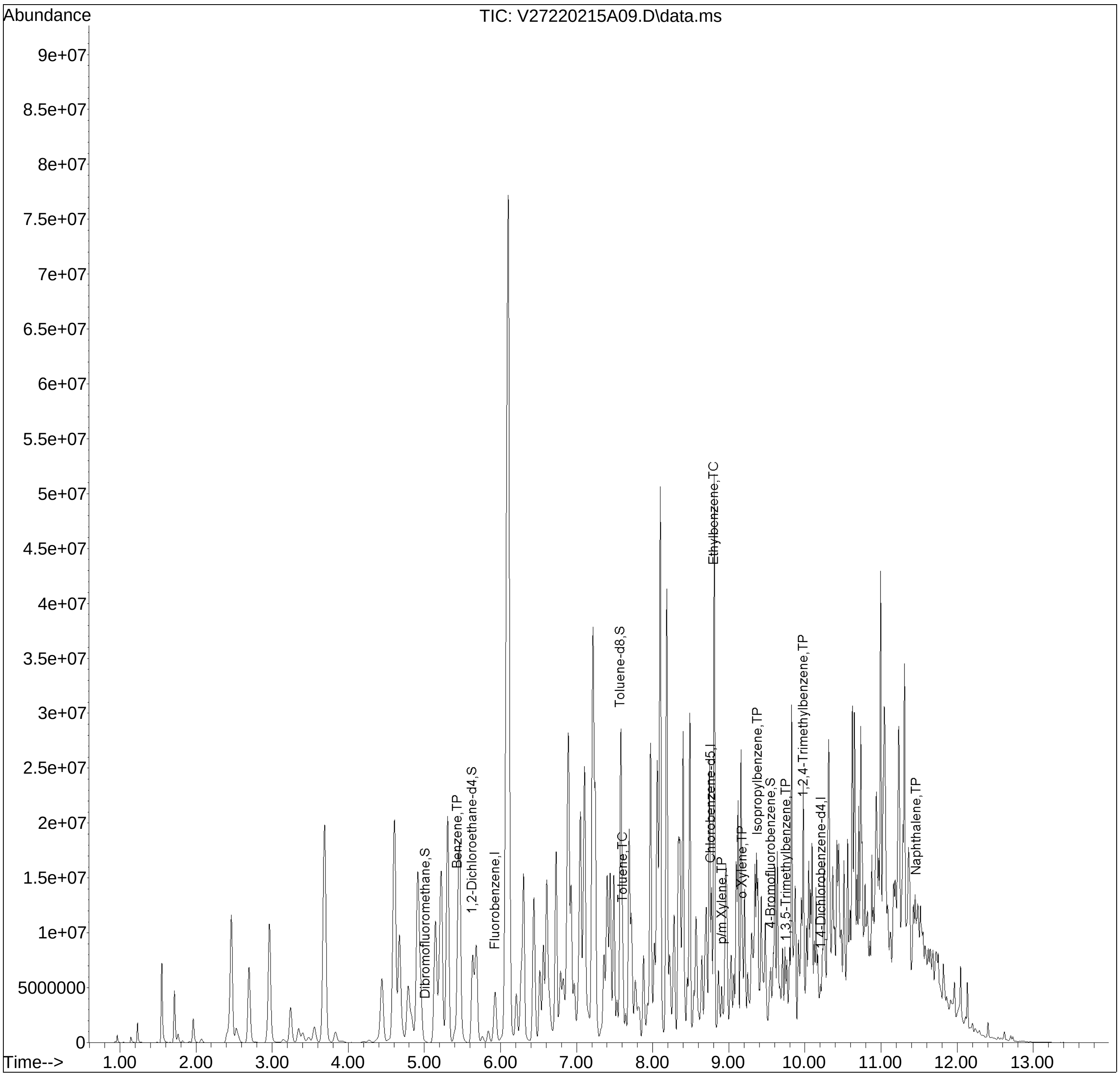


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A09.D
Acq On    : 15 Feb 2022  02:53 pm
Operator  : VOA127:KJD
Sample    : l2207185-09,31,5.72,5,,b,r2f
Misc      : WG1605212,ICAL18638
ALS Vial  : 9   Sample Multiplier: 1

Quant Time: Feb 15 20:48:19 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•
```

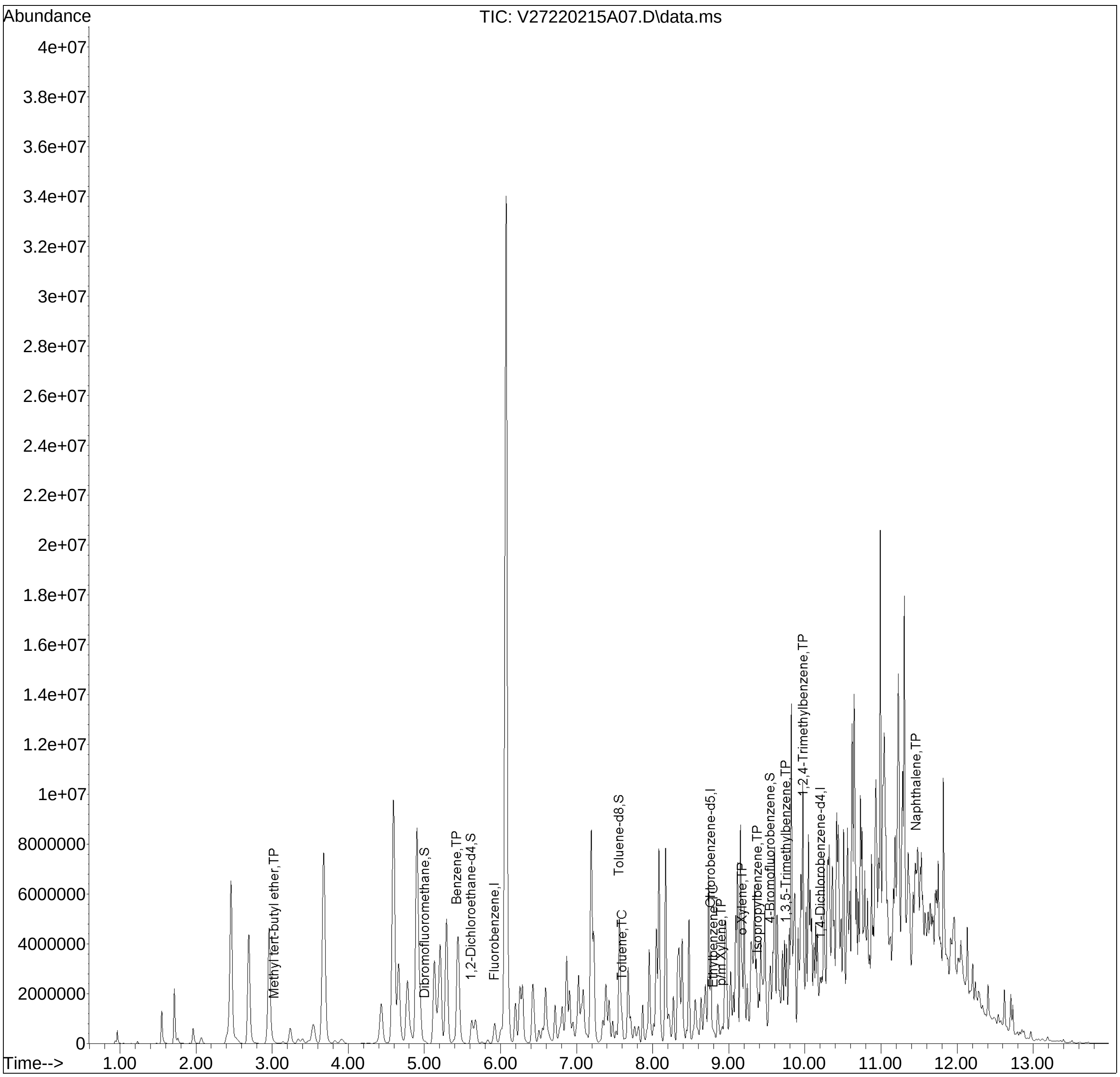


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A07.D
Acq On : 15 Feb 2022 02:12 pm
Operator : VOA127:KJD
Sample : l2207185-10,31,11.40,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 15 14:33:01 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•



ANALYTICAL REPORT

Lab Number:	L2207566
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	02/25/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207566-01	PB-40-12R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 09:45	02/11/22
L2207566-02	PB-40-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 09:55	02/11/22
L2207566-03	PB-40-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:00	02/11/22
L2207566-04	PB-34-03R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 10:30	02/11/22
L2207566-05	PB-34-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 10:40	02/11/22
L2207566-06	PB-34-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:50	02/11/22
L2207566-07	PB-34-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 11:20	02/11/22
L2207566-08	PB-34-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 11:30	02/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207566-08.

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207566-02: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207566-02: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

The WG1605224-3 MS recovery, performed on L2207566-01, is outside the acceptance criteria for lead (63%). A post digestion spike was performed and yielded an unacceptable recovery for lead (60%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 02/25/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-02	Date Collected:	02/11/22 09:55
Client ID:	PB-40-12R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 23:07
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.0037		mg/kg	0.00049	0.00016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566

Project Number: 200.00135.005.03 **Report Date:** 02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-07	Date Collected:	02/11/22 11:20
Client ID:	PB-34-11R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 22:17
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.4		mg/kg	0.039	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	89		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-08 D	Date Collected:	02/11/22 11:30
Client ID:	PB-34-11R-14.0-14.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 17:41
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	180		mg/kg	1.5	0.49	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	89		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07 Batch: WG1606450-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1606451-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 09:21
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608829-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07 Batch: WG1606450-3 WG1606450-4								
Benzene	85		84		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Lab Number: L2207566

Project Number: 200.00135.005.03

Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1606451-3 WG1606451-4								
Benzene	85		84		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608829-3 WG1608829-4								
Benzene	87		74		70-130	16		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		78		70-130
Toluene-d8	104		97		70-130
4-Bromofluorobenzene	94		80		70-130
Dibromofluoromethane	91		95		70-130

METALS

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-01	Date Collected:	02/11/22 09:45
Client ID:	PB-40-12R-0.0-0.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.08		mg/kg	2.47	0.132	1	02/15/22 20:00	02/17/22 09:56	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-02
Date Collected: 02/11/22 09:55
Client ID: PB-40-12R-6.0-6.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	31.2		mg/kg	11.5	0.618	5	02/15/22 20:00	02/18/22 13:31	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-04
Date Collected: 02/11/22 10:30
Client ID: PB-34-03R-0.0-0.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	488		mg/kg	12.7	0.680	5	02/15/22 20:00	02/17/22 19:25	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-05	Date Collected:	02/11/22 10:40
Client ID:	PB-34-03R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	47.2		mg/kg	2.28	0.122	1	02/15/22 20:00	02/17/22 19:11	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02,04-05 Batch: WG1605224-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03
Lab Number: L2207566
Report Date: 02/25/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5												
Lead, Total	7.08	51.4	39.5	**63**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5						
Lead, Total	7.08	7.13	mg/kg	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-01
Date Collected: 02/11/22 09:45
Client ID: PB-40-12R-0.0-0.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207566-02	Date Collected:	02/11/22 09:55
Client ID:	PB-40-12R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-04
Date Collected: 02/11/22 10:30
Client ID: PB-34-03R-0.0-0.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.2		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-05
Date Collected: 02/11/22 10:40
Client ID: PB-34-03R-6.0-6.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-07 Date Collected: 02/11/22 11:20
Client ID: PB-34-11R-6.0-6.5 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207566-08
Client ID: PB-34-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:30
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07 QC Batch ID: WG1604273-1 QC Sample: L2207568-01 Client ID: DUP Sample						
Solids, Total	84.8	85.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 08 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-01A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-01B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207566-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-04B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-05A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-05B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-06A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-06B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-07A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-07B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-08A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-08B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/12/22

ALPHA Job #: L2207566

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ Site Investigation

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	Sample Specific Comments	TOTAL # BOTTLES
07566-01	PB-40-12R-0.0-0.5	2/11	0945	S	TS	☑	☐	☐	☐	☐	☐		2
-02	PB-40-12R-6.0-6.5		0955			☑	☑	☐	☐	☐	☐		5
-03	PB-40-12R-14.0-14.5		1000			☑	☑	☐	☐	☐	☐	HOLD	5
-04	PB-34-03R-0.0-0.5		1030			☑	☐	☐	☐	☐	☐		2
-05	PB-34-03R-6.0-6.5		1040			☑	☐	☐	☐	☐	☐		2
-06	PB-34-03R-14.0-14.5		1050			☑	☐	☐	☐	☐	☐	HOLD	2
-07	PB-34-11R-6.0-6.5		1120			☐	☑	☐	☐	☐	☐		4
-08	PB-34-11R-14.0-14.5		1130			☐	☑	☐	☐	☐	☐	HOLD	4

Container Type

Preservative

Rec'd [signature] 2/12/22 0155

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/11 1400	Tom Clark	2-11-22 1800
Tom Clark AAL 2-11-22		Anthony Price	2/11/22
Anthony Price	2/11/22	[signature]	2/12/22 0005

[signature] 2/12/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

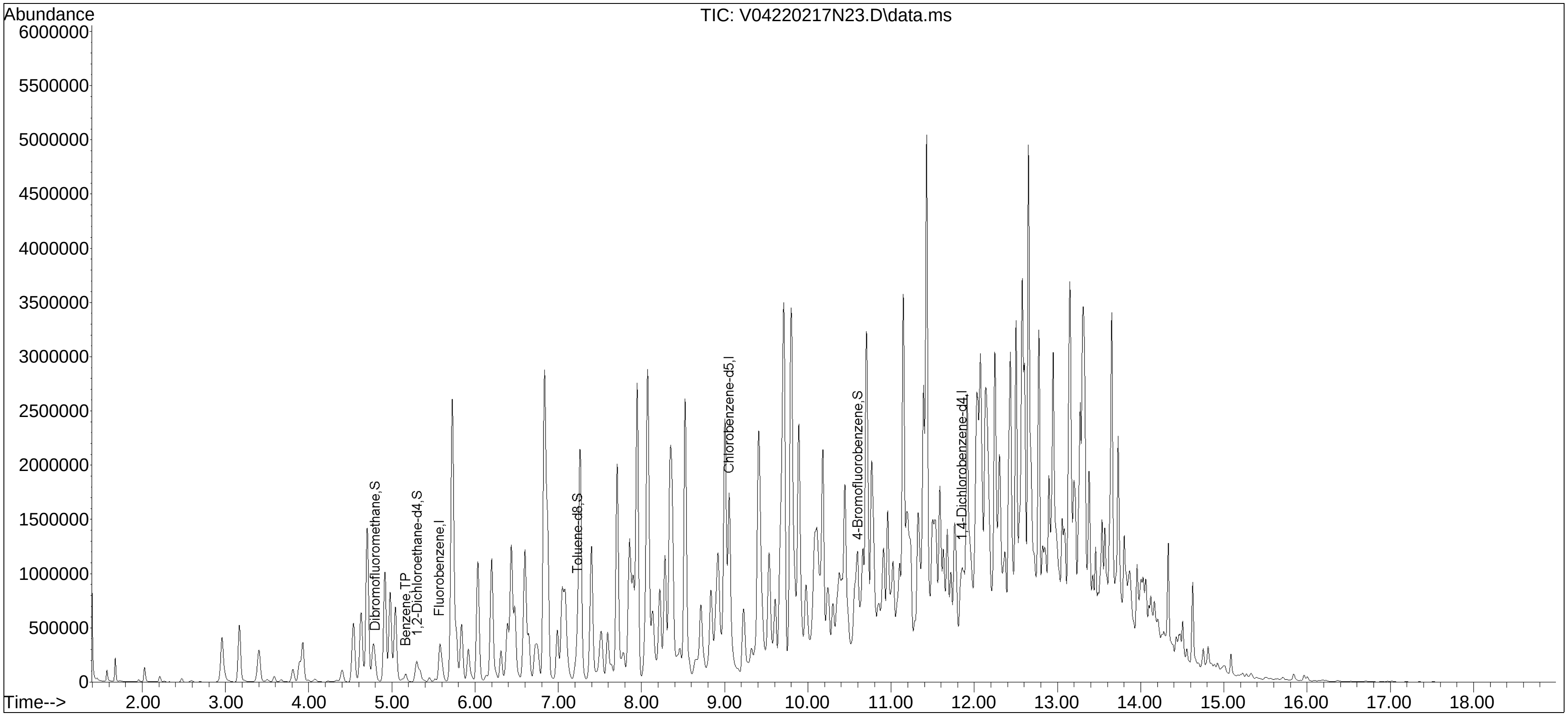
FORM NO: 01-01 (rev. 9-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220217N\
Data File : V04220217N23.D
Acq On : 17 Feb 2022 11:07 pm
Operator : VOA104:AJK
Sample : L2207566-02,31,6.06,5,,B,R2F
Misc : WG1606451,ICAL18563
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 18 00:01:35 2022
Quant Method : I:\VOLATILES\VOA104\2022\220217N\V104_211214A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220217N\V04220217N01.D•



ANALYTICAL REPORT

Lab Number:	L2207567
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/18/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207567-01	PB-34-04-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:40	02/11/22
L2207567-02	PB-34-08-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:45	02/11/22
L2207567-03	PB-34-09-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:50	02/11/22
L2207567-04	PB-34-10-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:55	02/11/22
L2207567-05	PB-34-13-SS01	SOIL	PHILADELPHIA, PA	02/11/22 12:00	02/11/22
L2207567-06	FB-220211	WATER	PHILADELPHIA, PA	02/11/22 12:10	02/11/22
L2207567-07	TB-220211	WATER	PHILADELPHIA, PA	02/11/22 00:00	02/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207567-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-01D, -02D, and -04D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2207567-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-03: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207567-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-04D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (162%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207567-03 through -05: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Sebastian Corbin

Title: Technical Director/Representative Date: 02/18/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567

Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01 D
Client ID: PB-34-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:40
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 19:39
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.23	0.023	2
Benzene	0.39		mg/kg	0.057	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.062	2
1,2-Dibromoethane	ND		mg/kg	0.057	0.033	2
Ethylbenzene	0.033	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.23	0.063	2
o-Xylene	ND		mg/kg	0.11	0.033	2
Xylenes, Total	ND		mg/kg	0.11	0.033	2
Isopropylbenzene	0.99		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.23	0.022	2
1,2,4-Trimethylbenzene	0.063	J	mg/kg	0.23	0.038	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-02 D	Date Collected:	02/11/22 11:45
Client ID:	PB-34-08-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:00
Analyst: KJD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	ND		mg/kg	0.065	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.071	2
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	2
Ethylbenzene	0.042	J	mg/kg	0.13	0.018	2
p/m-Xylene	ND		mg/kg	0.26	0.073	2
o-Xylene	ND		mg/kg	0.13	0.038	2
Xylenes, Total	ND		mg/kg	0.13	0.038	2
Isopropylbenzene	2.8		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
Client ID: PB-34-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:50
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:20
Analyst: MKS
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.011	J	mg/kg	0.066	0.0093	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	ND		mg/kg	0.066	0.019	1
Isopropylbenzene	0.079		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04 D
Client ID: PB-34-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:55
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:41
Analyst: MKS
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	5
Benzene	ND		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	ND		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	0.048	J	mg/kg	0.30	0.042	5
p/m-Xylene	ND		mg/kg	0.60	0.17	5
o-Xylene	ND		mg/kg	0.30	0.087	5
Xylenes, Total	ND		mg/kg	0.30	0.087	5
Isopropylbenzene	0.089	J	mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.60	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	**162**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567

Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Client ID: PB-34-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 20:43
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0013	J	mg/kg	0.0018	0.00018	1
Benzene	0.016		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0039		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.042		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.020		mg/kg	0.0018	0.00050	1
o-Xylene	0.010		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.030		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
Client ID: FB-220211
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 12:10
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/14/22 16:26
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
Client ID: FB-220211
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 12:10
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:10
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
Client ID: TB-220211
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/14/22 16:35
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
Client ID: TB-220211
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:33
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8011	Extraction Method:	EPA 8011
Analytical Date:	02/14/22 13:53	Extraction Date:	02/14/22 10:52
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 06-07 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 11:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605324-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-04 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 12:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1606097-5					
Methyl tert butyl ether	0.00020	J	mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 06-07 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605324-3 WG1605324-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-04 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1606097-3 WG1606097-4								
Methyl tert butyl ether	78		78		66-130	0		30
Benzene	80		80		70-130	0		30
1,2-Dichloroethane	94		95		70-130	1		30
Toluene	82		82		70-130	0		30
1,2-Dibromoethane	92		93		70-130	1		30
Ethylbenzene	83		84		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	87		88		70-130	1		30
Isopropylbenzene	95		96		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	92		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		105		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

SAMPLE RESULTS

Lab ID: L2207567-01
Client ID: PB-34-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:40
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 07:14
Analyst: IM
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	58		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
Client ID: PB-34-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:45
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 08:51
Analyst: IM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
Client ID: PB-34-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:50
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 06:50
Analyst: IM
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04
Client ID: PB-34-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:55
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 03:10
Analyst: IM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.048	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Client ID: PB-34-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 09:16
Analyst: IM
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.29		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	77		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
Client ID: FB-220211
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 12:10
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/18/22 14:03
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/17/22 18:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	74		41-149

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/17/22 13:34	Extraction Date:	02/16/22 22:53
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/18/22 13:44	Extraction Date:	02/17/22 18:52
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606288-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	84		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606288-2 WG1606288-3								
Naphthalene	76		92		40-140	19		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	80		98		23-120
2-Fluorobiphenyl	77		96		15-120
4-Terphenyl-d14	82		99		41-149

METALS

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-01	Date Collected:	02/11/22 11:40
Client ID:	PB-34-04-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.00		mg/kg	2.41	0.129	1	02/15/22 20:00	02/17/22 19:16	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-02	Date Collected:	02/11/22 11:45
Client ID:	PB-34-08-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.27		mg/kg	2.34	0.126	1	02/15/22 20:00	02/17/22 19:20	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA | **Lab Number:** L2207567
Project Number: 200.00135.005.03 | **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
Client ID: PB-34-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:50
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.87	J	mg/kg	12.6	0.674	5	02/15/22 20:00	02/17/22 21:12	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA | **Lab Number:** L2207567
Project Number: 200.00135.005.03 | **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04 | Date Collected: 02/11/22 11:55
Client ID: PB-34-10-SS01 | Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.27	J	mg/kg	11.3	0.604	5	02/15/22 20:00	02/17/22 21:17	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-05	Date Collected:	02/11/22 12:00
Client ID:	PB-34-13-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	44.3		mg/kg	10.9	0.586	5	02/15/22 20:00	02/17/22 21:22	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-06	Date Collected:	02/11/22 12:10
Client ID:	FB-220211	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	0.6813	J	ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 13:37	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 06 Batch: WG1604932-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1605224-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: MS Sample												
Lead, Total	7.08	51.4	39.5	**63**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: DUP Sample						
Lead, Total	7.08	7.13	mg/kg	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01 Date Collected: 02/11/22 11:40
Client ID: PB-34-04-SS01 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
Client ID: PB-34-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:45
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA | **Lab Number:** L2207567
Project Number: 200.00135.005.03 | **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03 | Date Collected: 02/11/22 11:50
Client ID: PB-34-09-SS01 | Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-04	Date Collected:	02/11/22 11:55
Client ID:	PB-34-10-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.3		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Date Collected: 02/11/22 12:00
Client ID: PB-34-13-SS01
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1604272-1 QC Sample: L2207458-01 Client ID: DUP Sample						
Solids, Total	92.6	91.7	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
C	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2207567-01A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-01B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-01E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-04A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-04B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-04E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-05A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-05B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-05C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207567-05D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-05E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-06A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06C	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06E	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06F	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06G	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06H	Plastic 250ml HNO3 preserved	C	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2207567-07A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07C	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-07D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 2/12/22

ALPHA Job #: L2207567

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery Soil Characterization

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds) Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07567-01	PB-34-04-SS01	2/11	1140	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-34-08-SS01		1145	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-34-09-SS01		1150	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-34-10-SS01		1155	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB-34-13-SS01		1200	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	FB-220211		1210	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	TB-220211		-	W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Rec'd 2/12/22 0155

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/11 1500	S T AAL	2/11/22 15:40
[signature]	2/11/22 1800	Tom Clark AAL	2-11-22 1800
Tom Clark AAL	2-11-22	Anthony Iheee	2/11/22 2000
Anthony Iheee	2/11/22	[signature] AAL	2/12/22 0055
[signature] AAL 2/12/22 0155			

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)-NJ (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

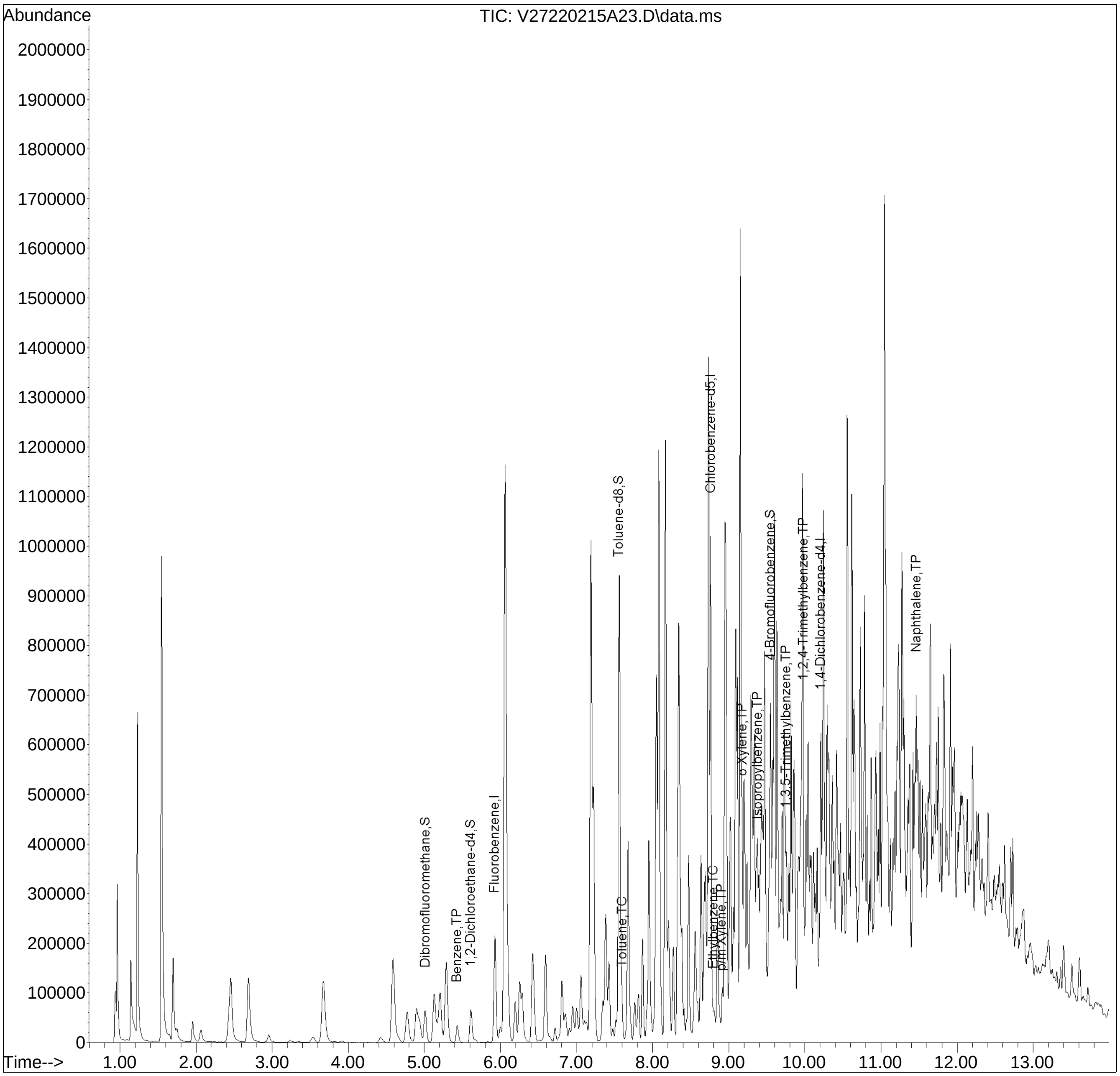
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A23.D
Acq On : 15 Feb 2022 07:39 pm
Operator : VOA127:KJD
Sample : l2207567-01D,31H,6.60,5,0.050,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 15 21:09:50 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

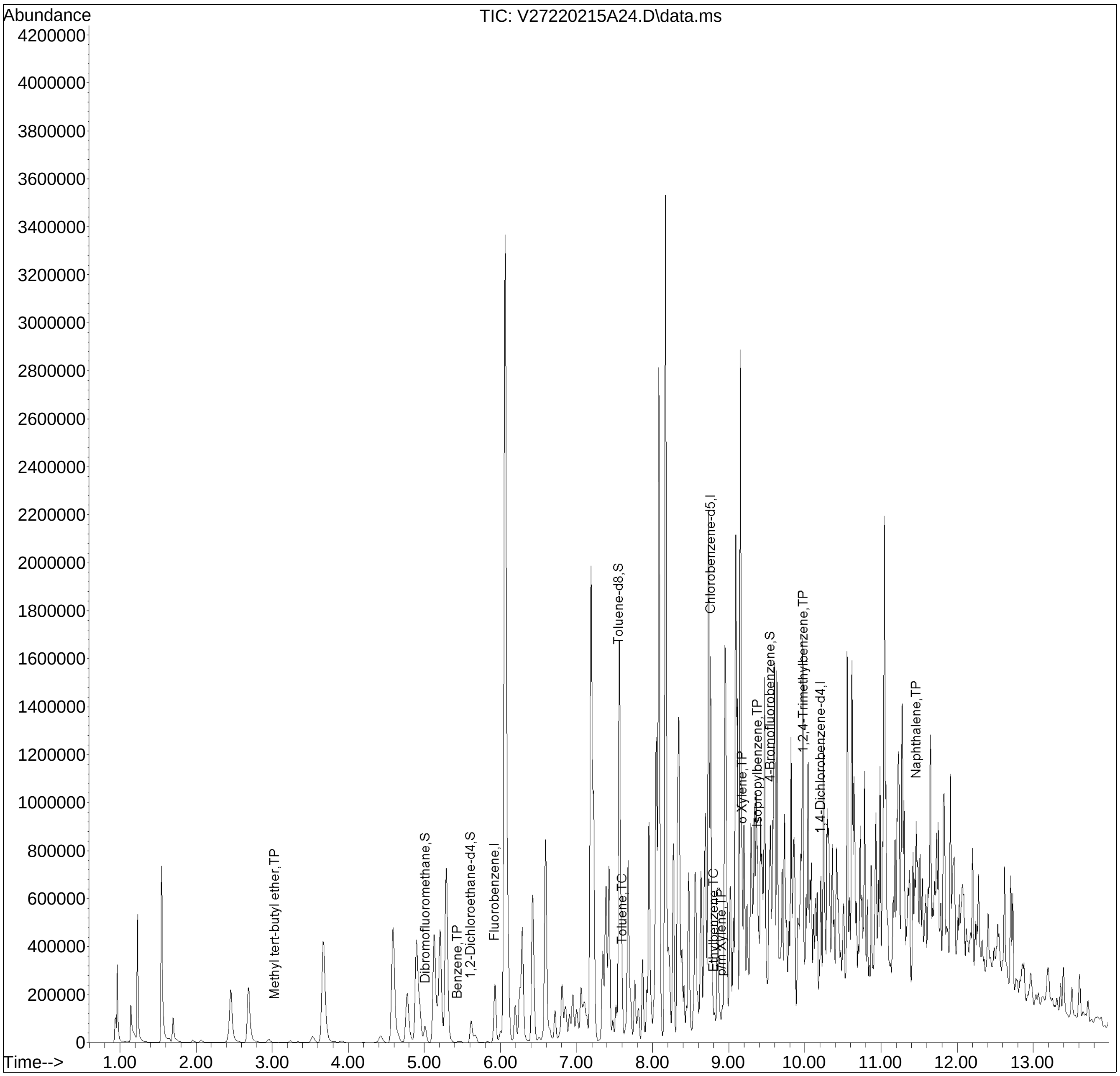


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A24.D
Acq On : 15 Feb 2022 08:00 pm
Operator : VOA127:KJD
Sample : l2207567-02D,31H,5.48,5,0.050,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Feb 15 21:10:28 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

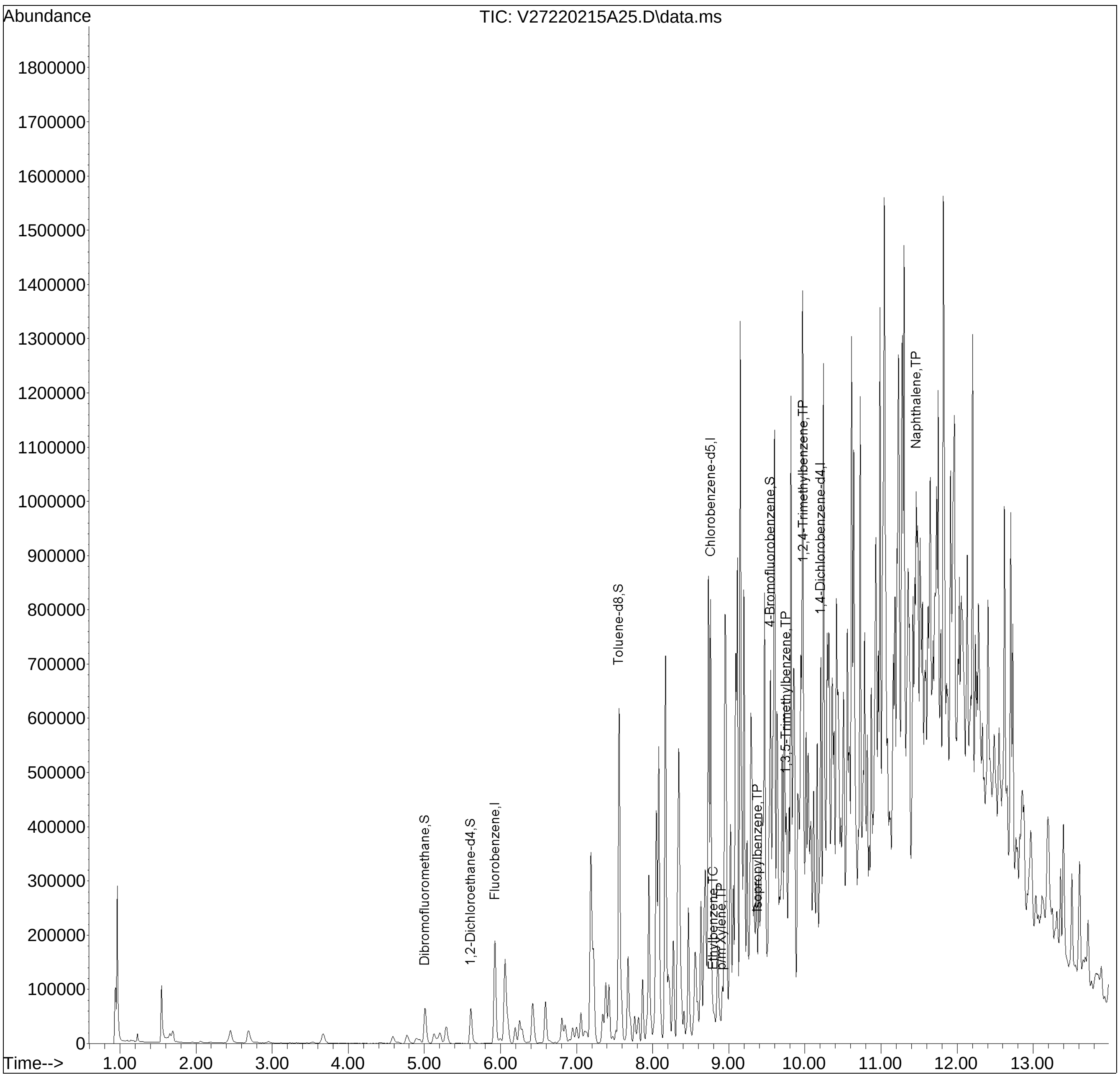


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A25.D
Acq On : 15 Feb 2022 08:20 pm
Operator : VOA127:MKS
Sample : l2207567-03,31H,6.54,5,0.100,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Feb 16 09:22:39 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

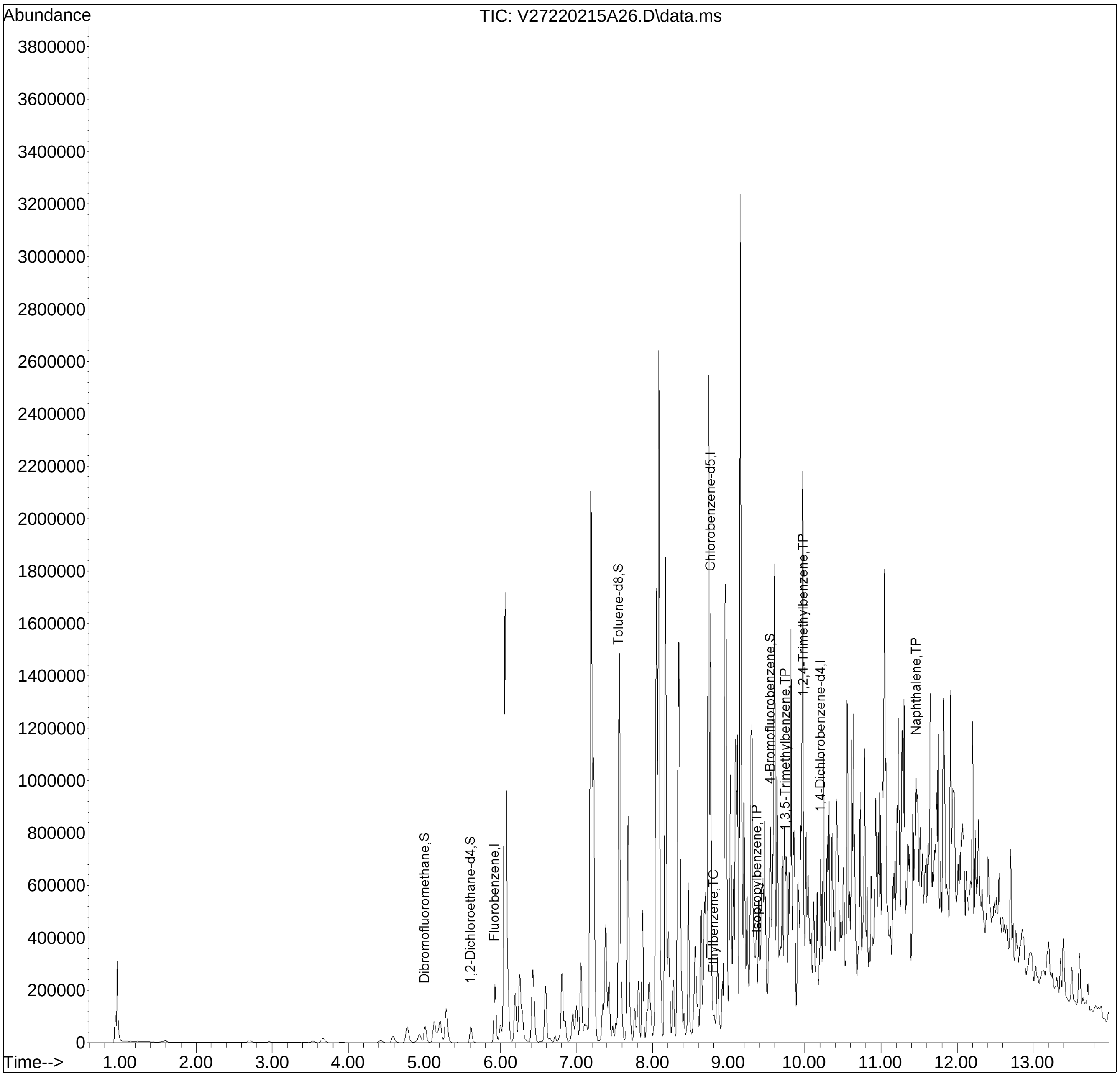


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A26.D
Acq On : 15 Feb 2022 08:41 pm
Operator : VOA127:MKS
Sample : l2207567-04D,31H,5.89,5,0.020,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Feb 16 09:23:12 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•



ANALYTICAL REPORT

Lab Number:	L2207791
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	02/25/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207791-01	PB-83-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 13:45	02/14/22
L2207791-02	PB-83-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 14:15	02/14/22
L2207791-03	PB-42-09R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 14:45	02/14/22
L2207791-04	PB-42-09R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 15:00	02/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207791-01.

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 02/25/22

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207791-01	Date Collected:	02/14/22 13:45
Client ID:	PB-83-01R-14.0-14.5	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/24/22 02:12
Analyst:	KDU
Percent Solids:	74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.90		mg/kg	0.037	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207791-02	Date Collected:	02/14/22 14:15
Client ID:	PB-83-01R-6.0-6.5	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 05:56
Analyst: MKS
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	1.6		mg/kg	0.039	0.013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-04
Client ID: PB-42-09R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 00:21
Analyst: MKS
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.18		mg/kg	0.00057	0.00019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791
Project Number: 200.00135.005.03 **Report Date:** 02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1605583-5					
Benzene	ND		mg/kg	0.00050	0.00017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1605584-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207791

Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1605583-3 WG1605583-4								
Benzene	98		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	92		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1605584-3 WG1605584-4								
Benzene	98		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

SAMPLE RESULTS

Lab ID:	L2207791-01	Date Collected:	02/14/22 13:45
Client ID:	PB-83-01R-14.0-14.5	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.0		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207791
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-02
Date Collected: 02/14/22 14:15
Client ID: PB-83-01R-6.0-6.5
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207791
Project Number: 200.00135.005.03
Report Date: 02/25/22

SAMPLE RESULTS

Lab ID: L2207791-04
Date Collected: 02/14/22 15:00
Client ID: PB-42-09R-6.0-6.5
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.7		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,04 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: DUP Sample						
Solids, Total	83.0	83.1	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 02/25/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207791-01A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-01B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-02A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-02B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-03A	Vial MeOH preserved	A	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207791-03B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207791-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-04B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: *DU Report with 'J' Qualifiers*

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	02/25/22

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery ~~- Delineation~~ AST CLOSURE - SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207791

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	Sample Specific Comments	TOTAL # BOTTLES
07791-01	PB-83-01R-14.0-14.5	2/14	1345	S	TS	☐	☑	☐	☐	☐	☐	HOLD	4
-02	PB-83-01R-6.0-6.5		1415	S	TS	☐	☑	☐	☐	☐	☐		4
-03	PB-~~83~~42-09R-14.0-14.5		1445	S	TS	☐	☑	☐	☐	☐	☐	HOLD	4
-04	PB-42-09R-6.0-6.5		1500	S	TS	☐	☑	☐	☐	☐	☐		4

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14 1615	[signature]	2/14/22 1615
[signature]	2/14/22 1900	[signature]	2/14 1900
[signature]	2/14/22 2100	[signature]	2/14/22 2100
[signature]	2/14/22	[signature]	2/15/22 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-HC) (rev. 5-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2207792
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	03/01/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207792-01	PB-43-01-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:15	02/14/22
L2207792-02	PB-43-02-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:30	02/14/22
L2207792-03	PB-43-03-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:45	02/14/22
L2207792-04	PB-43-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:00	02/14/22
L2207792-05	PB-43-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:10	02/14/22
L2207792-06	PB-43-07-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:20	02/14/22
L2207792-07	PB-43-08-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:30	02/14/22
L2207792-08	PB-43-10-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:40	02/14/22
L2207792-09	PB-43-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:50	02/14/22
L2207792-10	PB-83-04-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:30	02/14/22
L2207792-11	PB-83-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:40	02/14/22
L2207792-12	PB-83-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:50	02/14/22
L2207792-13	PB-83-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:00	02/14/22
L2207792-14	PB-85-09-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:30	02/14/22
L2207792-15	FB-220214	WATER	PHILADELPHIA, PA	02/14/22 15:30	02/14/22
L2207792-16	TB-220214	WATER	PHILADELPHIA, PA	02/14/22 00:00	02/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

March 01, 2022: The Volatile Organics analyte list has been amended on L2207792-12, -13, and -14. In addition, the results of the Metals analysis was removed from L2207792-01 through -14.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207792-02: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2207792-02 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (538%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (150%) and 4-bromofluorobenzene (331%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-06 and -09: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207792-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (463%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (230%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207792-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207792-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.
L2207792-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (224%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207792-11: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (55%) due to interference with the Internal Standard.
L2207792-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (637%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2207792-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics
L2207792-12: The sample has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 03/01/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-01	Date Collected:	02/14/22 09:15
Client ID:	PB-43-01-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/26/22 12:43
Analyst:	JC
Percent Solids:	83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0097		mg/kg	0.0027	0.00027	1
Benzene	0.00052	J	mg/kg	0.00068	0.00022	1
Toluene	ND		mg/kg	0.0014	0.00073	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	0.00022	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-02	Date Collected:	02/14/22 09:30
Client ID:	PB-43-02-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:50
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.012	J	mg/kg	0.030	0.010	1
Toluene	0.033	J	mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
Isopropylbenzene	0.38		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-02	Date Collected:	02/14/22 09:30
Client ID:	PB-43-02-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 12:07
Analyst: MKS
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
Toluene	0.0012	J	mg/kg	0.0013	0.00071	1
Ethylbenzene	0.0016		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.50	E	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**538**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-03	Date Collected:	02/14/22 09:45
Client ID:	PB-43-03-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 13:07
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00088	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	0.00016	J	mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.028		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00084	J	mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**150**	Q	70-130
4-Bromofluorobenzene	**331**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-04
Client ID: PB-43-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 10:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 13:32
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00041	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-05	Date Collected:	02/14/22 10:10
Client ID:	PB-43-06-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 14:28
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.00070		mg/kg	0.00042	0.00014	1
Toluene	ND		mg/kg	0.00085	0.00046	1
Ethylbenzene	0.00014	J	mg/kg	0.00085	0.00012	1
Isopropylbenzene	0.014		mg/kg	0.00085	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-06	Date Collected:	02/14/22 10:20
Client ID:	PB-43-07-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:24
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	ND		mg/kg	0.072	0.010	1
Isopropylbenzene	0.35		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-07	Date Collected:	02/14/22 10:30
Client ID:	PB-43-08-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 09:24
Analyst: MKS
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00024	J	mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00075	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.10		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00040	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**463**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
Client ID: PB-43-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 10:40
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 10:58
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	0.042	J	mg/kg	0.065	0.035	1
Ethylbenzene	0.16		mg/kg	0.065	0.0092	1
Isopropylbenzene	2.6		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.066	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**230**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
Client ID: PB-43-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 10:06
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	ND		mg/kg	0.044	0.015	1
Toluene	ND		mg/kg	0.088	0.048	1
Ethylbenzene	0.62		mg/kg	0.088	0.012	1
Isopropylbenzene	0.50		mg/kg	0.088	0.0096	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.15	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-10 Date Collected: 02/14/22 11:30
Client ID: PB-83-04-SS01 Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 09:40
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.46		mg/kg	0.032	0.010	1
Toluene	0.082		mg/kg	0.064	0.034	1
Ethylbenzene	1.0		mg/kg	0.064	0.0090	1
Isopropylbenzene	4.4		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.21		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**224**	Q	70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-11
Client ID: PB-83-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 11:40
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 13:35
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0035		mg/kg	0.00052	0.00017	1
Toluene	0.013		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.0073		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.12		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.014		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**637**	Q	70-130
Dibromofluoromethane	**55**	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
Client ID: PB-83-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 11:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 15:21
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0037		mg/kg	0.00053	0.00018	1
Toluene	0.0043		mg/kg	0.0010	0.00058	1
Ethylbenzene	0.0013		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.038		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0062		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-13
Client ID: PB-83-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 12:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 13:09
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-14	Date Collected:	02/14/22 12:30
Client ID:	PB-85-09-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 09:14
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	1.7		mg/kg	0.033	0.011	1
Toluene	0.70		mg/kg	0.067	0.036	1
Ethylbenzene	2.8		mg/kg	0.067	0.0094	1
Isopropylbenzene	2.6		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.62		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.48		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
Client ID: FB-220214
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/15/22 10:38
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-16
Client ID: TB-220214
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 00:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/15/22 11:01
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 09:52
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1605333-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/24/22 09:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-04 Batch: WG1609126-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06,08-10,14 Batch: WG1609759-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05,11-13 Batch: WG1609760-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,07 Batch: WG1609768-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1605333-3 WG1605333-4								
Methyl tert butyl ether	110		100		63-130	10		20
Benzene	100		100		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	99		101		70-130
4-Bromofluorobenzene	99		101		70-130
Dibromofluoromethane	101		102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-04 Batch: WG1609126-3 WG1609126-4								
Methyl tert butyl ether	87		87		66-130	0		30
Benzene	86		84		70-130	2		30
Toluene	86		85		70-130	1		30
Ethylbenzene	85		83		70-130	2		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	98		96		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	100		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06,08-10,14 Batch: WG1609759-3 WG1609759-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05,11-13 Batch: WG1609760-3 WG1609760-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,07 Batch: WG1609768-3 WG1609768-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30
Ethylbenzene	85		80		70-130	6		30
Isopropylbenzene	82		76		70-130	8		30
1,3,5-Trimethylbenzene	85		80		70-130	6		30
1,2,4-Trimethylbenzene	87		82		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-01	Date Collected:	02/14/22 09:15
Client ID:	PB-43-01-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 16:09		
Analyst:	CMM		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
Client ID: PB-43-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 16:34
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**131**	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-03	Date Collected:	02/14/22 09:45
Client ID:	PB-43-03-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 16:58		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	96		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-04	Date Collected:	02/14/22 10:00
Client ID:	PB-43-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 17:22		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	90		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-05
Client ID: PB-43-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:10
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 17:46
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-06	Date Collected:	02/14/22 10:20
Client ID:	PB-43-07-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 18:11		
Analyst:	CMM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**147**	Q	23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	86		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-07	Date Collected:	02/14/22 10:30
Client ID:	PB-43-08-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 18:35		
Analyst:	CMM		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**176**	Q	23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	63		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-08	Date Collected:	02/14/22 10:40
Client ID:	PB-43-10-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 18:59		
Analyst:	CMM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**174**	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
Client ID: PB-43-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 19:23
Analyst: CMM
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	64		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-10	Date Collected:	02/14/22 11:30
Client ID:	PB-83-04-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 19:48		
Analyst:	CMM		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-11	Date Collected:	02/14/22 11:40
Client ID:	PB-83-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 20:12		
Analyst:	CMM		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**121**	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
Client ID: PB-83-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 20:36
Analyst: CMM
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	1.3	0.15	6

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**135**	Q	23-120
2-Fluorobiphenyl	108		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-13
Client ID: PB-83-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 12:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 21:01
Analyst: CMM
Percent Solids: 84%
Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:56

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.9		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**129**	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-14	Date Collected:	02/14/22 12:30
Client ID:	PB-85-09-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:56
Analytical Date:	02/26/22 21:25		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
Client ID: FB-220214
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:27
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 15 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/26/22 14:56	Extraction Date:	02/25/22 23:55
Analyst:	CMM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-14 Batch: WG1609255-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 15 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-14 Batch: WG1609255-2 WG1609255-3								
Naphthalene	75		77		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	71		70		23-120
2-Fluorobiphenyl	80		81		30-120
4-Terphenyl-d14	83		84		18-120

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-01	Date Collected:	02/14/22 09:15
Client ID:	PB-43-01-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-02	Date Collected:	02/14/22 09:30
Client ID:	PB-43-02-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-03
Date Collected: 02/14/22 09:45
Client ID: PB-43-03-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-04
Client ID: PB-43-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207792

Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-05
Client ID: PB-43-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:10
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-06
Date Collected: 02/14/22 10:20
Client ID: PB-43-07-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-07
Date Collected: 02/14/22 10:30
Client ID: PB-43-08-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
Date Collected: 02/14/22 10:40
Client ID: PB-43-10-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-09	Date Collected:	02/14/22 10:50
Client ID:	PB-43-11-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-10	Date Collected:	02/14/22 11:30
Client ID:	PB-83-04-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-11
Date Collected: 02/14/22 11:40
Client ID: PB-83-05-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
Date Collected: 02/14/22 11:50
Client ID: PB-83-06-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-13	Date Collected:	02/14/22 12:00
Client ID:	PB-83-11-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-14
Date Collected: 02/14/22 12:30
Client ID: PB-85-09-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: PB-43-01-SS01						
Solids, Total	83.0	83.1	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-01A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-01B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-01E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-02A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207792-02B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-02E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-03A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-03B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-03E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-04A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-04B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-04E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-05A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-05B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-05C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-05D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-05E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-06A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-06B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-06E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-07A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-07B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-07E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-08A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-08B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-08E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-09B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-09E	Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-10B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-10E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-11A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-11B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-11E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-12A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-12B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-12E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-13A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-13B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-13E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-14A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-14B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-14E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-15A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15C	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15D	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-15E	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-16A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-16B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207792

Project Information

Project Name: Philadelphia Refinery – AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

NOTE: Run NAP via 8270!

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07792-01	PB-43-01-SS01	2/14	0915	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
-02	PB-43-02-SS01	↓	0930	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB-43-03-SS01	↓	0945	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB-43-05-SS01	↓	1000	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB-43-06-SS01	↓	1010	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB-43-07-SS01	↓	1020	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB-43-08-SS01	↓	1030	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB-43-10-SS01	↓	1040	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB-43-11-SS01	↓	1050	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-10	PB-43-04-SS01	↓	1130	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14 1615	[signature]	2/14/22 1615
[signature]	2/14/22 1700	[signature]	2-14-22
[signature]	2-14-22	Anthony Ilzuca	2/14/22 2100
Anthony Ilzuca	2/14/22	[signature]	2/15/22 0000
[signature]	2/15/22 0	[signature]	2/15/22 0710

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)-NJ (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207792

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
07792-11	PB-83-05-SS01	2/14	1140	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
-12	PB-83-06-SS01	↓	1150	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB-33-11-SS01	↓	1200	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB-85-09-SS01	↓	1230	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	FB-220214	↓	1530		↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	TB-220214	↓		-	↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		

Container Type	G	G	G	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14 1615	[signature]	2/14/22 16[illegible]
[signature]	2/14 - 2100	Anthony Green	2/14/22 2100
Anthony Green	2/14/22	[signature] AAL	2/15/22 0005
[signature] AAL	2/15/22 0210	[signature]	2/15/22 [illegible]

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

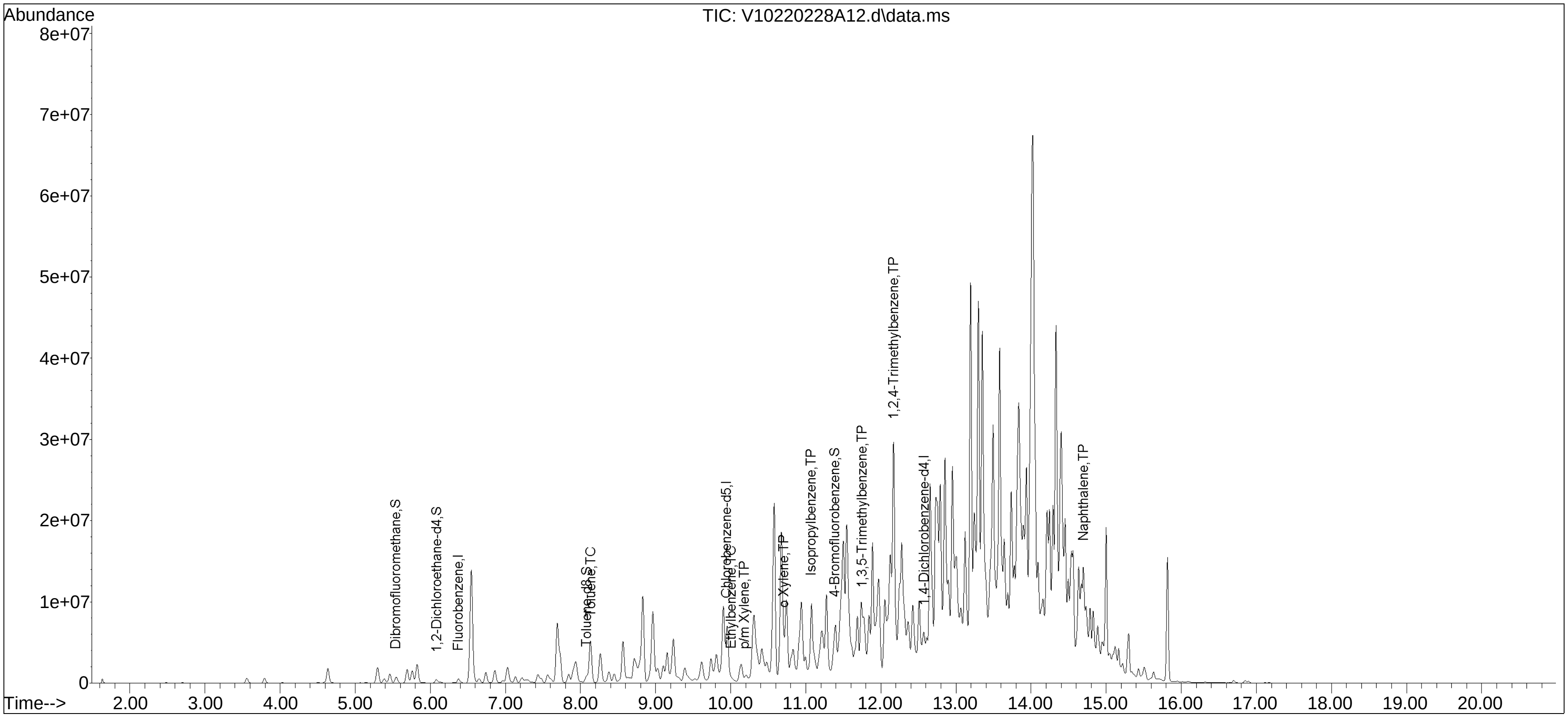
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220228A\
Data File : V10220228A12.d
Acq On : 28 Feb 2022 12:07 pm
Operator : VOA110:MKS
Sample : L2207792-02,31,4.54,5,,C,R2F
Misc : WG1609768,ICAL18690
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Feb 28 12:55:03 2022
Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•

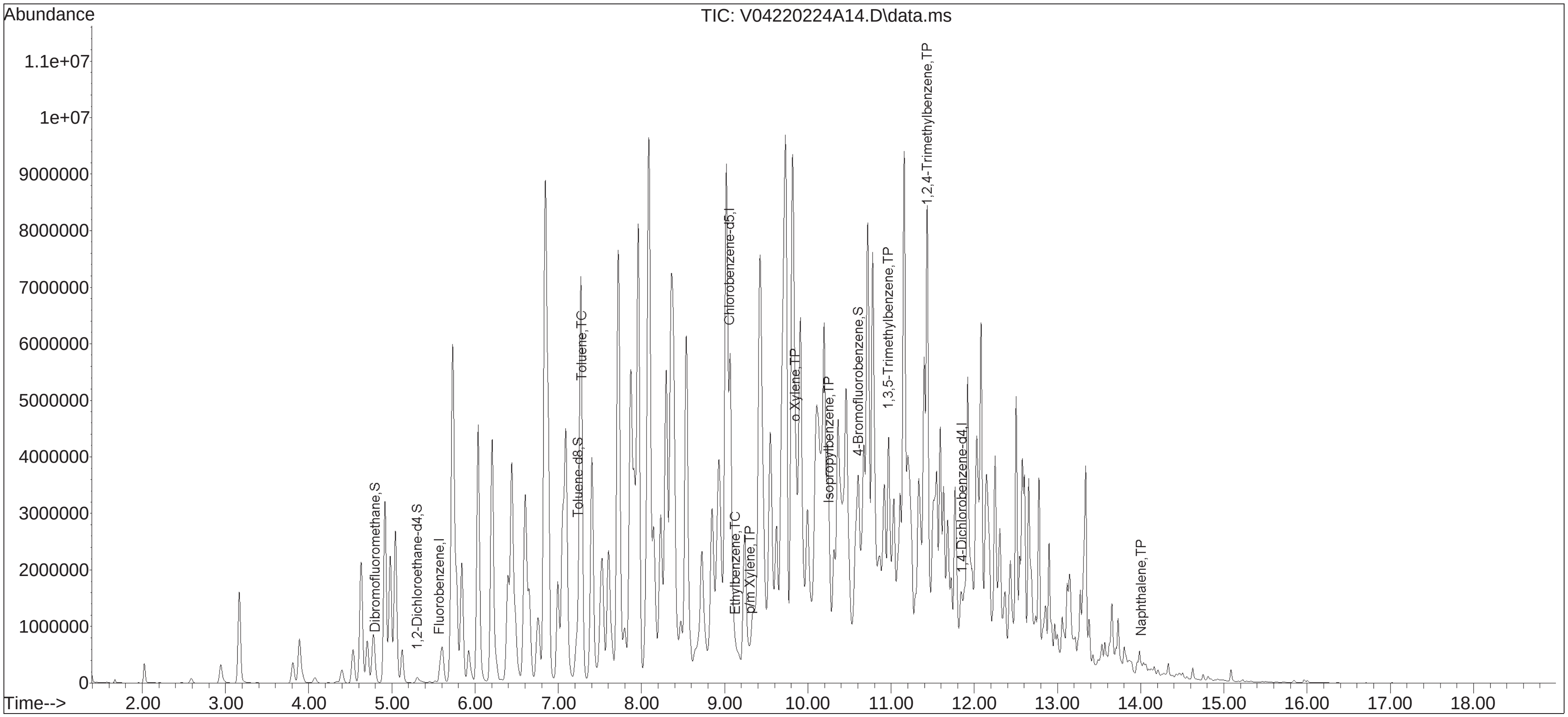


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2022\220224A\
Data File : V04220224A14.D
Acq On    : 24 Feb 2022   1:07 pm
Operator  : VOA104:AJK
Sample    : L2207792-03,31,6.37,5,,B,R2F
Misc      : WG1609126,ICAL18563
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Feb 28 07:28:57 2022
Quant Method : I:\VOLATILES\VOA104\2022\220224A\V104_211214A_8260D.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list24A\V04220224A01.D•
```

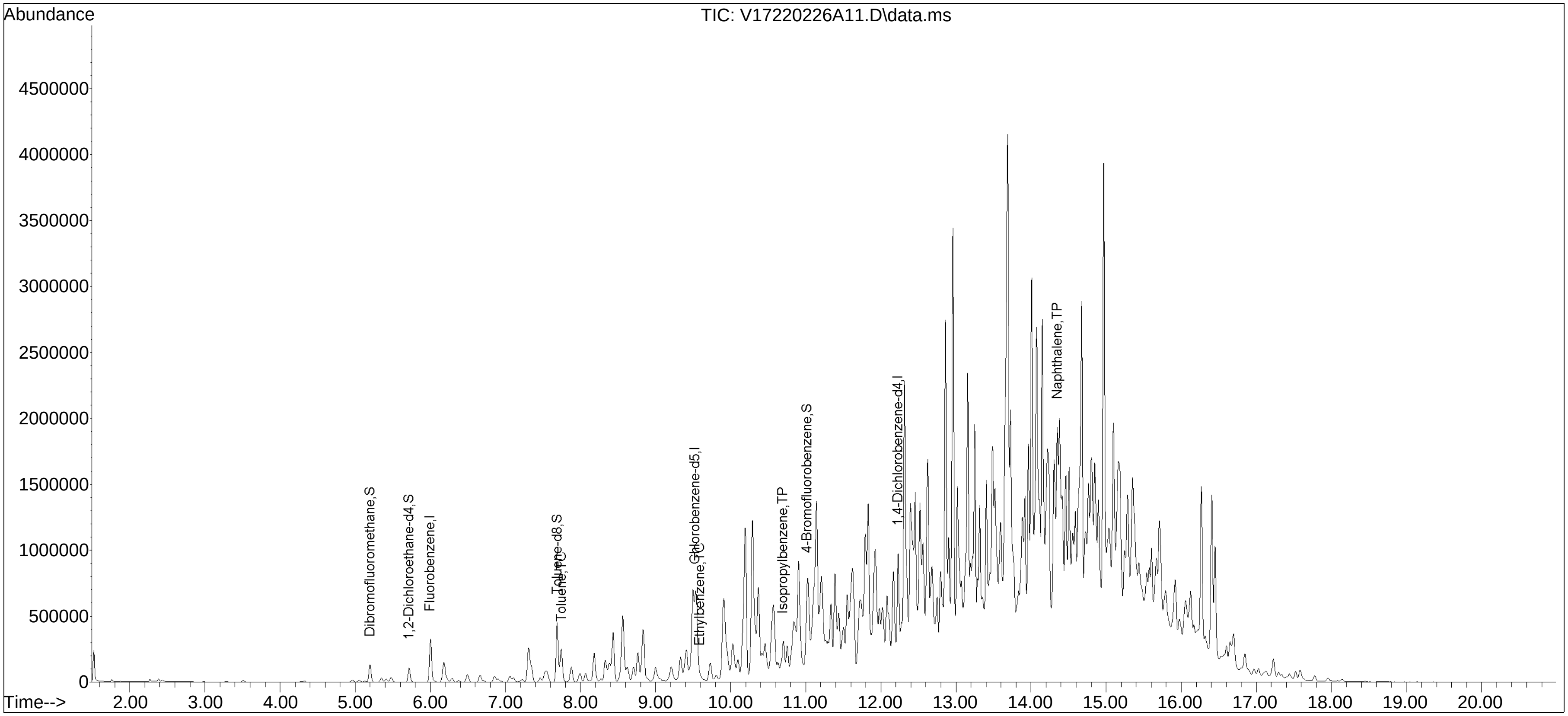


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A11.D
Acq On    : 26 Feb 2022  11:24 am
Operator  : VOA117:JC
Sample    : L2207792-06,31H,5.04,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Feb 28 10:36:13 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

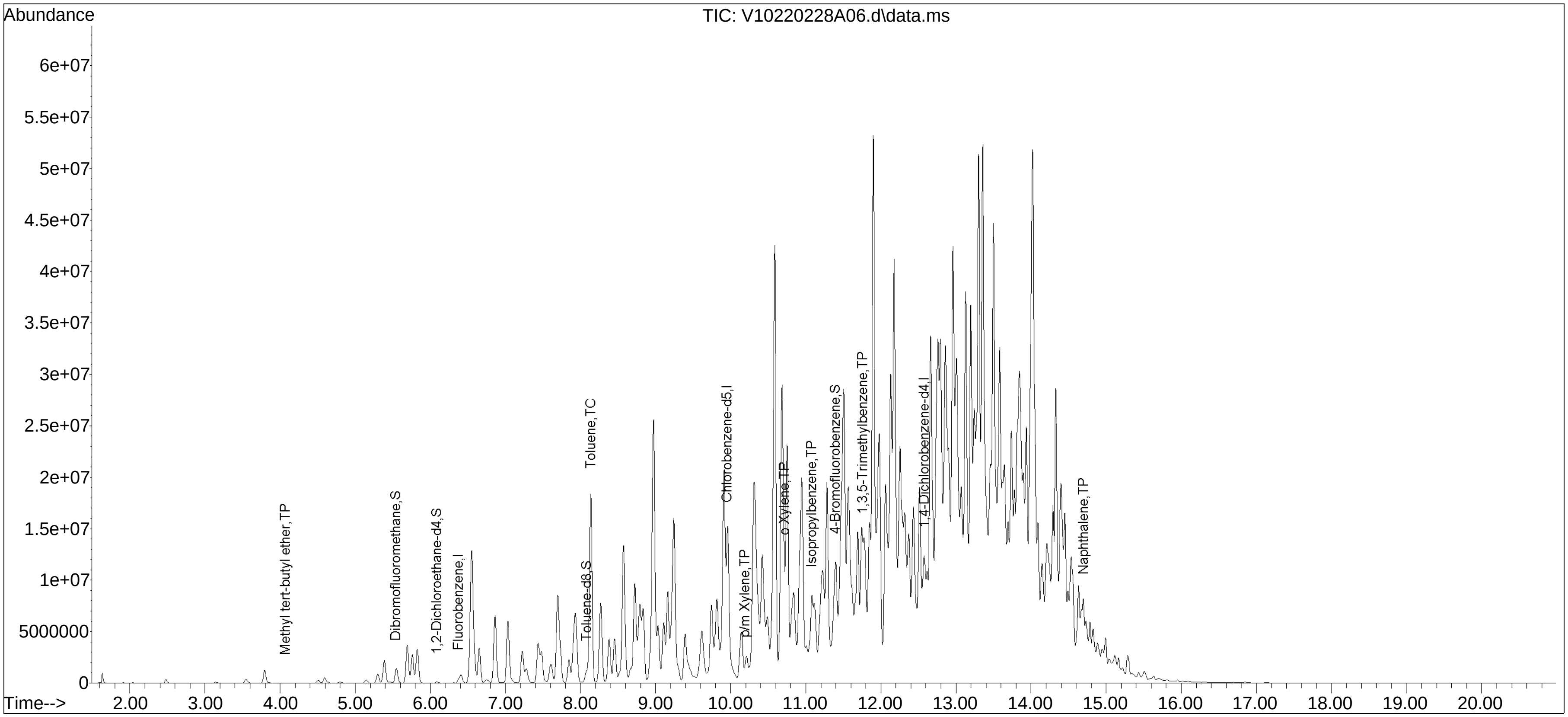


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220228A\
Data File : V10220228A06.d
Acq On : 28 Feb 2022 9:24 am
Operator : VOA110:MKS
Sample : L2207792-07,31,6.08,5,,B,R2F
Misc : WG1609768,ICAL18690
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 28 12:52:38 2022
Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•

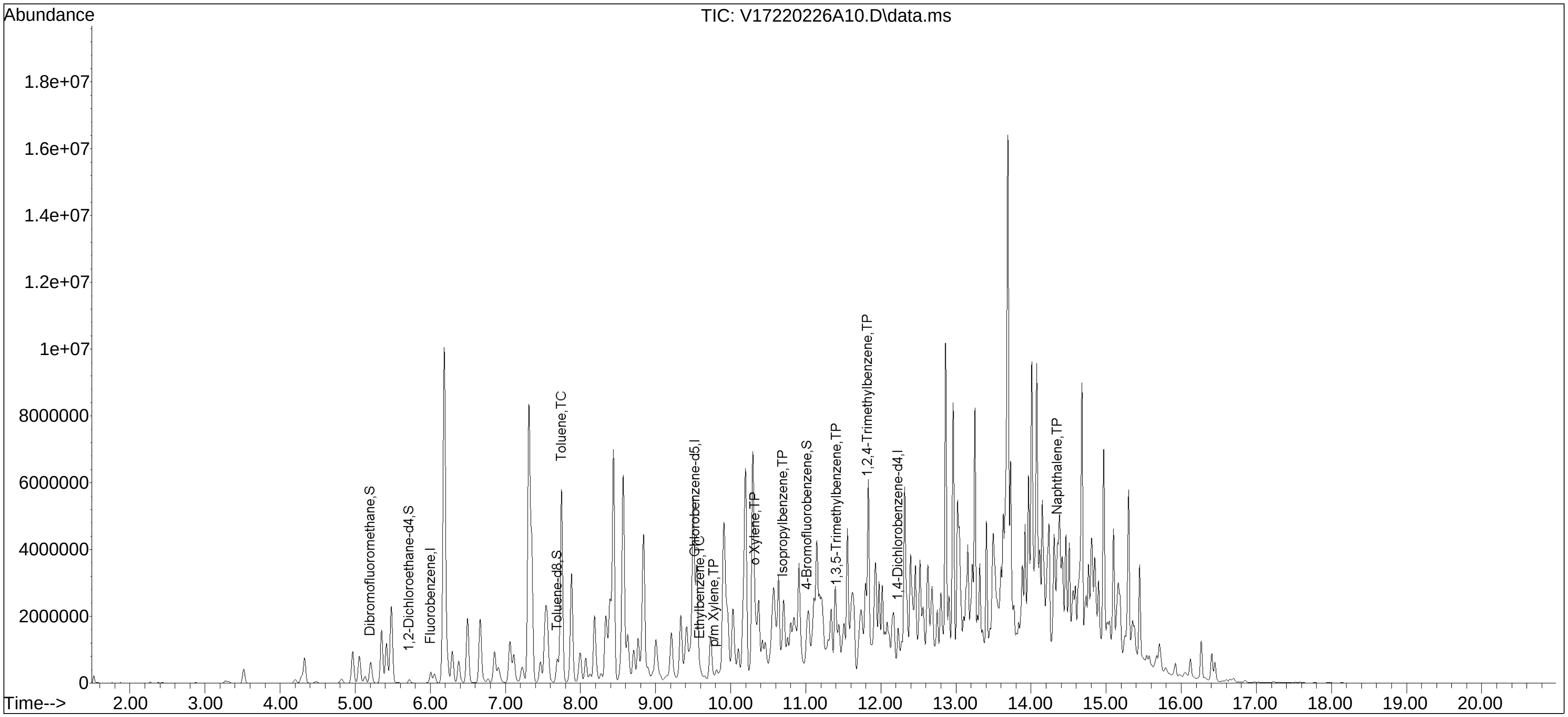


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A10.D
Acq On    : 26 Feb 2022  10:58 am
Operator  : VOA117:JC
Sample    : L2207792-08,31H,5.65,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Feb 28 10:35:43 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

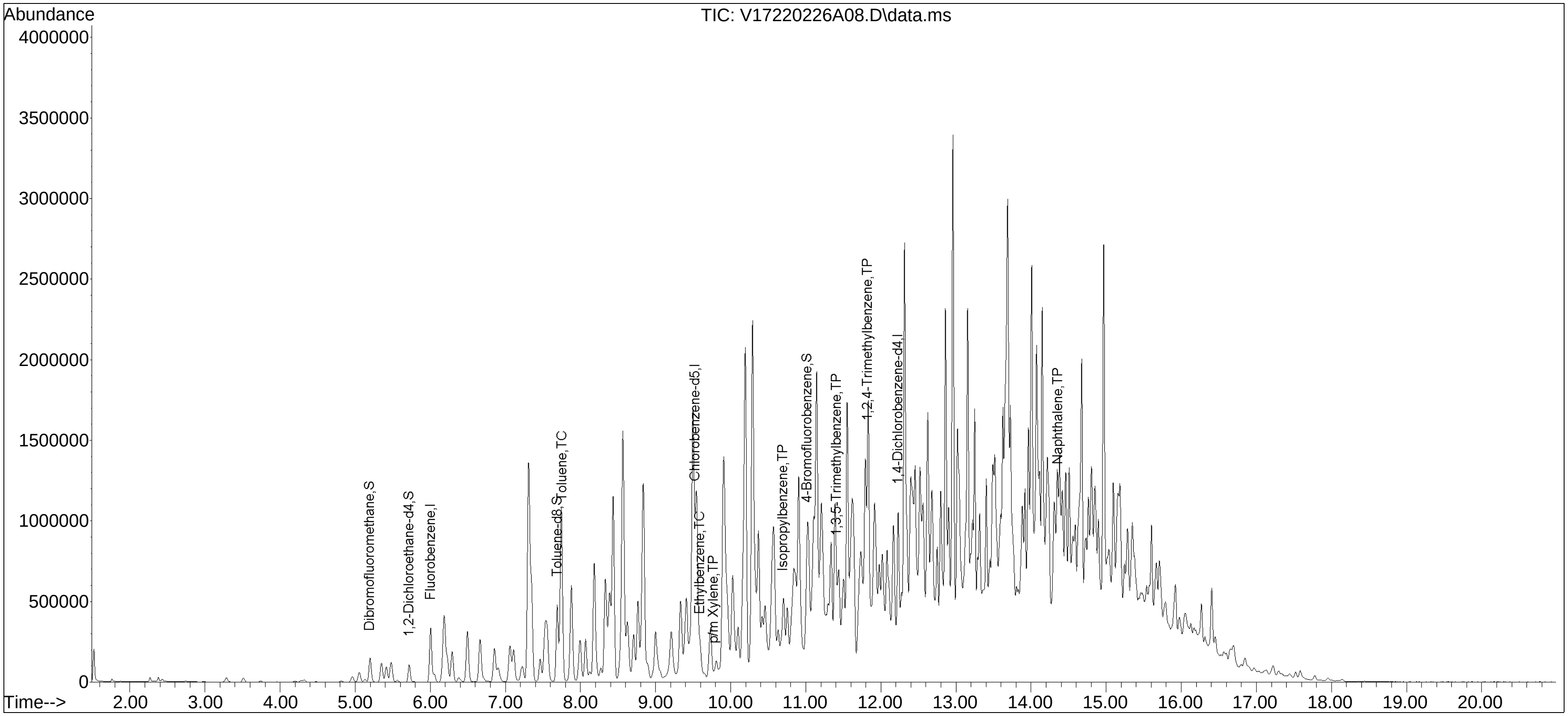


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A08.D
Acq On    : 26 Feb 2022  10:06 am
Operator  : VOA117:JC
Sample    : L2207792-09,31H,3.93,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Feb 28 10:34:58 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

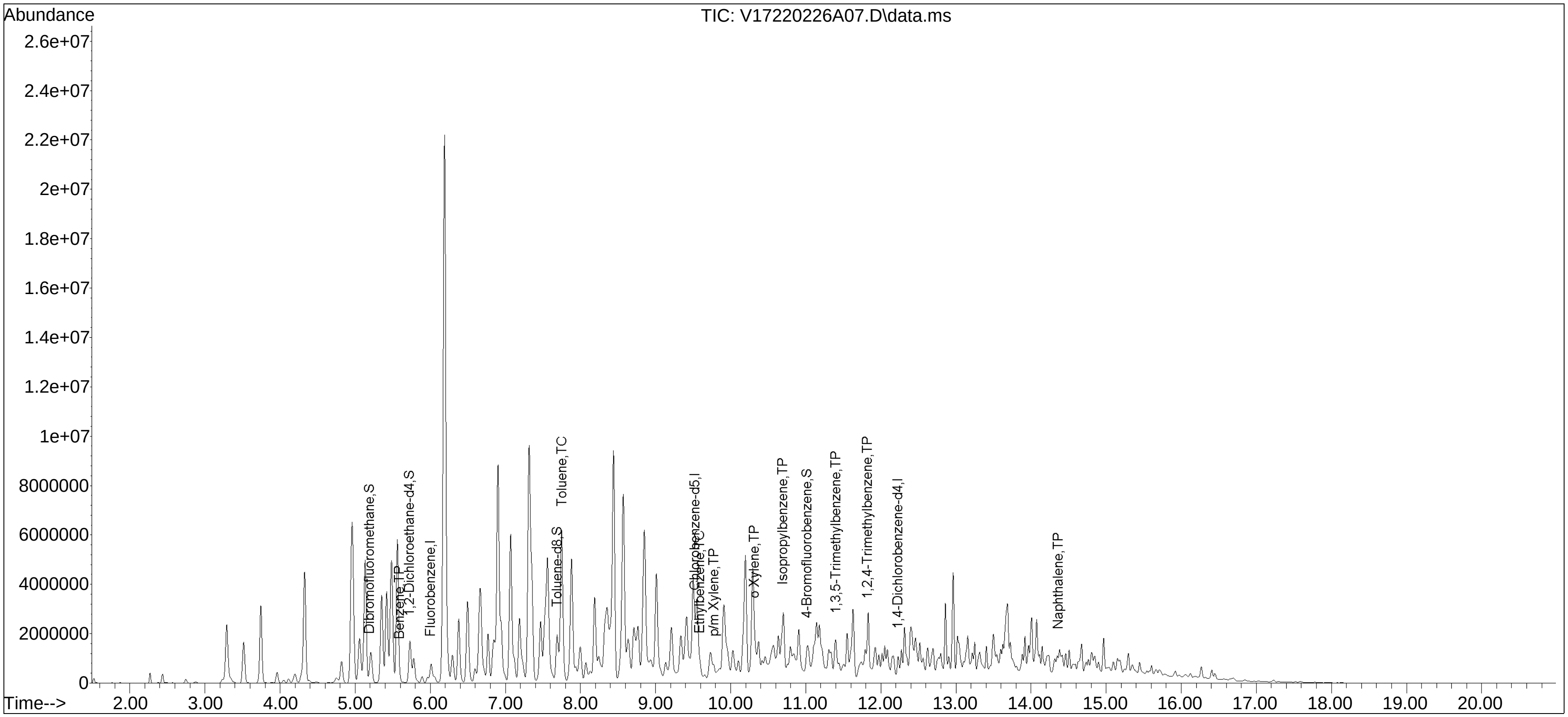


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A07.D
Acq On    : 26 Feb 2022  09:40 am
Operator  : VOA117:JC
Sample    : L2207792-10,31H,5.22,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Feb 28 10:33:49 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

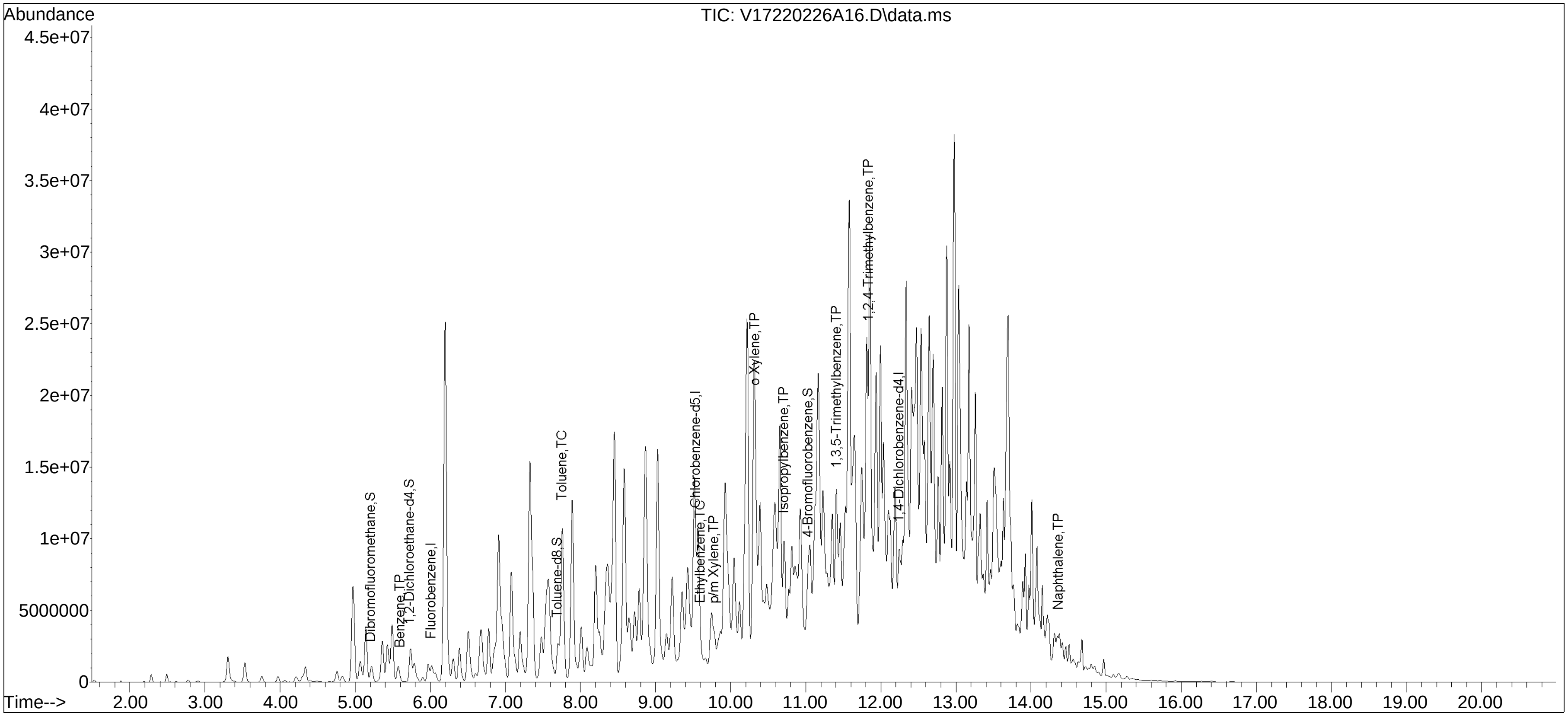


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A16.D
Acq On   : 26 Feb 2022 01:35 pm
Operator : VOA117:JC
Sample   : L2207792-11,31,5.68,5,,B,R2F
Misc   : WG1609760,ICAL18616
ALS Vial : 16   Sample Multiplier: 1

Quant Time: Feb 28 10:39:50 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

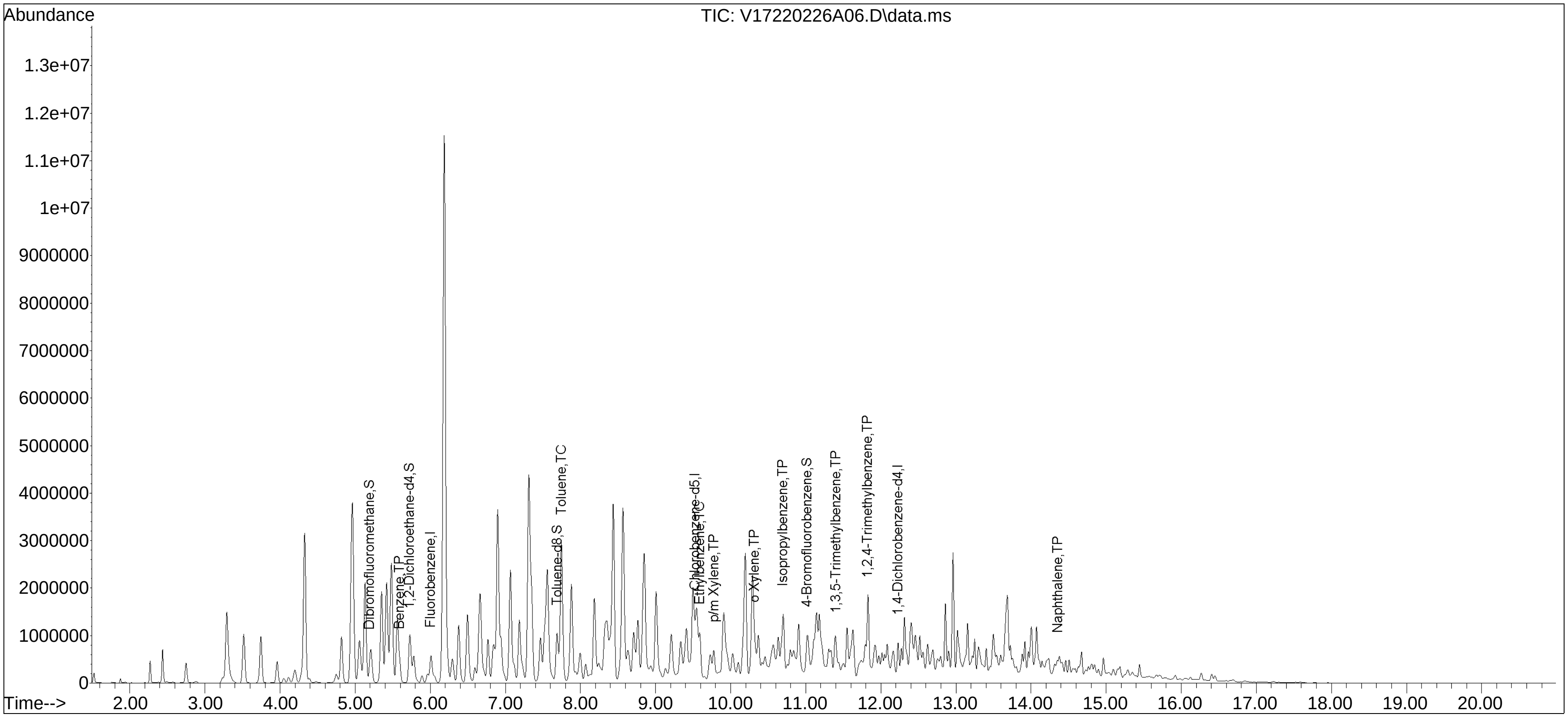


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A06.D
Acq On : 26 Feb 2022 09:14 am
Operator : VOA117:JC
Sample : L2207792-14,31H,5.23,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 28 10:33:10 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•



ANALYTICAL REPORT

Lab Number:	L2207973
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	03/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207973-01	PB-84-04R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 09:15	02/15/22
L2207973-02	PB-84-04R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 09:25	02/15/22
L2207973-03	PB-84-04R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 09:35	02/15/22
L2207973-04	PB-128-05R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:00	02/15/22
L2207973-05	PB-128-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:10	02/15/22
L2207973-06	PB-128-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 13:20	02/15/22
L2207973-07	PB-129-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:40	02/15/22
L2207973-08	PB-129-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:50	02/15/22
L2207973-09	PB-129-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:00	02/15/22
L2207973-10	PB-129-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 14:20	02/15/22
L2207973-11	PB-129-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:30	02/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

March 02, 2022: This final report includes the results of the Total Lead analysis performed on L2207973-06.

February 22, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207973-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (336%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207973-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207973-10: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (16%) and the surrogate recovery for 4-bromofluorobenzene (1002%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. The results of both analyses are reported.

L2207973-10: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to sample non-homogeneity.

Total Metals

The WG1606094-3 MS recovery, performed on L2207973-04, is outside the acceptance criteria for lead (50%). A post digestion spike was performed and yielded an unacceptable recovery for lead (50%). The serial

Case Narrative (continued)

dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 03/02/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-02	Date Collected:	02/15/22 09:25
Client ID:	PB-84-04R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 04:10
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.28		mg/kg	0.031	0.010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**336**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05 Date Collected: 02/15/22 13:10
Client ID: PB-128-05R-6.0-6.5 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:08
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.11		mg/kg	0.051	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-10	Date Collected:	02/15/22 14:20
Client ID:	PB-129-18-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 03:21
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Benzene	0.69	E	mg/kg	0.00053	0.00018	1
Toluene	0.44	E	mg/kg	0.0011	0.00058	1
Ethylbenzene	2.0	E	mg/kg	0.0011	0.00015	1
p/m-Xylene	5.3	E	mg/kg	0.0021	0.00059	1
o-Xylene	0.79	E	mg/kg	0.0011	0.00031	1
1,3,5-Trimethylbenzene	14.	E	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	20.	E	mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**1000**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-10	Date Collected:	02/15/22 14:20
Client ID:	PB-129-18-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:33
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.048		mg/kg	0.031	0.010	1
Toluene	0.082		mg/kg	0.062	0.034	1
Ethylbenzene	0.29		mg/kg	0.062	0.0088	1
p/m-Xylene	0.88		mg/kg	0.12	0.035	1
o-Xylene	0.12		mg/kg	0.062	0.018	1
Xylenes, Total	1.0		mg/kg	0.062	0.018	1
1,3,5-Trimethylbenzene	0.78		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:48
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,10 Batch: WG1607642-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1607679-5					
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1607683-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03
Lab Number: L2207973
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,10 Batch: WG1607642-3 WG1607642-4								
Benzene	96		93		70-130	3		30
Toluene	99		96		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		88		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	106		97		70-130
Dibromofluoromethane	95		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1607679-3 WG1607679-4								
Benzene	100		100		70-130	0		30
Toluene	104		104		70-130	0		30
Ethylbenzene	104		105		70-130	1		30
p/m-Xylene	111		112		70-130	1		30
o-Xylene	110		110		70-130	0		30
1,3,5-Trimethylbenzene	103		108		70-130	5		30
1,2,4-Trimethylbenzene	102		108		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207973

Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1607683-3 WG1607683-4								
Benzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-01	Date Collected:	02/15/22 09:15
Client ID:	PB-84-04R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 17:07		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
Client ID: PB-84-04R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 09:25
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/20/22 16:43
Analyst: CMM
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	59		18-120

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/19/22 10:37	Extraction Date:	02/18/22 18:57
Analyst:	SZ		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

METALS

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-04
Date Collected: 02/15/22 13:00
Client ID: PB-128-05R-0.0-0.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.38		mg/kg	2.01	0.108	1	02/17/22 15:03	02/17/22 23:12	EPA 3050B	1,6010D	MC

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05
Date Collected: 02/15/22 13:10
Client ID: PB-128-05R-6.0-6.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1780		mg/kg	2.60	0.140	1	02/17/22 15:03	02/17/22 23:02	EPA 3050B	1,6010D	MC

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-06	Date Collected:	02/15/22 13:20
Client ID:	PB-128-05R-14.0-14.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	52%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	38.1		mg/kg	3.80	0.204	1	02/23/22 22:40	03/02/22 11:39	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-07	Date Collected:	02/15/22 13:40
Client ID:	PB-129-01R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	71%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	231		mg/kg	2.69	0.144	1	02/17/22 15:03	02/17/22 23:07	EPA 3050B	1,6010D	MC

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-08	Date Collected:	02/15/22 13:50
Client ID:	PB-129-01R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	202		mg/kg	2.52	0.135	1	02/17/22 15:03	02/17/22 23:46	EPA 3050B	1,6010D	MC

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 04-05,07-08 Batch: WG1606094-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 06 Batch: WG1608436-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03
Lab Number: L2207973
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03
Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5												
Lead, Total	6.38	42.8	27.9	**50**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	**44**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207973

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5						
Lead, Total	6.38	6.72	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	**23**	Q	20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-01
Date Collected: 02/15/22 09:15
Client ID: PB-84-04R-0.0-0.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
Date Collected: 02/15/22 09:25
Client ID: PB-84-04R-6.0-6.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-04
Client ID: PB-128-05R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-05 Date Collected: 02/15/22 13:10
Client ID: PB-128-05R-6.0-6.5 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-06
Client ID: PB-128-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 13:20
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	51.9		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2207973-07
Date Collected: 02/15/22 13:40
Client ID: PB-129-01R-0.0-0.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.6		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-08	Date Collected:	02/15/22 13:50
Client ID:	PB-129-01R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.9		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2207973-10	Date Collected:	02/15/22 14:20
Client ID:	PB-129-18-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07-08,10 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: PB-84-04R-0.0-0.5						
Solids, Total	81.1	80.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 06 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2207973-01A	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207973-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-02E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2207973-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-03E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		HOLD-8270(14)
L2207973-04A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-04B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-05E	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05F	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-06B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06F	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207973-06G	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06H	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-07A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-07B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-08A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-08B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-09A	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		HOLD-METAL(180)
L2207973-09B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-10A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207973-10B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-11A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-11B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207973

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ Site Investigation

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

RUN NAP VIA 8270 I

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	Ethyl Benzene	Xylenes			Sample Specific Comments	TOTAL # BOTTLES
07973-01	PB-34-04R-0.0-0.5	2/15	0915	S	TS	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		1
-02	PB-34-04R-6.0-6.5		0925	S		☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		5
-03	PB-34-04R-14.0-14.5		0935	S		☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	HOLD	5
-04	PB-128-05R-0.0-0.5		1300	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-05	PB-128-05R-6.0-6.5		1310	S		☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-06	PB-125-05R-14.0-14.5		1320	S		☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	6
-07	PB-129-01R-0.0-0.5		1340	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-08	PB-129-01R-6.0-6.5		1350	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-09	PB-129-01R-14.0-14.5		1400	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2
-10	PB-129-13-6.0-6.5		1420	S		☐	☑	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐		4
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/15 1525	ST AAL	2/16/22 1515
[signature]	2/15/22 18:0	[signature]	2/15 18:0
[signature]	2/15 2100	Anthony Alee	2/15/22 2100
Anthony Alee	2/15/22	[signature] AAL	2/15/22 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207973

Project Information

Project Name: PES Refinery ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 5-DAY Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	Ethylbenzene	Xylenes			Sample Specific Comments	Total # Bottles
07973-11	PR-129-18-14.0-14.5 ~~DUP-24~~	2/15	1430	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	HOLD	4

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

SAMPLE HANDLING

Filtration
☐ Done
☒ Not Needed
☐ Lab to do

Preservation
☐ Lab to do

(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/15 1835	[signature] AAL	2/15/22 1834
[signature]	2/16/22 10:-	[signature]	2/18 18:--
[signature]	2-15- 2100	Anthony Green	2/15/22 2100
Anthony Green	2/15/22	[signature] AAL	2/15/22 2345
[signature] AAL	2/16/22 0130	[signature]	2/16/22 0135

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

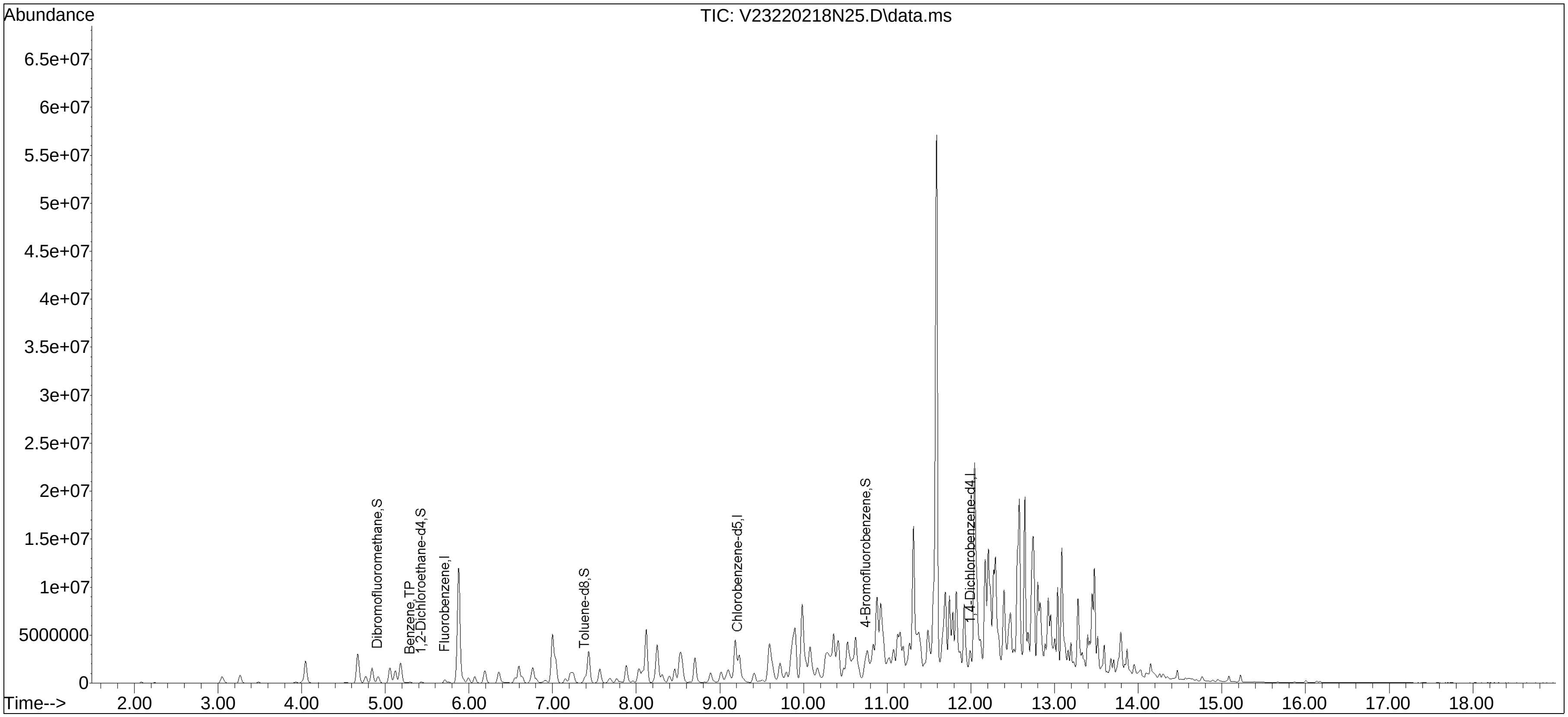
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N25.D
Acq On : 19 Feb 2022 04:10 am
Operator : VOA123:AJK
Sample : l2207973-02,31H,6.04,5,0.100,,a,r2f
Misc : WG1607683,ICAL18401
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Feb 20 21:51:22 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220218N\V23220218N01.D•

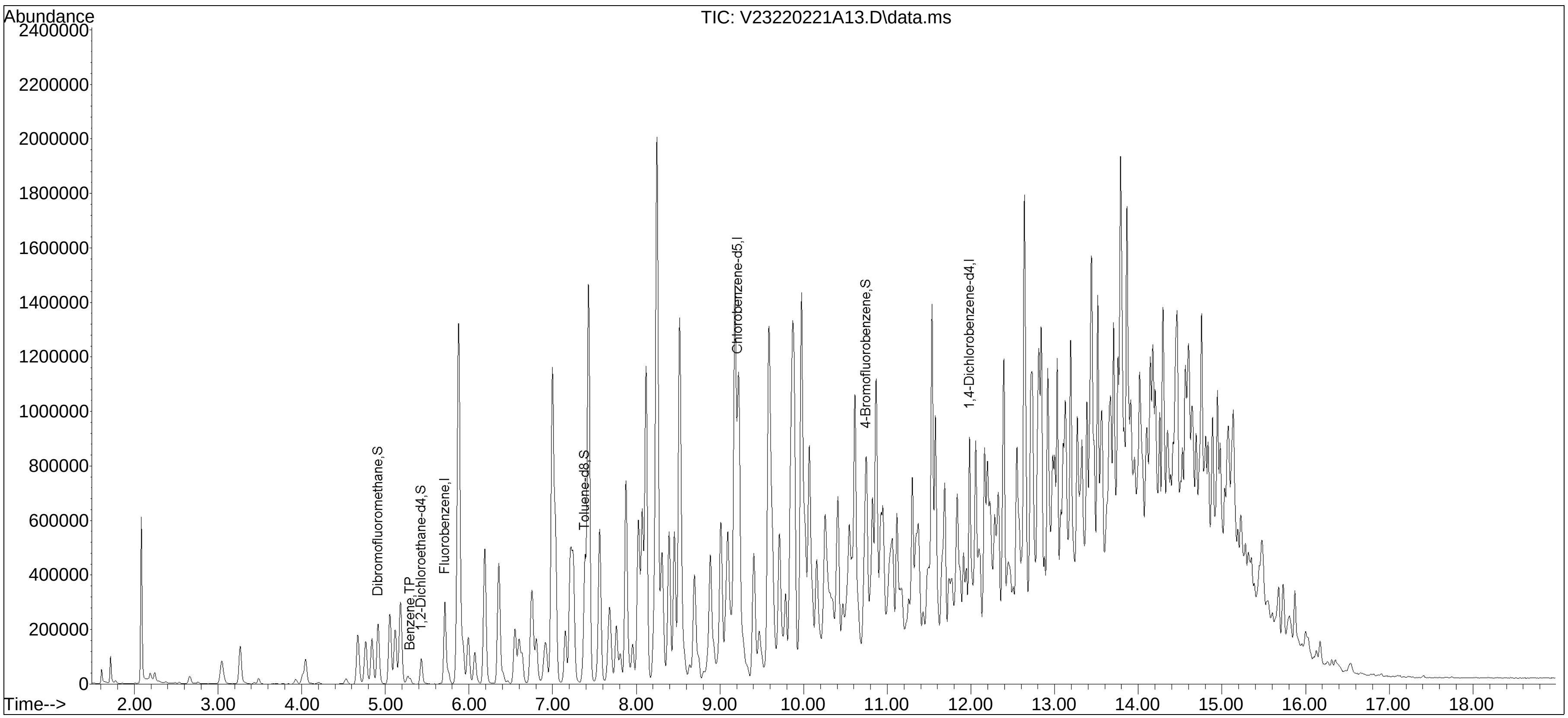


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220221A\
Data File : V23220221A13.D
Acq On : 21 Feb 2022 12:08 pm
Operator : VOA123:JC
Sample : l2207973-05,31H,4.11,5,0.100,,a,r2f
Misc : WG1607642,ICAL18401
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 22 07:55:44 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220221A\V23220221A01.D•

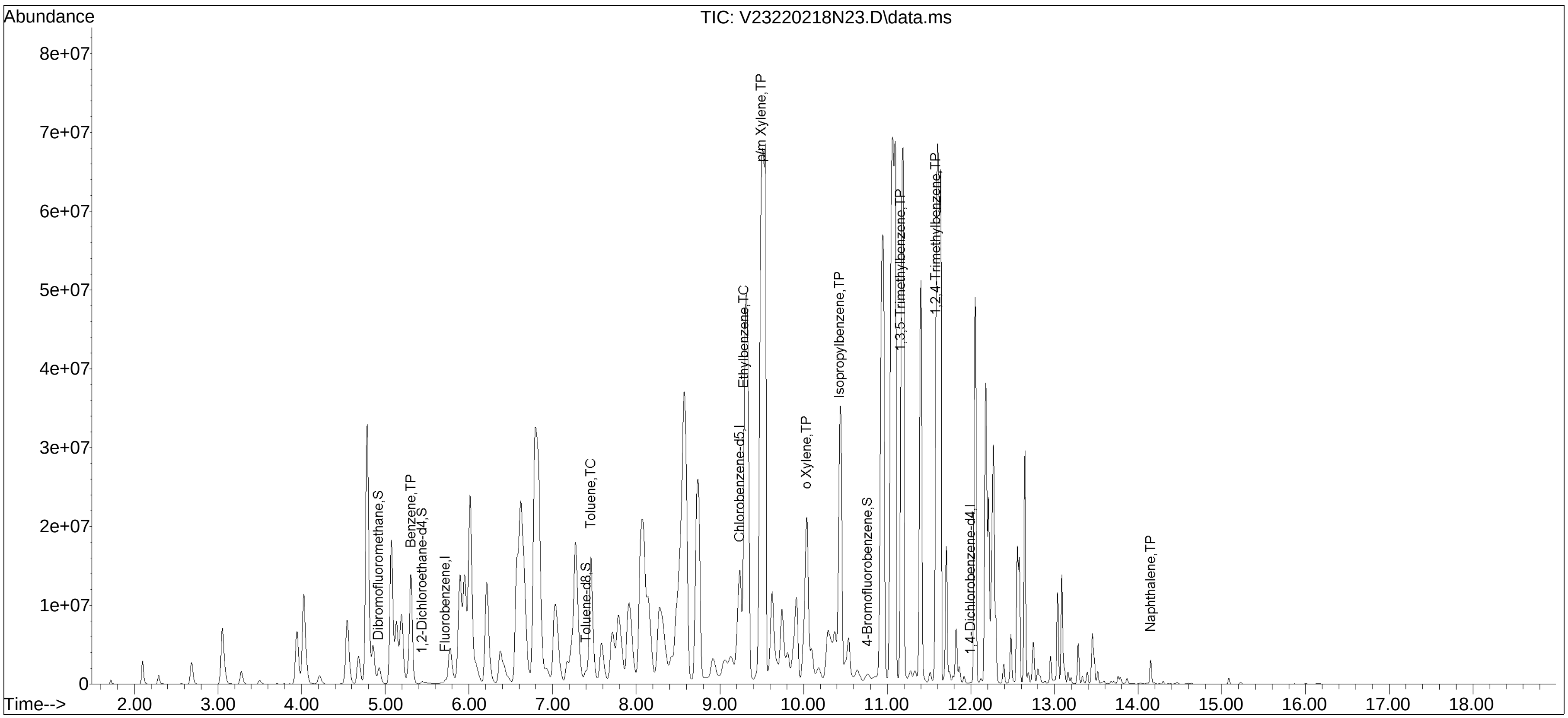


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N23.D
Acq On : 19 Feb 2022 03:21 am
Operator : VOA123:AJK
Sample : l2207973-10,31,5.10,5,,b,r2f
Misc : WG1607679,ICAL18401
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 22 10:46:47 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18N\V23220218N01.D•



ANALYTICAL REPORT

Lab Number:	L2207974
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	02/22/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207974-01	PB-84-11-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:30	02/15/22
L2207974-02	PB-84-13-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:40	02/15/22
L2207974-03	PB-84-14-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:50	02/15/22
L2207974-04	PB-84-17-SS01	SOIL	PHILADELPHIA, PA	02/15/22 11:00	02/15/22
L2207974-05	DUP-27	SOIL	PHILADELPHIA, PA	02/15/22 00:00	02/15/22
L2207974-06	FB-220215	WATER	PHILADELPHIA, PA	02/15/22 14:40	02/15/22
L2207974-07	TB-220215	WATER	PHILADELPHIA, PA	02/15/22 00:00	02/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207974-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (679%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207974-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207974-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (331%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207974-01, -02 and -04: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Sebastian Corbin

Title: Technical Director/Representative Date: 02/22/22

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-01	Date Collected:	02/15/22 10:30
Client ID:	PB-84-11-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 18:21
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00024	J	mg/kg	0.00052	0.00017	1
Toluene	0.0010		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.078		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00090	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.078		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**679**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-02	Date Collected:	02/15/22 10:40
Client ID:	PB-84-13-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 18:45
Analyst: JC
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00068		mg/kg	0.00063	0.00021	1
Toluene	0.0014		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0024		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	87		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 19:10
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00076	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	0.022		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-04	Date Collected:	02/15/22 11:00
Client ID:	PB-84-17-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 19:34
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00028	J	mg/kg	0.00050	0.00017	1
Toluene	0.0015		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**331**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-05 D2	Date Collected:	02/15/22 00:00
Client ID:	DUP-27	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/18/22 03:50
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	530		mg/kg	7.6	1.3	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974

Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05 D
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 18:05
Analyst: AJK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.5	0.15	10
Benzene	1.4		mg/kg	0.38	0.13	10
Toluene	2.8		mg/kg	0.76	0.41	10
Ethylbenzene	19.		mg/kg	0.76	0.11	10
Isopropylbenzene	17.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	130		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	550	E	mg/kg	1.5	0.25	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974

Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-06
Client ID: FB-220215
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 14:40
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/16/22 14:52
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-07	Date Collected:	02/15/22 00:00
Client ID:	TB-220215	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/16/22 15:15
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 09:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605848-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 21:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 09:14
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/19/22 11:15
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04 Batch: WG1607753-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207974

Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605848-3 WG1605848-4								
Methyl tert butyl ether	94		95		63-130	1		20
Benzene	99		100		70-130	1		20
Toluene	96		97		70-130	1		20
Ethylbenzene	94		96		70-130	2		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		100		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-3 WG1606362-4								
Methyl tert butyl ether	85		85		66-130	0		30
Benzene	94		90		70-130	4		30
Toluene	96		91		70-130	5		30
Ethylbenzene	97		91		70-130	6		30
Isopropylbenzene	98		92		70-130	6		30
1,3,5-Trimethylbenzene	97		91		70-130	6		30
1,2,4-Trimethylbenzene	96		90		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		89		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	87		86		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-8 WG1606362-9								
Methyl tert butyl ether	86		85		66-130	1		30
Benzene	95		93		70-130	2		30
Toluene	97		95		70-130	2		30
Ethylbenzene	96		94		70-130	2		30
Isopropylbenzene	95		95		70-130	0		30
1,3,5-Trimethylbenzene	96		95		70-130	1		30
1,2,4-Trimethylbenzene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	87		87		70-130
Dibromofluoromethane	98		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04 Batch: WG1607753-3 WG1607753-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	101		102		70-130	1		30
Toluene	105		106		70-130	1		30
Ethylbenzene	106		106		70-130	0		30
Isopropylbenzene	108		108		70-130	0		30
1,3,5-Trimethylbenzene	106		108		70-130	2		30
1,2,4-Trimethylbenzene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	95		97		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-01	Date Collected:	02/15/22 10:30
Client ID:	PB-84-11-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 16:20		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-02	Date Collected:	02/15/22 10:40
Client ID:	PB-84-13-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 15:57		
Analyst:	CMM		
Percent Solids:	72%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17	J	mg/kg	0.23	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 15:33		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	75		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-04	Date Collected:	02/15/22 11:00
Client ID:	PB-84-17-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 15:10		
Analyst:	CMM		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-05	Date Collected:	02/15/22 00:00
Client ID:	DUP-27	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 14:46		
Analyst:	CMM		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-06	Date Collected:	02/15/22 14:40
Client ID:	FB-220215	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/20/22 07:30
Analytical Date:	02/21/22 13:39		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	114		15-120
4-Terphenyl-d14	99		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/19/22 10:37
Analyst: SZ

Extraction Method: EPA 3546
Extraction Date: 02/18/22 18:57

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149

METALS

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974

Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-01 Date Collected: 02/15/22 10:30
Client ID: PB-84-11-SS01 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	65.9		mg/kg	11.6	0.624	5	02/17/22 15:03	02/18/22 13:35	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-02	Date Collected:	02/15/22 10:40
Client ID:	PB-84-13-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	13.3	0.712	5	02/17/22 15:03	02/18/22 13:40	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	290		mg/kg	2.33	0.125	1	02/17/22 15:03	02/18/22 00:01	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
Date Collected: 02/15/22 11:00
Client ID: PB-84-17-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.81	J	mg/kg	12.0	0.642	5	02/17/22 15:03	02/18/22 13:45	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 00:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.96		mg/kg	2.08	0.111	1	02/17/22 15:03	02/18/22 00:10	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1606094-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: MS Sample												
Lead, Total	6.38	42.8	27.9	**50**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: DUP Sample						
Lead, Total	6.38	6.72	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-01	Date Collected:	02/15/22 10:30
Client ID:	PB-84-11-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
Date Collected: 02/15/22 10:40
Client ID: PB-84-13-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.5		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-03
Client ID: PB-84-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 10:50
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
Date Collected: 02/15/22 11:00
Client ID: PB-84-17-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
Date Collected: 02/15/22 00:00
Client ID: DUP-27
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: DUP Sample						
Solids, Total	81.1	80.9	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2207974-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-01B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-01E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-02E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-03E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-04B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-04E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207974-05D	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-05E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-06A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06D	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-06E	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-07A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-07B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207974

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com
Run NAP w/ 8270!

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
07974-01	PB-84-11-SS01	2/15	1030	S	TS	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	SHORTLIST 4	5
-02	PB-84-13-SS01		1040	S	TS	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-84-14-SS01		1050	S	TS	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-84-17-SS01		1100	S	TS	☐	☒	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	DUP-27		—	S	TS	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	FB-220215		1440	W	TS	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	TB-220215		—	W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	2/15 1535	[illegible] AAL	2/15/22 15:35
[illegible] 1800	2/15/22	[illegible]	2/15/1800
[illegible]	2/15 2100	Anthony Greco	2/15/22 2100
Anthony Greco	2/15/22	AAL	2/15/22 2345
AAL	2/16/22 0135	[illegible]	2/16/22 0135

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

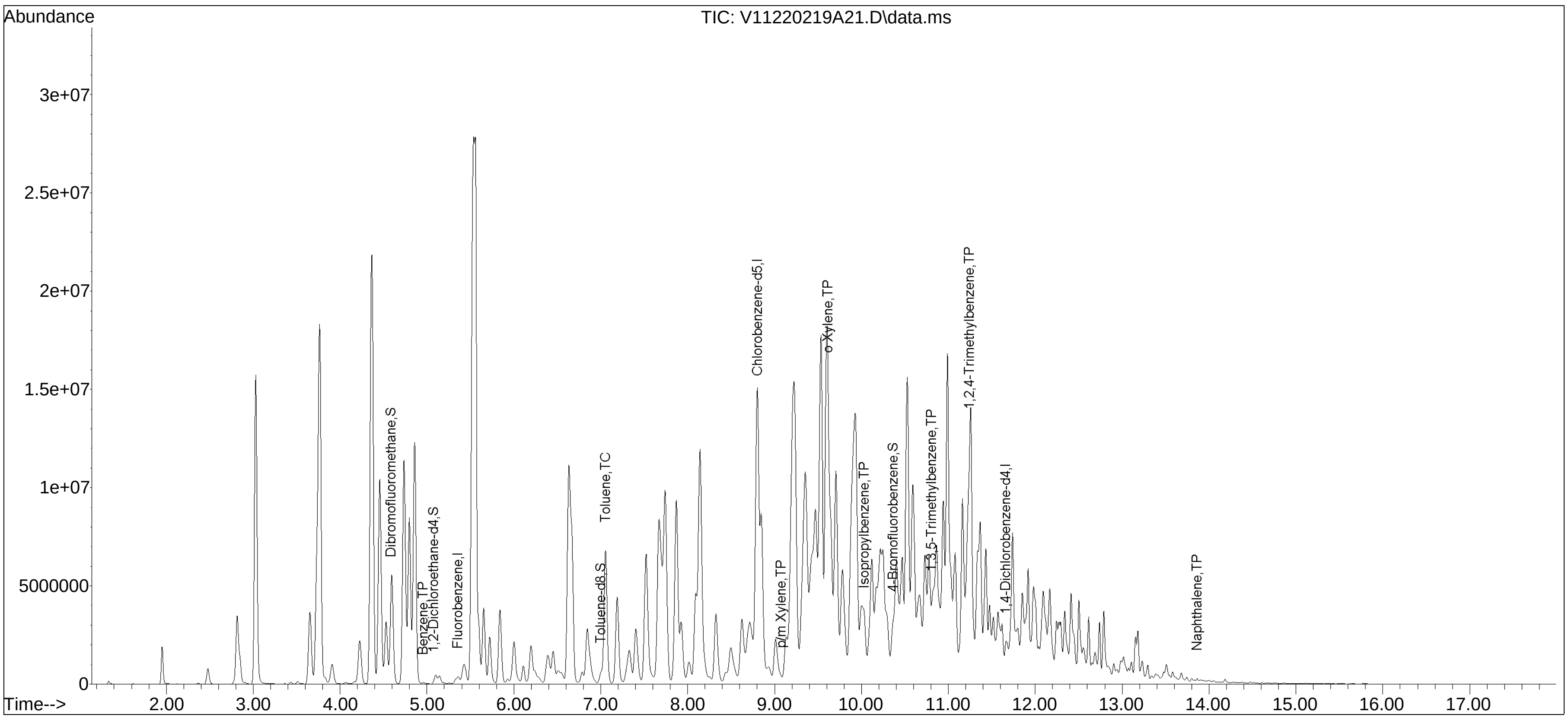
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A21.D
Acq On : 19 Feb 2022 06:21 pm
Operator : VOA111:JC
Sample : L2207974-01,31,5.89,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Feb 21 12:06:03 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

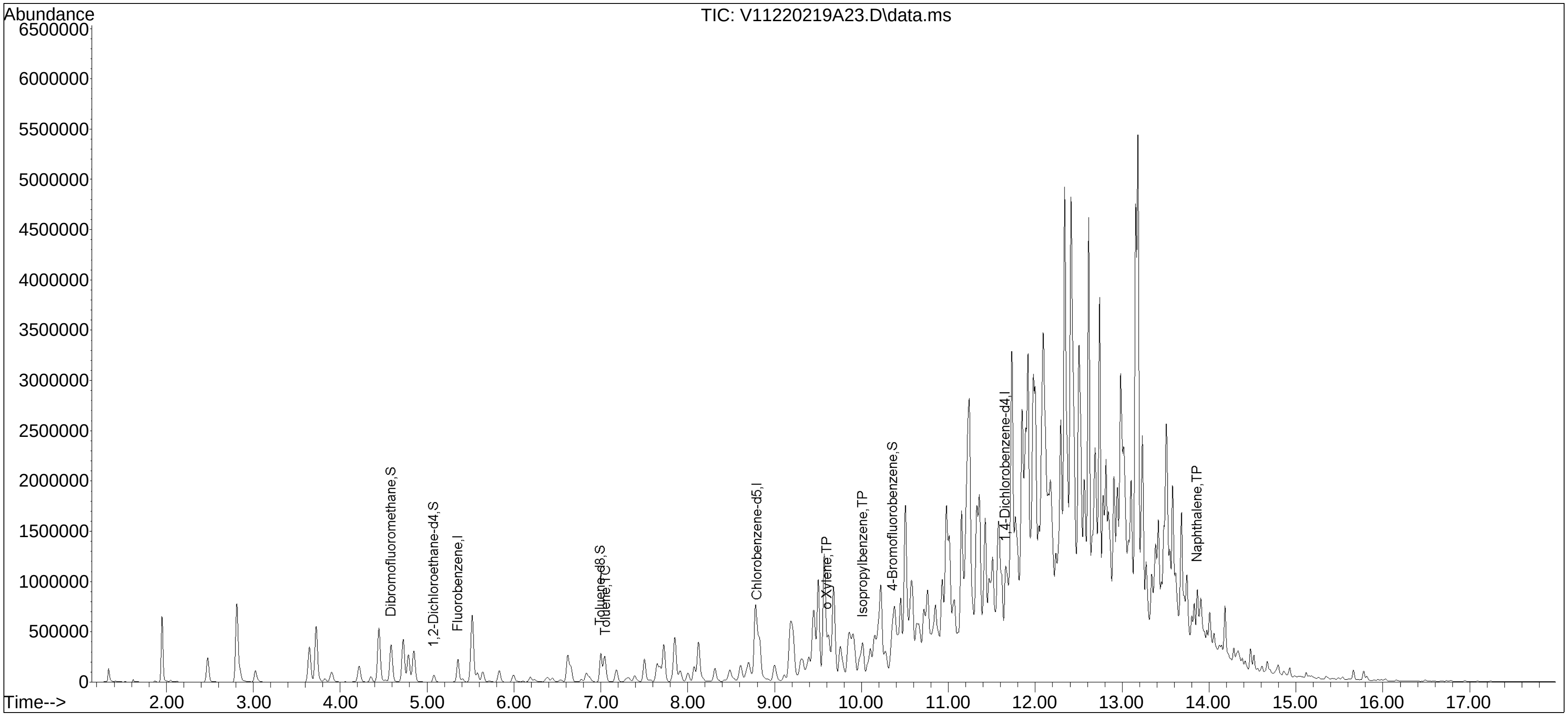


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A23.D
Acq On   : 19 Feb 2022 07:10 pm
Operator : VOA111:JC
Sample   : L2207974-03,31,4.40,5,,B,R2F
Misc   : WG1607753,ICAL18728
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Feb 21 12:06:47 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

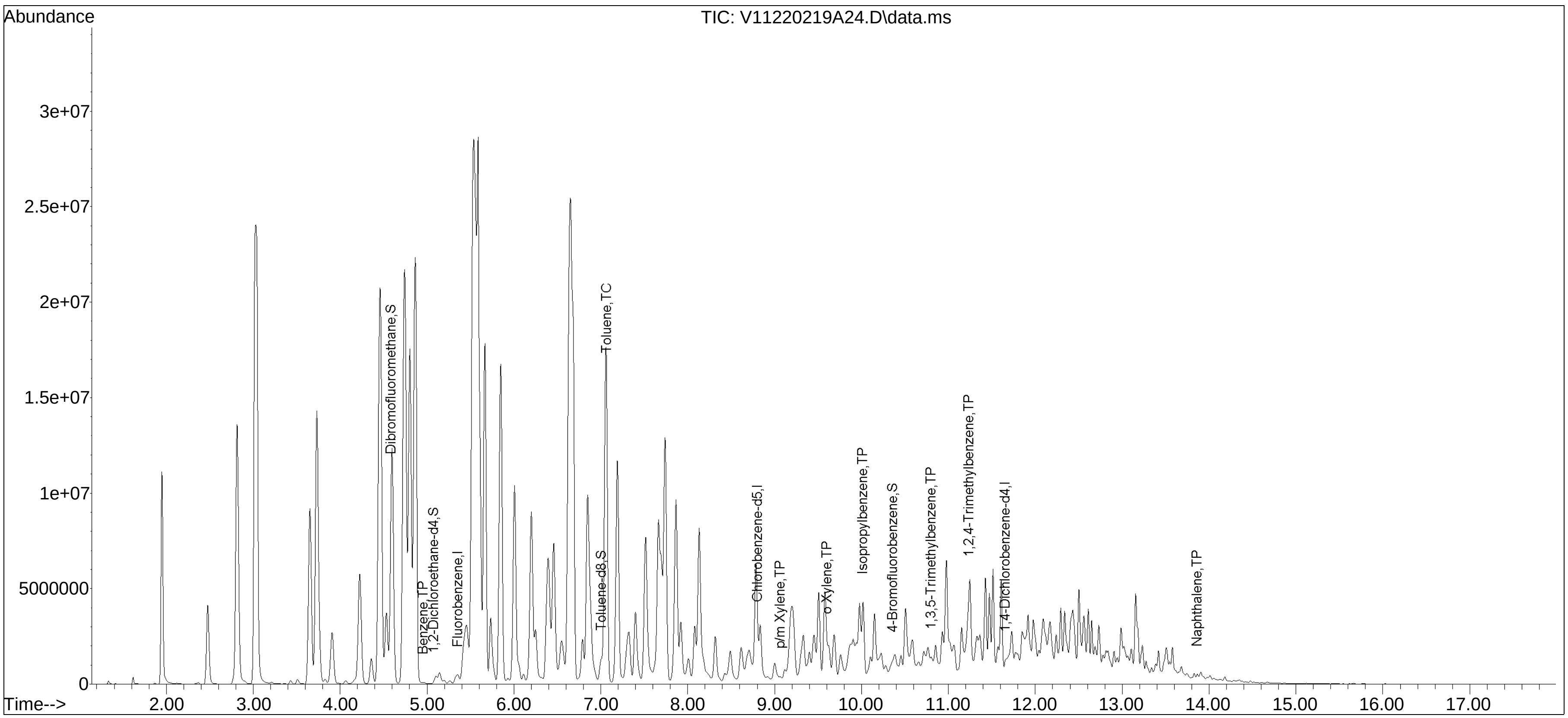


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A24.D
Acq On    : 19 Feb 2022  07:34 pm
Operator  : VOA111:JC
Sample    : L2207974-04,31,6.33,5,,B,R2F
Misc      : WG1607753,ICAL18728
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Feb 21 12:07:09 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2208279
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	02/23/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2208279-01	PB-129-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:30	02/16/22
L2208279-02	PB-129-08-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:45	02/16/22
L2208279-03	PB-129-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:00	02/16/22
L2208279-04	PB-129-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:30	02/16/22
L2208279-05	PB-129-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:30	02/16/22
L2208279-06	PB-129-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:40	02/16/22
L2208279-07	PB-129-13-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:50	02/16/22
L2208279-08	PB-129-16-SS01	SOIL	PHILADELPHIA, PA	02/16/22 11:00	02/16/22
L2208279-09	PB-128-06-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:15	02/16/22
L2208279-10	PB-128-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:30	02/16/22
L2208279-11	PB-128-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:45	02/16/22
L2208279-12	PB-128-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:20	02/16/22
L2208279-13	PB-128-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:45	02/16/22
L2208279-14	PB-128-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:00	02/16/22
L2208279-15	PB-128-14-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:30	02/16/22
L2208279-16	PB-128-15-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:50	02/16/22
L2208279-17	FB-202216-1	WATER	PHILADELPHIA, PA	02/16/22 15:00	02/16/22
L2208279-18	FB-202216-2	WATER	PHILADELPHIA, PA	02/16/22 15:10	02/16/22
L2208279-19	TB-202216	WATER	PHILADELPHIA, PA	02/16/22 00:00	02/16/22
L2208279-20	DUP-28	SOIL	PHILADELPHIA, PA	02/16/22 00:00	02/16/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2208279-13: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

Total Metals

The WG1606108-3 MS recovery, performed on L2208279-01, is outside the acceptance criteria for lead (54%). A post digestion spike was performed and yielded an unacceptable recovery of 53%. The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 02/23/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
Client ID: PB-129-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 08:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:23
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02
Client ID: PB-129-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 08:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:48
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00067	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00075	1
o-Xylene	ND		mg/kg	0.0013	0.00039	1
Xylenes, Total	ND		mg/kg	0.0013	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
Client ID: PB-129-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 09:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:12
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04 D2
Client ID: PB-129-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/22/22 23:56
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.0	0.60	20
Benzene	ND		mg/kg	1.5	0.49	20
1,2-Dichloroethane	ND		mg/kg	3.0	0.76	20
Toluene	23.		mg/kg	3.0	1.6	20
1,2-Dibromoethane	ND		mg/kg	1.5	0.87	20
Ethylbenzene	170		mg/kg	3.0	0.42	20
p/m-Xylene	1200		mg/kg	6.0	1.7	20
o-Xylene	440		mg/kg	3.0	0.87	20
Xylenes, Total	1600		mg/kg	3.0	0.87	20
Isopropylbenzene	26.		mg/kg	3.0	0.32	20
1,3,5-Trimethylbenzene	310		mg/kg	6.0	0.57	20
1,2,4-Trimethylbenzene	910	E	mg/kg	6.0	0.99	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-04 D	Date Collected:	02/16/22 09:30
Client ID:	PB-129-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:38
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	1000		mg/kg	15	2.5	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-05	Date Collected:	02/16/22 10:30
Client ID:	PB-129-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:03
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	0.0028		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.00070	J	mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
Client ID: PB-129-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 10:40
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:27
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
Client ID: PB-129-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:50
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:53
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	70		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-08	Date Collected:	02/16/22 11:00
Client ID:	PB-129-16-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 14:18
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.00063	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-09	Date Collected:	02/16/22 12:15
Client ID:	PB-128-06-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 14:42
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.00094	J	mg/kg	0.0024	0.00066	1
o-Xylene	0.00035	J	mg/kg	0.0012	0.00034	1
Xylenes, Total	0.0013	J	mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00067	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
Client ID: PB-128-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 15:07
Analyst: JC
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.0031		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00094	J	mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-11	Date Collected:	02/16/22 12:45
Client ID:	PB-128-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 15:32
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00089	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	0.0016	J	mg/kg	0.0018	0.00097	1
1,2-Dibromoethane	ND		mg/kg	0.00089	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.11		mg/kg	0.0036	0.0010	1
o-Xylene	0.18		mg/kg	0.0018	0.00052	1
Xylenes, Total	0.29		mg/kg	0.0018	0.00052	1
Isopropylbenzene	0.00038	J	mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	0.13		mg/kg	0.0036	0.00034	1
1,2,4-Trimethylbenzene	0.22		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-12
Client ID: PB-128-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:20
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 21:09
Analyst: MKS
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00034	1
Benzene	ND		mg/kg	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0016	J	mg/kg	0.0017	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00049	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0014	J	mg/kg	0.0033	0.00093	1
o-Xylene	0.00060	J	mg/kg	0.0017	0.00048	1
Xylenes, Total	0.0020	J	mg/kg	0.0017	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00039	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0033	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-13	Date Collected:	02/16/22 13:45
Client ID:	PB-128-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 17:35
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00022	J	mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.013		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.38		mg/kg	0.0025	0.00069	1
o-Xylene	0.29		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.67		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.00062	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-13	Date Collected:	02/16/22 13:45
Client ID:	PB-128-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/22/22 23:31
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	ND		mg/kg	0.046	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	ND		mg/kg	0.091	0.050	1
1,2-Dibromoethane	ND		mg/kg	0.046	0.027	1
Ethylbenzene	ND		mg/kg	0.091	0.013	1
p/m-Xylene	0.99		mg/kg	0.18	0.051	1
o-Xylene	0.69		mg/kg	0.091	0.026	1
Xylenes, Total	1.7		mg/kg	0.091	0.026	1
Isopropylbenzene	ND		mg/kg	0.091	0.010	1
1,3,5-Trimethylbenzene	0.58		mg/kg	0.18	0.018	1
1,2,4-Trimethylbenzene	1.4		mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 16:21
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00091	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	ND		mg/kg	0.0018	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00091	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00053	1
Xylenes, Total	ND		mg/kg	0.0018	0.00053	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0036	0.00035	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-15	Date Collected:	02/16/22 14:30
Client ID:	PB-128-14-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 16:46
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-16	Date Collected:	02/16/22 14:50
Client ID:	PB-128-15-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 17:11
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	0.0037		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	0.012		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00047	1
Ethylbenzene	0.00033	J	mg/kg	0.0016	0.00023	1
p/m-Xylene	0.0040		mg/kg	0.0032	0.00090	1
o-Xylene	0.00093	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0049	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	76		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-17	Date Collected:	02/16/22 15:00
Client ID:	FB-202216-1	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/21/22 13:38
Analytical Date:	02/21/22 18:08		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17 Date Collected: 02/16/22 15:00
Client ID: FB-202216-1 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:11
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-18	Date Collected:	02/16/22 15:10
Client ID:	FB-202216-2	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/21/22 13:38
Analytical Date:	02/21/22 18:15		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18
Client ID: FB-202216-2
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 15:10
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:34
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-19	Date Collected:	02/16/22 00:00
Client ID:	TB-202216	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/21/22 13:38
Analytical Date:	02/21/22 18:21		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-19
Client ID: TB-202216
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:57
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-20
Client ID: DUP-28
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 00:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:52
Analyst: KDU
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/21/22 16:10
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/21/22 13:38

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17-19 Batch: WG1606044-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 08:05
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-19 Batch: WG1606325-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12 Batch: WG1607828-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:25
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 20 Batch: WG1607845-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,05-11,13-16 Batch: WG1607862-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/22/22 20:34
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,13 Batch: WG1607863-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1607863-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17-19 Batch: WG1606044-2									
1,2-Dibromoethane	107		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-19 Batch: WG1606325-3 WG1606325-4								
Methyl tert butyl ether	100		110		63-130	10		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		110		70-130	10		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		115		70-130	4		20
o-Xylene	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		115		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 12 Batch: WG1607828-3 WG1607828-4								
Methyl tert butyl ether	88		91		66-130	3		30
Benzene	101		100		70-130	1		30
1,2-Dichloroethane	91		92		70-130	1		30
Toluene	102		102		70-130	0		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	101		101		70-130	0		30
p/m-Xylene	106		106		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	103		101		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 20 Batch: WG1607845-3 WG1607845-4								
Methyl tert butyl ether	82		79		66-130	4		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	83		80		70-130	4		30
Toluene	86		83		70-130	4		30
1,2-Dibromoethane	102		99		70-130	3		30
Ethylbenzene	82		80		70-130	2		30
p/m-Xylene	89		86		70-130	3		30
o-Xylene	89		85		70-130	5		30
Isopropylbenzene	80		77		70-130	4		30
1,3,5-Trimethylbenzene	82		80		70-130	2		30
1,2,4-Trimethylbenzene	81		79		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	92		92		70-130
4-Bromofluorobenzene	84		85		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,05-11,13-16 Batch: WG1607862-3 WG1607862-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1607863-3 WG1607863-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,13 Batch: WG1607863-8 WG1607863-9								
Methyl tert butyl ether	90		92		66-130	2		30
Benzene	102		100		70-130	2		30
1,2-Dichloroethane	93		93		70-130	0		30
Toluene	103		102		70-130	1		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	104		104		70-130	0		30
Isopropylbenzene	106		103		70-130	3		30
1,3,5-Trimethylbenzene	104		102		70-130	2		30
1,2,4-Trimethylbenzene	103		101		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	97		97		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-01	Date Collected:	02/16/22 08:30
Client ID:	PB-129-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 02:54		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	84		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-02	Date Collected:	02/16/22 08:45
Client ID:	PB-129-08-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 00:56		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-03	Date Collected:	02/16/22 09:00
Client ID:	PB-129-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 08:00		
Analyst:	CMM		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04
Client ID: PB-129-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 02:07
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.17	0.021	1
Fluorene	0.027	J	mg/kg	0.17	0.016	1
Phenanthrene	0.055	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	0.021	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-05	Date Collected:	02/16/22 10:30
Client ID:	PB-129-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 04:28		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-06	Date Collected:	02/16/22 10:40
Client ID:	PB-129-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 03:17		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-07	Date Collected:	02/16/22 10:50
Client ID:	PB-129-13-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 01:20		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	82		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-08	Date Collected:	02/16/22 11:00
Client ID:	PB-129-16-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 01:43		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.020	1
Fluorene	ND		mg/kg	0.17	0.016	1
Phenanthrene	ND		mg/kg	0.10	0.020	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	78		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09
Client ID: PB-128-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:15
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 06:02
Analyst: CMM
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.23		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	71		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-10	Date Collected:	02/16/22 12:30
Client ID:	PB-128-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 05:15		
Analyst:	CMM		
Percent Solids:	97%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.26		mg/kg	0.17	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-11	Date Collected:	02/16/22 12:45
Client ID:	PB-128-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 04:52		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.090	J	mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-12
Client ID: PB-128-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:20
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 04:04
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
Client ID: PB-128-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 03:41
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.75		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	72		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 07:36		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	63		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-15	Date Collected:	02/16/22 14:30
Client ID:	PB-128-14-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 02:30		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-16	Date Collected:	02/16/22 14:50
Client ID:	PB-128-15-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 08:23		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
Client ID: FB-202216-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/22/22 12:33
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/21/22 23:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-18	Date Collected:	02/16/22 15:10
Client ID:	FB-202216-2	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/21/22 23:19
Analytical Date:	02/22/22 12:50		
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	65		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 05:39		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	40		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/21/22 23:46	Extraction Date:	02/21/22 13:24
Analyst:	CMM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-16,20 Batch: WG1607329-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	90		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/22/22 10:39	Extraction Date:	02/21/22 23:19
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 17-18 Batch: WG1607486-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	55		15-120
4-Terphenyl-d14	59		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-16,20 Batch: WG1607329-2 WG1607329-3								
Naphthalene	67		64		40-140	5		50
Fluorene	69		65		40-140	6		50
Phenanthrene	68		66		40-140	3		50
Anthracene	70		68		40-140	3		50
Pyrene	69		66		35-142	4		50
Benzo(a)anthracene	65		62		40-140	5		50
Chrysene	68		64		40-140	6		50
Benzo(b)fluoranthene	65		60		40-140	8		50
Benzo(a)pyrene	60		56		40-140	7		50
Benzo(ghi)perylene	64		59		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	62		58		23-120
2-Fluorobiphenyl	69		65		30-120
4-Terphenyl-d14	64		63		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 17-18 Batch: WG1607486-2 WG1607486-3								
Naphthalene	52		54		40-140	4		40
Fluorene	55		58		40-140	5		40
Phenanthrene	54		55		40-140	2		40
Anthracene	55		56		40-140	2		40
Pyrene	58		57		26-127	2		40
Benzo(a)anthracene	56		55		40-140	2		40
Chrysene	53		58		40-140	9		40
Benzo(b)fluoranthene	61		56		40-140	9		40
Benzo(a)pyrene	52		52		40-140	0		40
Benzo(ghi)perylene	58		57		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	58		59		23-120
2-Fluorobiphenyl	55		56		15-120
4-Terphenyl-d14	60		59		41-149

METALS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-01	Date Collected:	02/16/22 08:30
Client ID:	PB-129-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.99		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 20:08	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-02	Date Collected:	02/16/22 08:45
Client ID:	PB-129-08-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.34		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:32	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-03	Date Collected:	02/16/22 09:00
Client ID:	PB-129-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.60		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:37	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-04	Date Collected:	02/16/22 09:30
Client ID:	PB-129-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.98		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:42	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05 Date Collected: 02/16/22 10:30

Client ID: PB-129-11-SS01 Date Received: 02/16/22

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.77		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:56	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
Date Collected: 02/16/22 10:40
Client ID: PB-129-12-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.99		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 21:01	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-07	Date Collected:	02/16/22 10:50
Client ID:	PB-129-13-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.65		mg/kg	1.97	0.106	1	02/18/22 09:25	02/18/22 21:06	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-08	Date Collected:	02/16/22 11:00
Client ID:	PB-129-16-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.41		mg/kg	1.99	0.106	1	02/18/22 09:25	02/18/22 21:11	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-09	Date Collected:	02/16/22 12:15
Client ID:	PB-128-06-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.93		mg/kg	2.09	0.112	1	02/18/22 09:25	02/18/22 21:16	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS | **Lab Number:** L2208279
Project Number: 200.00135.005.03 | **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10 | Date Collected: 02/16/22 12:30
Client ID: PB-128-07-SS01 | Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.59		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:21	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-11	Date Collected:	02/16/22 12:45
Client ID:	PB-128-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.72		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:26	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-12	Date Collected:	02/16/22 13:20
Client ID:	PB-128-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.28		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:31	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
Date Collected: 02/16/22 13:45
Client ID: PB-128-11-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.49		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:36	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.70		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:41	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15
Client ID: PB-128-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 14:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.42		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:55	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-16	Date Collected:	02/16/22 14:50
Client ID:	PB-128-15-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.5		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 22:00	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-17	Date Collected:	02/16/22 15:00
Client ID:	FB-202216-1	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 11:28	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18 Date Collected: 02/16/22 15:10
Client ID: FB-202216-2 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 11:33	EPA 3005A	1,6020B	SV

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.64		mg/kg	2.05	0.110	1	02/18/22 09:25	02/18/22 22:05	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17-18 Batch: WG1605423-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 10:12	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,20 Batch: WG1606108-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/18/22 09:25	02/18/22 19:58	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2208279

Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1605423-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 Batch: WG1606108-2 SRM Lot Number: D113-540								
Lead, Total	80		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1605423-3 WG1605423-4 QC Sample: L2208291-06 Client ID: MS Sample												
Lead, Total	ND	530	539.2	102		586.6	111		75-125	8		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-3 QC Sample: L2208279-01 Client ID: PB-129-07-SS01												
Lead, Total	3.99	42.7	27.1	**54**	Q	-	-		75-125	-		20

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2208279
Report Date: 02/23/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-4 QC Sample: L2208279-01 Client ID: PB-129-07-SS01						
Lead, Total	3.99	4.50	mg/kg	12		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
Client ID: PB-129-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 08:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02 Date Collected: 02/16/22 08:45
Client ID: PB-129-08-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
Client ID: PB-129-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 09:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04
Date Collected: 02/16/22 09:30
Client ID: PB-129-10-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05
Client ID: PB-129-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 10:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.3		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06
Client ID: PB-129-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 10:40
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
Date Collected: 02/16/22 10:50
Client ID: PB-129-13-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.4		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08
Client ID: PB-129-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 11:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.9		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09
Client ID: PB-128-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 12:15
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
Client ID: PB-128-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 12:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11
Date Collected: 02/16/22 12:45
Client ID: PB-128-09-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-12	Date Collected:	02/16/22 13:20
Client ID:	PB-128-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-13	Date Collected:	02/16/22 13:45
Client ID:	PB-128-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.5		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-15	Date Collected:	02/16/22 14:30
Client ID:	PB-128-14-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16
Date Collected: 02/16/22 14:50
Client ID: PB-128-15-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-20 Date Collected: 02/16/22 00:00
Client ID: DUP-28 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-01A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-01B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-01F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-02A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-02B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-02F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-03A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-03B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-03F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-04A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-04B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-04C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-04D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-04F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-05A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-05B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-05F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-06B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-06F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-07A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-07B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-07F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-08A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-08B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-08F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-09B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-09F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-10B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-10F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-11A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-11B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-11F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-12B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-12F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2208279-13B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-13F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-14B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-14F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-15A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-15B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-15F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-16B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-16F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-17A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-18A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-18B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-19A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19C	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-19D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-20A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-20B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-20F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/17/22

ALPHA Job #: L2208279

Project Information

Project Name: Philadelphia Refinery AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Run NAP w/ 8270!

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
08279-01	PB-129-07-SS01	2/16	0830	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-129-08-SS01		0845			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-03	PB-129-09-SS01		0900			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-04	PB-129-10-SS01		0930			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-05	PB-129-11-SS01		1030			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-06	PB-129-12-SS01		1040			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-07	PB-129-13-SS01		1050			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-08	PB-129-16-SS01		1100			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-09	PB-128-06-SS01		1215			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-10	PB-128-07-SS01		1230			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	2/16 1522	Omniea Jones	2/16 1522
Omniea Jones	2/16 1800	MP	2/16/22
MP	2/16 2100	Anthony Green	2/16/22 2100
Anthony Green	2/16/22	[illegible signature]	2/16/22 2355
[illegible signature]	2/17/22		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Serial_No:02232216:25

CHAIN OF CUSTODY

PAGE 2 of 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/17/22

ALPHA Job #: L2208279

Project Information

Project Name: Philadelphia Refinery AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
08279-11	PB-128-09-SS01	2/16	1245	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-12	PB-128-10-SS01	↓	1320	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-13	PB-128-11-SS01	↓	1345	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-14	PB-128-12-SS01	↓	1400	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-15	PB-128-14-SS01	↓	1430	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-16	PB-128-15-SS01	↓	1450	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-17	FB-220216-1	↓	1500	W	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-18	FB-220216-2	↓	1510	W	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-19	TB-220216	↓	-	W	↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-20	DUP-28	↓	-	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/16 1522	[signature]	2/16 1522
[signature]	2/16 1800	[signature]	2/16 1800
[signature]	2/16 2100	Anthony Flores	2/16/22 2100
Anthony Flores	2/16/22	[signature]	2/16/22 2355
[signature]	2/17/22 0155	[signature]	2/17/22 [illegible]

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)-N.D (rev. 9-JAN-92)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphtha 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naph trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

naphthalene, 1,2,4-
Trimethylbenzene

naphthalene, 1,2,4-

ANALYTICAL REPORT

Lab Number:	L2209675
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-DELINEAT
Project Number:	200.00135.005.03
Report Date:	03/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209675-01	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/23/22 15:00	02/23/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: PHILADELPHIA REFINERY-DELINEAT **Lab Number:** L2209675
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L2209675-01: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 03/02/22

METALS

Project Name: PHILADELPHIA REFINERY-DELINEAT **Lab Number:** L2209675
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

SAMPLE RESULTS

Lab ID: L2209675-01 Date Collected: 02/23/22 15:00
Client ID: PB-29-28-0.0-0.5 Date Received: 02/23/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	92.3		mg/kg	11.9	0.636	5	03/01/22 07:00	03/02/22 18:40	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-DELINEAT **Lab Number:** L2209675
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1609872-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/01/22 07:00	03/01/22 14:18	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Lab Number: L2209675
Project Number: 200.00135.005.03
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1609872-2 SRM Lot Number: D113-540								
Lead, Total	100		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-3 QC Sample: L2209668-02 Client ID: MS Sample												
Lead, Total	103	45.7	110	**15**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT

Project Number: 200.00135.005.03

Lab Number: L2209675

Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-4 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	56.9	mg/kg	**58**	Q	20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-6 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	141	mg/kg	**37**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-DELINEAT
Lab Number: L2209675
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2209675-01
Client ID: PB-29-28-0.0-0.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/23/22 15:00
Date Received: 02/23/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	02/24/22 09:40	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1608759-1 QC Sample: L2209668-01 Client ID: DUP Sample						
Solids, Total	80.7	80.2	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2209675-01A	Glass 60ml unpreserved split	A	NA		2.4	Y	Absent		PB-TI(180)
L2209675-01B	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA — TEL: 508-898-9220 — FAX: 508-898-9193

Mansfield, MA — TEL: 508-822-9300 — FAX: 508-822-3288

Date Rec'd in Lab: 2/24/22

ALPHA Job #: L2209675

Project Information

Project Name: PES Refinery - Delineation SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: ~~13461~~ 17833

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene							Sample Specific Comments	TOTAL # BOTTLES
09675-01	PB-29-28-0.0-0.5	2/23	1500	S	JS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	LEAD ONLY	1

Container Type	4oz
Preservative	N/A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/23 1500	[signature]	2/23/22 1500
[signature]	2/23/22 1600	[signature]	2/23/22 1600
[signature]	2/23/22 2030	[signature]	2/23/22 2030
[signature]	2/23/22	[signature]	2/23/22 2308
[signature]		[signature]	2/24/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HC) (rev. 8-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2209795
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	03/29/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209795-01	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2209795-02	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2209795
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

Case Narrative (continued)

Report Revision

March 29, 2022: The Volatile Organics analyte list has been amended on L2209795-02.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2209795-01D and -02: The sample was analyzed with the method required holding time exceeded.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative

Date: 03/29/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2209795
Project Number:	200.00135.005.03	**Report Date:**	03/29/22

SAMPLE RESULTS

Lab ID:	L2209795-01 D	Date Collected:	02/07/22 13:10
Client ID:	PB-33-05R-14.0-14.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 16:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	6.6		mg/kg	0.060	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795

Project Number: 200.00135.005.03 **Report Date:** 03/29/22

SAMPLE RESULTS

Lab ID:	L2209795-02	Date Collected:	02/07/22 14:55
Client ID:	PB-29-03R-14.0-14.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 17:05
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.46		mg/kg	0.10	0.010	1
Benzene	3.0		mg/kg	0.026	0.0085	1
Toluene	0.11		mg/kg	0.051	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1610267-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2209795
Project Number: 200.00135.005.03
Report Date: 03/29/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1610267-3 WG1610267-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-01
Client ID: PB-33-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:10
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

SAMPLE RESULTS

Lab ID: L2209795-02
Client ID: PB-29-03R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:55
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.7		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 03/29/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1608668-1 QC Sample: L2209081-01 Client ID: DUP Sample						
Solids, Total	78.7	77.7	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2209795-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L2209795-02A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-02B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02D	Plastic 2oz unpreserved for TS	B	NA		3.8	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 03/29/22

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L2209795 2/23/22 KC

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/8/22

ALPHA Job #: ~~L2206339~~

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☒ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

TOTAL # BOTTLES

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	~~Lead~~	Benzene	~~Toluene~~	~~Benzo(a)pyrene~~	~~Benzo(b)fluoranthene~~	Naphthalene (8260)	~~Ethyl Benzene~~	~~1,2-DBA (Dibromoethane)~~		PA-8260HLW-BTEX	Total Solids		Sample Specific Comments
~~50339-01~~	PB-204-11R-6.0-6.5	2/7	1030	S	TS	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
~~02~~	PB-204-11R-14.0-14.5		1040			☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	
~~03~~	PB-204-01R-0.0-0.5		1130			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	~~HOLD~~
~~04~~	PB-204-01R-6.0-6.5		1140			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
~~05~~	PB-204-01R-14.0-14.5		1150			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	~~HOLD~~
~~06~~	PB-204-06R-0.0-0.5		1220			☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	
~~07~~	PB-204-06R-6.0-6.5		1225			☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	
~~08~~	PB-204-06R-14.0-14.5		1230			☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	~~HOLD~~
~~09~~	~~PB-XXX~~ PB-33-05R-6.0-6.5		1300			☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	
09795-01 ~~10~~	PB-33-05R-14.0-14.5		1310			☐	☑	☑	☐	☐	☐	☑	☐	☐	☒	☒	☐	~~HOLD~~

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/7 1515	[signature]	2/7 1515
[signature]	2/7 2030	[signature]	2/7 1530
Anthony Flores	2/7/22	Anthony Flores	2/7/22 2030
[signature]	2/8/22	[signature] AAL	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 8-JAN-12)

Serial_No:03292215:41

L2209795 KL 2/23/22

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/8/22	ALPHA Job #: ~~L2206339~~

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	~~Lead~~	~~Benzene~~	~~Toluene~~	~~Benzo(a)pyrene~~	~~Benzo(b)fluoranthene~~	~~Naphthalene~~ (8260)	~~Ethyl-Benzene~~	~~1,2-DBA (Dibromoethane)~~		PA-8260 HLW-BTEX	Total Solids		Sample Specific Comments
06339-11	PB-29-02R-0.0-0.5	2/7	1405	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
12	PB-29-02R-6.0-6.5		1415			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	
13	PB-29-02R-14.0-14.5		1420			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	~~HOLD~~
14	PB-29-03R-6.0-6.5		1445			☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	
09795-02 ~~15~~	PB-29-03R-14.0-14.5		1455			☐	☑	☑	☐	☐	☐	☐	☐	☐	☒	☒	☐	~~HOLD~~
16	~~TB-220207~~ FB-220207-1		1700			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐	
17	FB-220207-2		1500			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐	
18	TB-220207		-			☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

TOTAL # BOTTLES

Container Type -

Preservative -

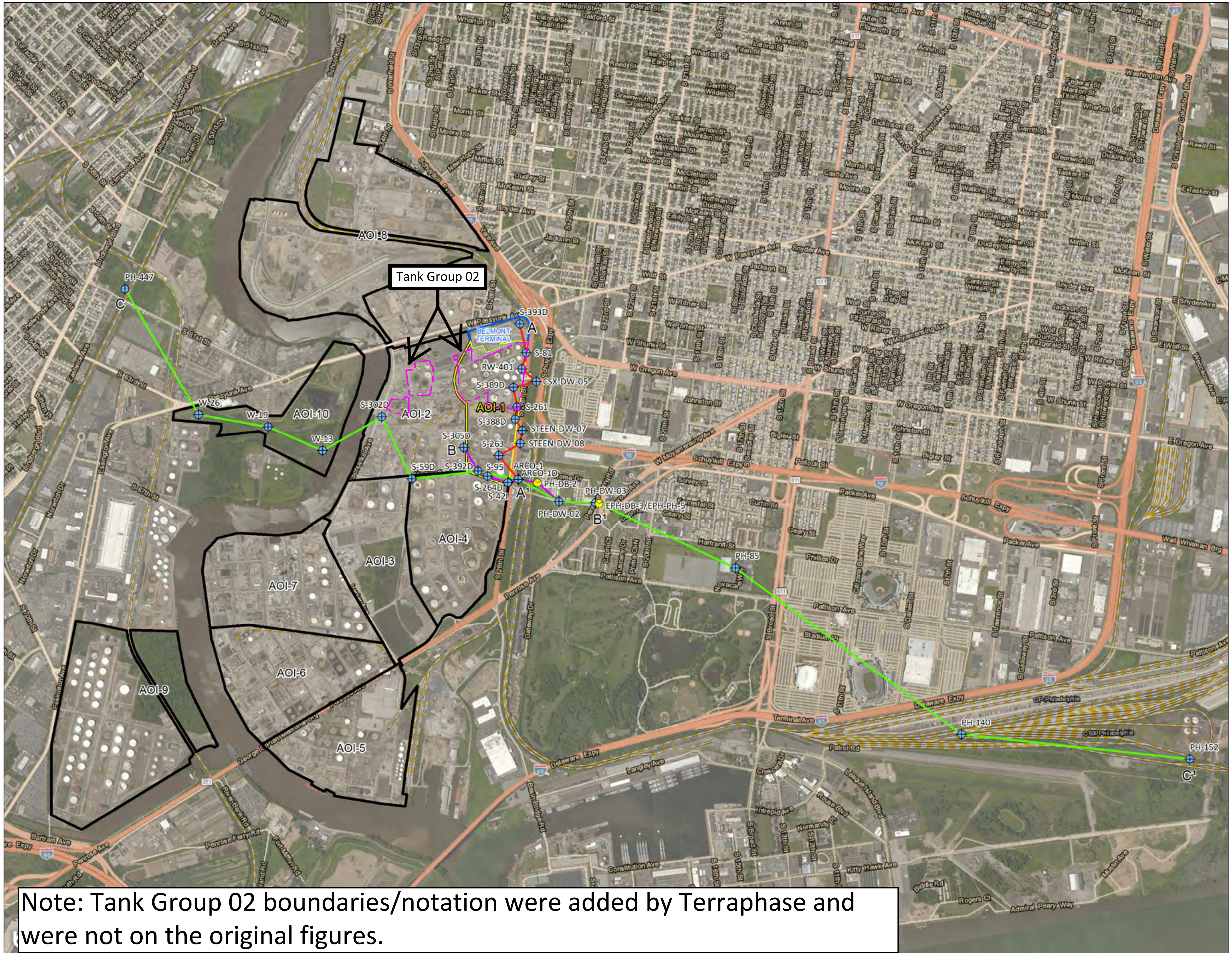
Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/7 1515	[signature]	2/7 1515
[signature]	1800	AMP	2/7 1900
AMP AAL	2030	[signature]	2/7/22 2030
[signature] 2/7/22		[signature] AAL	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

Appendix B

Select Figures from the AOI 1 and AOI 2 RIRs



Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

Figure No.
2-5

Title
STRATIGRAPHIC PROFILE
LOCATION MAP

Client/Project
PHILADELPHIA REFINERY OPERATIONS
A SERIES OF EVERGREEN RESOURCES GROUP, LLC
3144 PASSYUNK AVENUE
PHILADELPHIA, PA 19145

Project Location
City of Philadelphia, Pennsylvania

213402434
Prepared by GWC on 11/2/2015
Technical Review by ADK on 2/19/2016
Independent Review by JKD on 2/19/2016

0 2,000 4,000 Feet
1:24,000 (At original document size of 11x17)

N

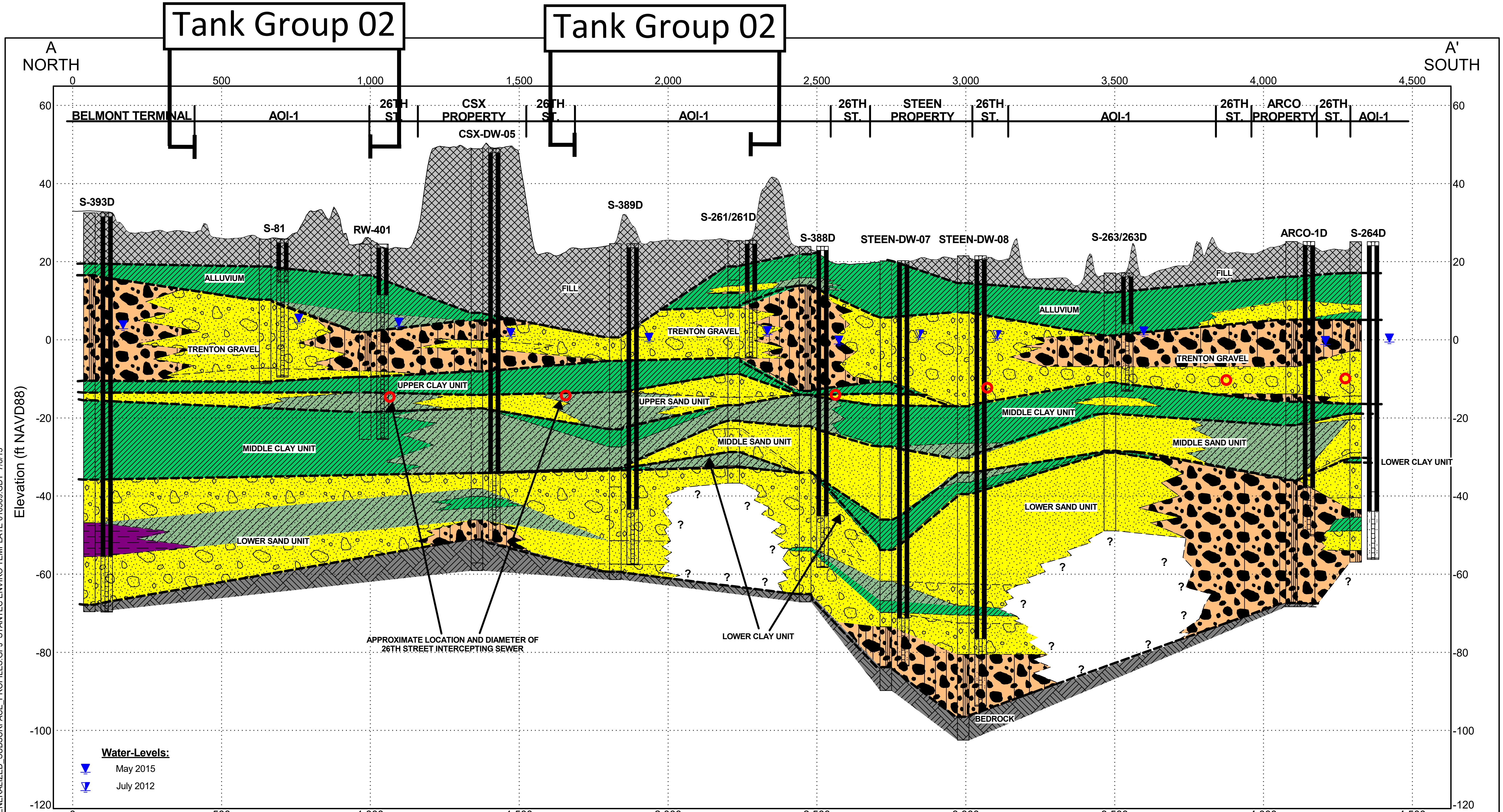
Legend
- Well
- Soil/Test Boring
- Area Of Interest (AOI) 1
- Belmont Terminal
- Area Of Interest (AOI)

Stratigraphic Profile
- A - A'
- B - B'
- C - C'

Notes
1. Vertical Datum: North American Vertical Datum of 1988 (NAVD 88)
2. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet
3. Source: Stantec
4. Service Layer Credits: Copyright:© 2013 National Geographic Society, i-cubed Image courtesy of USGS Earthstar Geographics SIO © 2016 Microsoft Corporation Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

Stantec

EVERGREEN



Note: Tank Group 02 boundaries/notation were added by Terraphase and were not on the original figures.

Distance Along Baseline (ft)

STRAT COLUMN WELL AND WAT LEVEL AOI1_GENERALIZED_SUBSURFACE_PROFILES.GPJ STANTEC ENVIRO TEMPLATE 010509.GDT 7/8/15

Stantec

GENERALIZED LITHOLOGY GRAPHICS

- Apparent Fill
- Sandy Gravel
- Gravelly Sand
- Sand (incl. trace to little silt/clay/gravel)
- "Muddy" Sand
- Sand with Lignite
- "Mud" (silt/clay, incl. trace to little sand/gravel)
- Bedrock (incl. saprolite where indicated)

Notes:

1. Land surface profile obtained from a 2010 light detection and ranging (LiDAR) elevation model available from the United States Geological Survey (USGS).
2. Water levels shown represent measurements performed by Stantec in May 2015 for wells S-393D, S-81, RW-401, S-389D, S-261D, S-388D, S-263D, and S-264D. Water levels for offsite wells CSX-DW-5, STEEN-DW-07, and STEEN-DW-08 obtained from Defense Logistics Agency (DLA) for May 2015 and July 2012, respectively. Steen property wells were not accessible in 2015.
3. Stantec generalized lithologic data from available borehole logs into 8 categories as indicated for interpretive purposes. "Mud" is utilized in these profiles to generally represent clay/silt mixtures, or clay and silt-rich sandy sediments.
4. Correlation between lithologies and, where applicable, geologic units is based on the straight-line method. Actual conditions between boreholes may vary from what is shown on this profile. Contacts dashed where inferred.
5. NAVD 88 = North American Vertical Datum of 1988
6. Vertical Exaggeration ~ 14 X

Figure 5-1. Stratigraphic Profile A - A'

Evergreen Resources Management Operations
Philadelphia Refinery Complex
3144 Passyunk Avenue
Philadelphia, PA 19145

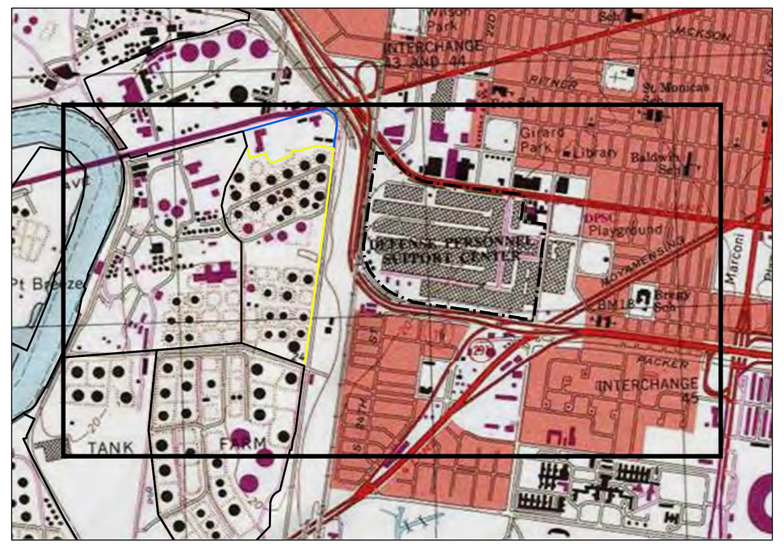
Project Number: 213402434

Legend

- WELL UTILIZED IN CONTOURING
- 2015 WATER-TABLE ELEVATION (ft NAVD 88)
- APPROXIMATE LOCATION OF PHILADELPHIA WATER DEPARTMENT SEWER
- LIMITS OF UNCONFINED AQUIFER WELL CONTROL
- AREA OF INTEREST (AOI) 1
- BELMONT TERMINAL
- AREA OF INTEREST (AOI)
- FORMER DSCP PROPERTY

0 250 500 Feet
1:3,000 (At original document size of 24x36)

N



Notes
1. Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet North American Vertical Datum of 1988 (NAVD 88)
2. Sources: Stantec and Defense Logistics Agency (DLA)
3. Labels denote groundwater elevation in feet. Depth to groundwater was measured in each well to the nearest one-hundredth of a foot using an interface probe.
4. Contour Interval = 0.5 feet
5. Gauging data for DSCP property wells obtained from the Defense Logistics Agency. Rigorous evaluation of that data not performed by Stantec.
6. Groundwater elevation data was interpolated using block kriging with a linear variogram model in Surfer.
7. Aerial & Topo: PASDA 2014 & Copyright:© 2013 National Geographic Society, i-cubed Microsoft product screen shot(s) reprinted with permission from Microsoft Corporation

Project Location 213402434

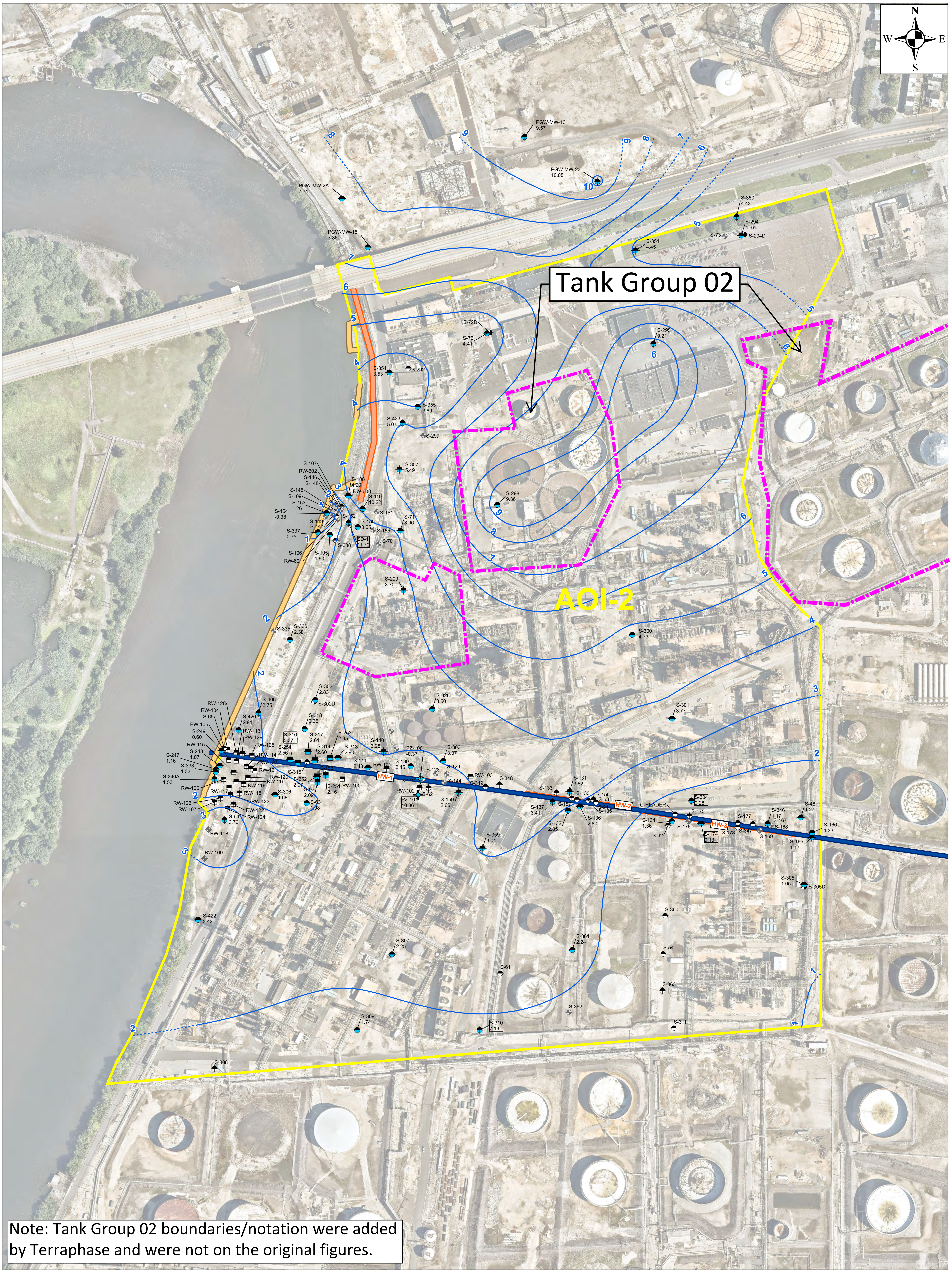
City of Philadelphia, Pennsylvania

Prepared by GWC on 2/9/2016
Technical Review by ADK on 2/16/2016
Independent Review by MN on 2/16/2016

Client/Project
EVERGREEN RESOURCES MANAGEMENT OPERATIONS
PHILADELPHIA REFINERY COMPLEX
3144 PASSYUNK AVENUE
PHILADELPHIA, PA 19145

Figure No.
5-5

Title
MAY 2015 WATER-TABLE ELEVATION - INCLUDING SYNOPTIC DSCP GAUGING DATA



Legend

S-131 3.33	Unconfined Aquifer Monitoring Well and Groundwater Elevation (ft. amsl)
S-93 1.14	Unconfined Aquifer Recovery Well and Groundwater Elevation (ft. amsl)
PZ-101 9.63	Unconfined Aquifer Piezometer and Groundwater Elevation (ft. amsl)
	Well Abandoned/Destroyed/Unable to Locate
	Lower Aquifer Monitoring Well
	Unconfined Aquifer Monitoring Well
	Unconfined Aquifer Recovery Well
	Unconfined Aquifer Piezometer
	Horizontal Well
1	Unconfined Aquifer Groundwater Contours (ft. amsl)
1	Inferred Unconfined Aquifer Groundwater Contours (ft. amsl)
	Vertical Wall
	Bulkhead
	Pollock Street Sewer
	AOI Boundary
SD-1 11.70	Well Not Used in Contouring

Notes:
1. Aerial imagery provided by Nearmap.com, dated 7/29/2015.
2. Area of Interest boundaries referenced from 2011 ALTA/ACSM Land Title Survey, prepared for Sunoco Inc. (R&S).
3. Groundwater elevations were obtained from the October 2016 gauging event performed by Aquaterra Technologies, Incorporated.
4. ft. amsl = feet above mean sea level
5. Philadelphia Gas Works (PGW) wells were gauged by Environmental Alliance, Inc. on October 26, 2016.

Figure 8: Groundwater Elevations (October 2016)
Unconfined Aquifer Wells
AOI-2 Remedial Investigation Report
PES Philadelphia Refining Complex
Philadelphia, Pennsylvania

Philadelphia Refinery Operations
A Series of Evergreen Resources Group, LLC.
2 Righter Parkway, Suite 200
Wilmington, DE 19803

0 75 150 300 Feet

SCALE: 1" = 150'
DATE: March 3, 2017
DRN. BY: HD
CKD. BY: ED
JOB#: 2574602

Path: \\langan.com\data\DYL\data6\2574601\ArcGIS\MapDocuments\AOI 2 RIR 2016\Figure 8 - Unconfined Aquifer Groundwater Elevation Contour Plan (October 2016).mxd Date: 7/17/2017 User: hnunn Time: 10:37:24 AM

Appendix C

Soil Boring Logs, Monitoring Well Installation Logs, and Groundwater Stabilization Logs

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-26-01
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5 - 4.0	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown CLAY and SILT	
1					
2					
3					
4	PB26-01		5382		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-26-02
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown Fine to Coarse SAND (Fill)	
1					
2					
3					
	PB26-02		787.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-26-03
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT and Fine SAND	
1					
2					
3					
4					
5	PB26-03		3790		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-26-04
		Page 1 of 1
		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT and CLAY	
1					
2					
3					
4					
	PB26-04		4292		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-26-05
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
5	PB26-05		1657		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-26-06
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/07/2021
		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5	PB26-06		5029		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-26-07
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
5	PB26-07		2154		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-26-08
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/07/2021
		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray Fine SAND	
1					
2					
3					
4					
5	PB26-08		6098		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-26-09
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/07/2021
		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT; some Clay	
1					
2					
3					
	PB26-09		1137		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-26-10
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown CLAY	
1					
2					
3	PB26-10		6790		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
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16					
17					
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19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-26-11
		Page 1 of 1
		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown CLAY and SILT	
1					
2					
3					
4	PB26-11		3676		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-26-12
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
5	PB26-12		5580		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-26-13
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Gray SILT	
2					
3					
4					
5	PB26-13		379.7		
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-26-14
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/07/2021
		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray Gravel and Asphalt (Fill Material)	
1					
2					
3					
4					
	PB26-14		114.6		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

Boring No.: PB-26-15		
Page 1 of 1		
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB26-15		1270		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
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21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-26-16
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PE26-16		42.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-27-01
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3	PB27-01		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-01(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Brown sandy FILL and SILT	
1			0.0		
			0.0		
2			0.0		
			0.0		
3	PB27-01		0.0		
				END OF BORING (3 ft.)	
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-01R
		Page 1 of 1
Client: PESRM		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 3.5-4.0', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB27-01R		22.7	0.0-3.5' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB27-01R		38.9	3.5-4.0' Gray SILT with SAND	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
	PB27-01R		42.6	14.0-15.0' Black/gray SILT with fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-27-02
		Page 1 of 1
Client: PESRM		Date Start: 06/07/2021
Project Name: PES Refinery		Date Finish: 06/07/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark Brown fine to coarse SAND and SILT	
1					
2					
3					
	PB27-02		4590		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-27-02(resample)
		Page 1 of 1
Project Name: PES Refinery		Date Start: 04/18/2022
		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL and SILT	
1					
2					
3					
	PB27-02		55.2		
4				**END OF BORING (3.5 ft.)**	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-02R
		Page 1 of 1
		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB27-02R		24.3	0.0-6.0' Brown sandy FILL	
1					
2					
3					
4					
5					
6					
	PB27-02R		124.6	6.0-14.0' Brown/gray SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB27-02R		89.5	14.0-15.0' Brown/gray fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-03
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/08/2021
		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark Brown fine to coarse SAND and SILT	
1					
2					
3					
4	PB27-03		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-03(resample)
		Page 1 of 1
		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black/brown SILT	
1					
2					
3					
4	PB27-03		102.8		
				END OF BORING (4 ft.)	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-27-04
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine to coarse SAND and SILT	
1					
2					
3					
4	PB27-04		3158		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-27-05
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and CLAY	
1					
2					
3					
4	PB27-05		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-27-05(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown silty FILL	
1					
2					
3					
4	PB27-05		43.9		
				END OF BORING (4 ft.)	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-27-06
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and CLAY	
1					
2					
3					
4					
5	PB27-06		13825		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-07
		Page 1 of 1
		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark Brown Fine SAND	
1					
2					
3					
	PB27-07		5436		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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20					
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23					
24					
25					

Ransom Consulting,

Soil Boring Log

Ransom Consulting,	Soil Boring Log	Boring No.: PB-27-08
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2022
Project Name: PES Refinery		Date Finish: 06/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and fine to coarse SAND	
1					
2					
3					
4					
	PB27-08		738.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-27-09
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB27-09		1083		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-10
		Page 1 of 1
		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0-5 Brown SILT	
1					
2					
3					
4	PB27-10		5291		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-11
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and fine to coarse SAND	
1					
2					
3					
4					
5	PB27-11		1886		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-12
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
5	PB27-12		283.7		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-27-13
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/08/2021
		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Gravel and Asphalt (fill material)	
2					
3					
4	PB27-13		10.4		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-14
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown Fine to coarse SAND and SILT	
1					
2					
3					
	PB27-14		1124		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-15
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB27-15		17.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-16
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB27-16		114.5		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-27-17
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB27-17		5486		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-27-18
		Page 1 of 1
Client: PESRM		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB27-18		62.5	0.0-6.0' Brown sandy FILL	
1					
2					
3					
4					
5					
6					
	PB27-18		92.2	6.0-14.0' Gray fine SAND	
7					
8					
9					
10					
11					
12					
13					
14					
	PB27-18		80.1	14.0-15.0' Light brown CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-01
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0-5 Brown/Gray SILT	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB28-01		9.2		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-02
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB28-02		68.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-03
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
	PB28-03		184.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-28-04
		Page 1 of 1
Client: PESRM		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB28-04		25.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-28-05
		Page 1 of 1
Client: PESRM		Date Start: 02/08/2022
Project Name: PES Refinery		Date Finish: 02/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB28-05		10.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-06
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/08/2021
		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB28-06		751.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-07
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB28-07		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-28-08
		Page 1 of 1
Client: PESRM		Date Start: 02/08/2022
Project Name: PES Refinery		Date Finish: 02/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
	PB28-08		7.9		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-09
		Page 1 of 1
		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
	PB28-09		296.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-10
		Page 1 of 1
		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB28-10		515.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I | Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-11
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB28-11		438.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-28-12
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB28-12		15.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-13
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
	PB28-13		428.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
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14					
15					
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23					
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25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-14
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4					
	PB28-13		684.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
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14					
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16					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM			Boring No.: PB-28-15
			Page 1 of 1
Project Name: PES Refinery			Date Start: 06/09/2021
			Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadelphia, PA		Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB28-15		1248		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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22					
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24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM			Boring No.: PB-28-16
			Page 1 of 1
			Date Start: 06/09/2021
Project Name: PES Refinery			Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA		Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown CLAY and SILT	
1					
2					
3					
	PB28-16		789.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-17
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
	PB28-17		170.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
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17					
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19					
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21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-18
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2	PB28-18		111.9		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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21					
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24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-19
		Page 1 of 1
		Date Start: 06/08/2021
Project Name: PES Refinery		Date Finish: 06/08/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' ASH FILL; some Silt	
1					
2					
3					
	PB28-19		3974		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-28-19(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark gray silty FILL	
1					
2					
3					
4	PB28-19		117.9		
				END OF BORING (3.5 ft.)	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-19R(resample)
		Page 1 of 1
Project Name: PES Refinery		Date Start: 04/18/2022
		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 6.5'
Logged By: Tyler Short	Sample Interval: 6.0-6.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-6.5' Brown/gray SILT	
1					
2					
3					
4					
5					
6					
	PB28-19R		22.7		
7				**END OF BORING (6.5 ft.)**	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-28-19R
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray SILT with GRAVEL	
1					
2					
3					
4					
5					
6					
7	PB28-19R		48.6		
8					
9					
10					
11					
12					
13					
14					
15	PB28-19R		52.1	14.0-15.0' Dark brown fine SAND	
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-20
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5	PB28-20		2357		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-21
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB28-21		492.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-28-22
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine to coarse SAND and Angular GRAVEL (fill)	
1					
2					
3					
4					
5	PB28-22		1936		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-01
		Page 1 of 1
Project Name: PES Refinery		Date Start: 06/09/2022
		Date Finish: 06/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB29-01		5816		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-29-02R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5, 14.5-15'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB29-02R-0.0-0.5		45.9	0.0-6.0' Brown Sandy fill and BRICK	
1					
2					
3					
4					
5					
6					
	PB29-02R-6.0-6.5		425.9	6.0-14.5 Gray SILT and CLAY	
7					
8					
9					
10					
11					
12					
13					
14					
15	PB29-02R-14.5-15.0		413.2	14.5-15.0 Brown SILT and CLAY	
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-02
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
5	PB29-02		14783		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Boring No.: PB-29-02R		
Page 1 of 1		
Client: PESRM		Date Start: 4/18/2022
Project Name: PES Refinery		Date Finish: 4/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 0.5'
Logged By: Tyler Short	Sample Interval: 0.0-0.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB29-02R		37.2	0.0-5.0' Black/brown SILT	
1				**END OF BORING (0.5 ft.)**	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-03
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5	PB29-03		13091		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

		Boring No.: PB-29-03(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown Silty FILL	
1					
2					
3					
4					
5	PB29-03		7.9		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-29-03R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5, 14.0-14.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray Fine SAND and SILT	
1					
2					
3					
4					
5					
6					
	PB29-03R-6.0-6.5		765.4		
7					
8					
9					
10					
11					
12					
13					
14					
	PB29-03R-14.0-14.5		281.4	14.0-15.0 Gray/Brown CLAY and SILT	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-03R
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 6.5'
Logged By: Tyler Short	Sample Interval: 6.0-6.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-6.5' Brown/gray SILT	
1					
2					
3					
4					
5					
6					
	PB29-03R		63.2		
7				**END OF BORING (6.5 ft.)**	
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-04
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5	PB29-04		3107		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-05
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5	PB29-05		15000+		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-06
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB29-06		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-07
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB29-07		7419		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-08
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' GRAVEL and ASPHALT (fill)	
1					
	PB29-08		5029		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-08(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 1.5'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB29-08		14.8	0.0-1.5' Brown Sandy FILL with GRAVEL	
2				**END OF BORING (1.5 ft.)**	
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

		Boring No.: PB-29-08R
		Page 1 of 1
Client: PESRM		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Brown SILT with GRAVEL	
1					
2					
3					
4					
5					
6					
7	PB29-08R		127.2		
8					
9					
10					
11					
12					
13					
14					
15	PB29-08R		333.8	14.0-15.0' Brown fine SAND	
16				**END OF BORING (15 ft.)**	
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-09
		Page 1 of 1
		Date Start: 06/09/2021
Project Name: PES Refinery		Date Finish: 06/09/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	Strong scent of gasoline
1					
2					
3					
4					
5	PB29-09		15000+		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-10
		Page 1 of 1
Client: PESRM		Date Start: 06/09/2022
Project Name: PES Refinery		Date Finish: 06/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' GRAVEL and ASPHALT (fill)	
1					
	PB29-10		15000+		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-11
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
	PB29-11		887.1		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM			Boring No.: PB-29-12
			Page 1 of 1
Project Name: PES Refinery			Date Start: 6/10/2021
			Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA		Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Brown SILT and SAND	
2					
3					
4	PB29-12		810.6		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-13
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/ Gray SILT	
1					
2					
3					
	PB29-13		936.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-14
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-4.0' Brown SILT with SAND	
1					
2					
3					
	PB29-14		263.1		
4					
				END OF BORING (Refusal at 4 ft.)	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-15
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SAND with GRAVEL	
1					
2					
3					
	PB29-15		53.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

		Boring No.: PB-29-15(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-3.5' Brown silty FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB29-15		0.0		
4				**END OF BORING (3.5 ft.)**	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-15R
		Page 1 of 1
Client: PESRM		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB29-15R		563.2	0.0-6.0' Sandy FILL with ash and SILT	
1					
2					
3					
4					
5					
6					
	PB29-15R		374.1	6.0-14.0' Brown/gray SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB29-15R		137.5	14.0-15.0' Light brown course and medium SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-16
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/ Gray SILT	
1					
2					
3					
4	PB29-16		4279		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-17
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB29-17		439.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-18
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fine SAND	
1					
2					
3					
4	PB29-18		211.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I		**Soil Boring Log**	Boring No.: PB-29-19
			Page 1 of 1
Client: PESRM			Date Start: 6/10/2021
Project Name: PES Refinery			Date Finish: 6/10/2021
Project No.: 200.00135		Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:		Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with SAND	
1					
2					
3					
4					
	PB29-19		3001		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-20
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2	PB29-20		128.6		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-21
Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135	Location: Philadelphia, PA	Date Start: 6/10/2021
Drilling Contractor: TPI		Date Finish: 6/10/2021
Driller:	Drilling Method: Geoprobe	Permit No.:
Hole Diameter: 2"	Sampling Method: Acetate Liner	Ground Elevation: N/A
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Datum: N/A
		Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB29-21		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-22
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with SAND	
1					
2					
3					
4					
5	PB29-20		4312		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-23
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with SAND	
1					
2					
3					
4	PB29-23		5334		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-24
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with fine SAND	
1					
2					
3					
4					
	PB29-24		2773		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-29-24(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB29-24		36.4		
				END OF BORING (5.0 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-25
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black fine SAND	
1					
2					
3					
4					
5	PB29-25		1708		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-26
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
5	PB29-26		1730		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-26R
		Page 1 of 1
		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 0.5'
Logged By: Tyler Short	Sample Interval: 0.0-0.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	29-26R		75.1	0.0-0.5' Sandy FILL with ash	
1				**END OF BORING (0.5 ft.)**	
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-29-27 Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB29-27		3062		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-29-28
		Page 1 of 1
		Date Start: 2/08/2022
Project Name: PES Refinery		Date Finish: 2/08/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB29-28R		505.3	0.0-6.0' Brown/gray SILT with SAND	
1					
2					
3					
4					
5					
6					
	PB29-28R		272.2	6.0-14.0' Gray SILT with fine SAND	
7					
8					
9					
10					
11					
12					
13					
14					
	PB29-28R		137.5	14.0-15.0' Brown/gray fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-01
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/10/2021
		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB33-01		4793		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-02
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/10/2021
		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4	PB33-02		2731		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-03
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/10/2021
		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and gray CLAY	
1					
2					
	PB33-03		842.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-33-04
		Page 1 of 1
Client: PESRM		Date Start: 6/10/2021
Project Name: PES Refinery		Date Finish: 6/10/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Dark gray SILT	
2	PB33-04		1959		
3					
4					
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-05
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray CLAY	
1					
2					
	PB33-05		15000		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-33-05R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5, 14.0-14.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray Fine SAND and SILT	
1					
2					
3					
4					
5					
6					
	PB33-05R-6.0-6.5		293.1		
7					
8					
9					
10					
11					
12					
13					
14					
	PB33-05R-14.0-14.5		184.6	14.0-15.0 Gray/Brown CLAY and SILT	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-06
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/11/2021
		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Gray SILT	
2	PB33-06		43.2		
3					
4					
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-07
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine SAND	
1					
2					
3					
	PB33-07		647.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-08
		Page 1 of 1
		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
	PB33-08		7069		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-09
		Page 1 of 1
		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB33-09		8327		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-10
		Page 1 of 1
		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
4	PB33-10		50.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-11
		Page 1 of 1
		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
5	PB33-11		2229		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-33-12
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3	PB33-12		10971		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-33-13
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 0.5-1.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1	PB33-13		1072		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-33-14
		Page 1 of 1
		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB33-14		1261		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-15
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB33-15		781.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

		Boring No.: PB-33-16
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB33-16		6631		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-17
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2	PB33-17		645.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-18
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB33-18		8754		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-33-19
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2	PB33-19		56.4		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-20
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3					
	PB33-20		90.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-21
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3					
4					
5	PB33-21		335.2		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-22
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3	PB33-22		1236		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-33-23
		Page 1 of 1
Client: PESRM		Date Start: 6/11/2021
Project Name: PES Refinery		Date Finish: 6/11/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
5	PB33-23		816.8		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-01
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3					
4	PB34-01		685.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-34-02
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/21/2021
		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with course SAND	
1					
2					
3					
4					
	PB34-02		898.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-34-03
		Page 1 of 1
		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
	PB34-03		245.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-34-03R
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/11/2022
		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB34-03R		46.3	0.0-6.0' Sandy Fill with gravel	
1					
2					
3					
4					
5					
6					
	PB34-03R		77	6.0-14.0' Sandy Fill with gray SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB34-03R		50.9	6.0-14.0' Gray SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-34-04
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy Fill with GRAVEL	
1					
2					
3					
	PB34-04		29.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-05
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
	PB34-05		937.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-34-06
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4	PB34-06		1242		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-07
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB34-07		362.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-08
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy Fill with GRAVEL	
1					
2					
3	PB34-08		101.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-09
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy Fill with GRAVEL	
1					
2					
3					
	PB34-09		124.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-34-10
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy Fill with GRAVEL	
1					
2					
	PB34-10		38.9		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-34-11
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB34-11		424.8		
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-11R
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Brown/gray SILT with fine SAND	
1					
2					
3					
4					
5					
6					
	PB34-11R		25.6		
7					
8					
9					
10					
11					
12					
13					
14					
	PB34-11R		17.9	14.0-15.0' Brown/gray SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-11R(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 14.5'
Logged By: Tyler Short	Sample Interval: 14.0-14.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.5' Brown/gray SILT with CLAY	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
	PB34-11R		0.0		
15				**END OF BORING (14.5 ft.)**	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-12
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill with SILT	
1					
2					
	PB34-12		647.1		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-13
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy Fill with GRAVEL	
1					
2					
3					
4					
5	PB34-13		283.6		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-34-14
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown Fill with SAND	
1					
2					
	PB34-14		154.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-01
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/21/2021
		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Course SAND	
1					
2	PB35-01		630		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-02
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/21/2021
		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
5	PB35-02		654.1		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-03
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
4	PB35-03		63.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-04
		Page 1 of 1
		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB35-04		1449		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-05
		Page 1 of 1
		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB35-05		586.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-06
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/10/2022
		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with SILT	
1					
2					
3					
4	PB35-06		9.5		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-07
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB35-07		595.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-08
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/21/2021
		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4	PB35-08		632.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-35-08R
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-15.0' Brown/gray fine SAND	
1					
2					
3					
4					
5					
6					
7	PB35-08R		32.7		
8					
9					
10					
11					
12					
13					
14					
15	PB35-08R		85.6		
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-35-09
		Page 1 of 1
		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with SILT	
1					
2					
3					
4	PB35-09		3.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-10
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with SILT	
1					
2					
3					
	PB35-10		2.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-11
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT with SAND	
1					
2					
3					
4	PB35-11		12.4		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-12
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
5	PB35-12		2832		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-13
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT with SAND	
1					
2					
3	PB35-13		35.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-35-14
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with SILT	
1					
2					
3					
	PB35-14		17.0		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-35-15
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
	PB35-15		595.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-01
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
5	PB36-01		831.1		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-02
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB36-02		15000+		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-03
		Page 1 of 1
Project Name: PES Refinery		Date Start: 10/05/2021
		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB36-03		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,	Soil Boring Log	Boring No.: PB-36-03(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB36-03		24.7		
4				**END OF BORING (3.5 ft.)**	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-03R
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Brown/gray fine SAND	
1					
2					
3					
4					
5					
6					
	PB36-03R		156.2		
7					
8					
9					
10					
11					
12					
13					
14					
	PB85-03R		93.8	14.0-15.0' Gray SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-04
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with SILT	
1					
2					
3					
	PB36-04		22.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-05
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB36-05		189		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-06
		Page 1 of 1
		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black SILT	
1					
2					
3					
4	PB36-06		70.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-07
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB36-07		1683		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-07(resample)
		Page 1 of 1
Project Name: PES Refinery		Date Start: 04/18/2022
		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.5'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-4.5' Brown/gray SILT	
1					
2					
3					
4					
	PB36-07		39.2		
5				**END OF BORING (4.5 ft.)**	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-07R
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/10/2022
		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB36-07R		9.1	0.0-6.0' Sandy Fill with gravel	
2					
3					
4					
5					
6					
7	PB36-07R		24.8	6.0-14.0' Gray/brown SILT	
8					
9					
10					
11					
12					
13					
14					
15	PB36-07R		74	6.0-14.0' Gray/brown SILT with CLAY	
16				**END OF BORING (15 ft.)**	
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-08
		Page 1 of 1
		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB36-08		862		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-09
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB36-09		58.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-10
		Page 1 of 1
		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT with fine SAND	
1					
2					
3					
4					
5	PB36-10		3421		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-11
		Page 1 of 1
		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
	PB36-11		112.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-36-12
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with fine SAND	
1					
2					
	PB36-12		20.2		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-13
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB36-13		3.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-14
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
	PB36-14		85.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-15
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fine SAND with some CLAY	
1					
2					
3					
	PB36-15		7.6		
4					
5					
				END OF BORING (5 ft.)	

Ransom Consulting, I

Soil Boring Log

Boring No.: PB-36-16		
Page 1 of 1		
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fine SAND with some CLAY	
1					
2					
3					
4	PB36-16		10.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-36-17
		Page 1 of 1
Client: PESRM		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fine SAND with SILT	
1					
2					
3					
4	PB36-17		15.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-36-18
		Page 1 of 1
		Date Start: 10/05/2021
Project Name: PES Refinery		Date Finish: 10/05/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB36-18		27.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-37-01
		Page 1 of 1
		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB37-01		4.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-02
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' SILT with medium SAND	
1					
2					
3					
4	PB37-02		93.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-03
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gravel FILL	
1					
	PB37-03		447.8		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-04
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB37-04		17.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-05
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill with SAND	
1					
2					
3					
4	PB37-05		36.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-05R
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray SILT	
1					
2					
3					
4					
5					
6					
	PB37-05R		89.4		
7					
8					
9					
10					
11					
12					
13					
14					
	PB37-05R		169.5	14.0-15.0' Gray fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-37-06
		Page 1 of 1
		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Brown course SAND	
2					
3	PB37-06		271.9		
4					
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-07
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB37-07		36.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Client: PESRM		Boring No.: PB-37-08
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/09/2022
		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB37-08		40.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-09
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT with medium/course SAND	
1					
2					
3					
	PB37-09		23.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-37-10
		Page 1 of 1
		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3	PB37-10		430.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-11
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB37-11		1.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-37-11(resample)
		Page 1 of 1
		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-3.5' Brown sandy FILL with SILT	
1					
2					
3					
	PB37-11		3.1		
4				**END OF BORING (3.5 ft.)**	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-11R
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB37-11R		25.2	0.0-6.0' Brown sandy FILL	
1					
2					
3					
4					
5					
6					
	PB37-11R		55.7	6.0-14.0' Brown/gray SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB37-11R		172.5	14.0-15.0' Gray/brown fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-12
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown course SAND	
1					
2					
3					
	PB37-12		26.4		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-13
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB37-13		25.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-14
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
5	PB37-14		115.6		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-37-15
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3	PB37-15		120.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-37-16
		Page 1 of 1
Client: PESRM		Date Start: 7/27/2021
Project Name: PES Refinery		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with some SAND	
1					
2					
3					
	PB37-16		45.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-37-17
		Page 1 of 1
Project Name: PES Refinery		Date Start: 7/27/2021
		Date Finish: 7/27/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
	PB37-17		6.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-38-01
		Page 1 of 1
Project Name: PES Refinery		Date Start: 7/16/2021
		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB38-01		273.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-38-02
		Page 1 of 1
		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB38-02		34.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-38-03
		Page 1 of 1
		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB38-03		95.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
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23					
24					
25					

Ransom Consulting, I | Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-38-04
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB38-04		52.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-05
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB38-05		9.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-38-06
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB38-06		536.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-38-07
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB38-07		72.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-38-08
		Page 1 of 1
Project Name: PES Refinery		Date Start: 7/16/2021
		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB38-08		50.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-09
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB38-09		80.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-38-10
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB38-10		25.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-11
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB38-11		46.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-11R
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB38-11R		22.5	0.0-6.0' Brown sandy FILL	
1					
2					
3					
4					
5					
6					
	PB38-11R		37.9	6.0-14.0' Brown SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB38-11R		65.7	14.0-15.0' Gray/brown fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-38-12
		Page 1 of 1
		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4					
5	PB38-12		328.1		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-13
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB38-13		76.9		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-13R
		Page 1 of 1
Client: PESRM		Date Start: 2/09/2022
Project Name: PES Refinery		Date Finish: 2/09/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray/brown SILT	
1					
2					
3					
4					
5					
6					
	PB38-13R		75.3		
7					
8					
9					
10					
11					
12					
13					
14					
	PB38-13R		42.6	14.0-15.0' Brown SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-38-14
		Page 1 of 1
Client: PESRM		Date Start: 7/16/2021
Project Name: PES Refinery		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB38-14		39.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-39-01
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
	PB39-01		7.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-39-02
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
4					
	PB39-02		90.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-03
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
	PB39-03		3.4		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-39-04
		Page 1 of 1
Project Name: PES Refinery		Date Start: 7/15/2021
		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 Brown SILT	
1					
2					
	PB39-04		136.5		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-05
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 Brown course SAND	
1					
2					
3					
	PB39-05		93.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-39-06
		Page 1 of 1
		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 Brown course SAND	
1					
2					
3					
4					
5	PB39-06		284		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-39-07
		Page 1 of 1
		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 SAND with GRAVEL	
1					
2					
3					
4	PB39-07		25.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-39-08
		Page 1 of 1
		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
4	PB39-08		13.1		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-39-09
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
4					
5	PB39-09		764.3		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-10
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 Brown SILT and SAND	
1					
2					
3					
	PB39-10		7.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-11
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
	PB39-11		2.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-39-12
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL	
1					
2					
3					
	PB39-12		37.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-12R
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Gray/brown SILT	
1					
2					
3					
4					
5					
6					
	PB39-12R		52.3		
7					
8					
9					
10					
11					
12					
13					
14					
	PB39-12R		43.8	14.0-15.0' Brown SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-39-13
		Page 1 of 1
Client: PESRM		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5 FILL with brown SAND	
1					
2					
3					
	PB39-13		290.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-01
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black SILT	
1					
2					
3	PB40-01		938.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-02
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black SILT	
1					
2					
3					
4					
5	PB40-02		498.2		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-03
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3					
	PB40-03		242.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-40-04
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fill	
1					
2					
3					
4	PB40-04		153.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-05
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray clayey SILT	
1					
2					
3					
4	PB40-05		37.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-06
		Page 1 of 1
Client: PESRM		Date Start: 6/21/2021
Project Name: PES Refinery		Date Finish: 6/21/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray clayey SILT	
1					
2					
3					
	PB40-06		62.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-07
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4	PB40-07		83.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-08
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
	PB40-08		72.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-09
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine SAND	
1					
2					
3					
	PB40-09		21.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-10
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB40-10		733.5		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-40-11
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB40-11		646.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-12
Project Name: PES Refinery		Page 1 of 1
Project No.: 200.00135	Location: Philadelphia, PA	Date Start: 6/22/2021
Drilling Contractor: TPI		Date Finish: 6/22/2021
Driller:	Drilling Method: Geoprobe	Permit No.:
Hole Diameter: 2"	Sampling Method: Acetate Liner	Ground Elevation: N/A
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Datum: N/A
		Total Depth: 5.0'
		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Brown SILT with GRAVEL	
2					
3					
4	PB40-12		20.2		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-12R
		Page 1 of 1
Client: PESRM		Date Start: 2/11/2022
Project Name: PES Refinery		Date Finish: 2/11/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB40-12R		3.2	0.0-6.0' Sandy Fill with gravel	
1					
2					
3					
4					
5					
6					
	PB40-12R		18.3	6.0-14.0' Sandy Fill with brown SILT	
7					
8					
9					
10					
11					
12					
13					
14					
	PB40-12R		15.2	6.0-14.0' Gray SILT with fine SAND and CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-40-13
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4					
	PB40-13		643.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-40-14
		Page 1 of 1
		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB40-14		364.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-40-15
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB40-15		239.1		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-40-16
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB40-16		742.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-01
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3	PB42-01		302.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
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21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-42-02
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/24/2021
		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB42-02		283.4		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-03
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB42-03		587.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-04
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2	PB42-04		287.3		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I		**Soil Boring Log**	Boring No.: PB-42-05
			Page 1 of 1
Client: PESRM			Date Start: 6/24/2021
Project Name: PES Refinery			Date Finish: 6/24/2021
Project No.: 200.00135		Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:		Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"		Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short		Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB42-05		586.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-06
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black FILL	
1					
	PB42-06		603.2		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-42-07
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
	PB42-07		572.3		
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-42-08
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3	PB42-08		1285		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-09
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB42-09		1620		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-42-09R
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Brown/gray SILT	
1					
2					
3					
4					
5					
6					
	PB42-09R		9.7		
7					
8					
9					
10					
11					
12					
13					
14					
	PB42-09R		11.8	14.0-15.0' Gray fine SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-10
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB42-10		1406		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-42-11
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Black FILL	
2	PB42-11		379.1		
3					
4					
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-12
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB42-12		20.1		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-13
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB42-13		78.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-14
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4	PB42-14		102.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-42-15
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB42-15		212.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Client: PESRM		Boring No.: PB-42-16
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/24/2021
		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4					
5	PB42-16		396.8		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-01
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
	PB43-01		28.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-02
		Page 1 of 1
		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB43-02		10.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-03
		Page 1 of 1
		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB43-03		3.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-04
		Page 1 of 1
Client: PESRM		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4	PB43-04		356.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-05
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
	PB43-05		7.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-06
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4					
	PB43-06		6.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-07
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB43-07		38.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-43-08
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB43-08		32.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-09
		Page 1 of 1
		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB43-09		6.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

		Boring No.: PB-43-10
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB43-10		17.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-43-11
		Page 1 of 1
Client: PESRM		Date Start: 02/14/2022
Project Name: PES Refinery		Date Finish: 02/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
	PB43-11		18.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-43-12
		Page 1 of 1
Client: PESRM		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB43-12		283.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-13
		Page 1 of 1
		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
	PB43-13		483.1		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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21					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-14
		Page 1 of 1
		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4	PB43-14		37.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
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23					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-15
		Page 1 of 1
		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2	PB43-15		37.1		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-43-16
		Page 1 of 1
		Date Start: 06/25/2021
Project Name: PES Refinery		Date Finish: 06/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB43-16		26.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-01
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB83-01		301.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-01R
		Page 1 of 1
Client: PESRM		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Brown sandy FILL with gray SILT	
1					
2					
3					
4					
5					
6					
	PB83-01R		15.2		
7					
8					
9					
10					
11					
12					
13					
14					
	PB83-01R		9.5	14.0-15.0' Brown/gray fine SAND	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-83-02
		Page 1 of 1
		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB83-02		106.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-03
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB83-03		367.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-83-04
		Page 1 of 1
Client: PESRM		Date Start: 2/14/2022
Project Name: PES Refinery		Date Finish: 2/14/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL with SILT	
1					
2					
3					
	PB83-04		19.4		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-05
		Page 1 of 1
Client: PESRM		Date Start: 2/14/2022
Project Name: PES Refinery		Date Finish: 2/14/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3	PB83-05		45.9		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-06
		Page 1 of 1
Client: PESRM		Date Start: 2/14/2022
Project Name: PES Refinery		Date Finish: 2/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4					
5	PB83-06		15.7		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

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Soil Boring Log

Client: PESRM		Boring No.: PB-83-07
		Page 1 of 1
		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB83-07		212.4		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-83-08
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.0-2.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
	PB83-08		80.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-09
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB83-09		8.3		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-83-10
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2	PB83-10		11.7		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-83-11
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/14/2022
		Date Finish: 2/14/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4					
5	PB83-11		12.3		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-83-12
		Page 1 of 1
Client: PESRM		Date Start: 6/25/2021
Project Name: PES Refinery		Date Finish: 6/25/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB83-12		8.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-01
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3	PB84-01		221.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-84-02
		Page 1 of 1
		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2	PB84-02		383.8		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-03
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB84-03		363.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-84-04
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
	PB84-04		1002		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-84-04R
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/15/2022
		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB84-04R		205.9	0.0-6.0' Sandy FILL	
1					
2					
3					
4					
5					
6					
	PB84-04R		895.2	6.0-14.0' Gray fine SAND	
7					
8					
9					
10					
11					
12					
13					
14					
	PB84-04R		1109	14.0-15.0' Gray SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-05
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB84-05		684.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-84-06
		Page 1 of 1
		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
	PB84-06		194.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-07
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4					
	PB84-07		724.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Client: PESRM		Boring No.: PB-84-08
		Page 1 of 1
		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray/brown SILT	
1					
2					
3					
4	PB84-08		324.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-09
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB84-09		765.1	0.0-5.0' Brown/Gray SILT	
1					
2					
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-84-10
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/24/2021
		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.5-2.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Fine brown SAND	
1					
2	PB84-10		10.2		
3					
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-11
		Page 1 of 1
Client: PESRM		Date Start: 2/15/2022
Project Name: PES Refinery		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
	PB84-11		243.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-84-12
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB84-12		700.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-13
		Page 1 of 1
Client: PESRM		Date Start: 2/15/2022
Project Name: PES Refinery		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB84-13		158.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-84-14
		Page 1 of 1
Client: PESRM		Date Start: 2/15/2022
Project Name: PES Refinery		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
	PB84-14		693.2		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-84-15
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3	PB84-15		144.6		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-16
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 1.0-1.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1	PB84-16		496.2	0.0-5.0' Black SAND with GRAVEL fill	
2					
3					
4					
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-17
		Page 1 of 1
Client: PESRM		Date Start: 2/15/2022
Project Name: PES Refinery		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL	
1					
2					
3					
4	PB84-17		151.5		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-84-18
		Page 1 of 1
		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3	PB84-18		232.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-84-19
		Page 1 of 1
Client: PESRM		Date Start: 6/24/2021
Project Name: PES Refinery		Date Finish: 6/24/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB84-19		172.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
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12					
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20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-85-01
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
4	PB85-01		2.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
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16					
17					
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21					
22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-02
		Page 1 of 1
		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Course SAND with SILT	
1					
2					
3					
4	PB85-02		2.3		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-85-03
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB85-03		340.7		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-04
		Page 1 of 1
		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4					
5	PB85-04		230.2		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-05
		Page 1 of 1
		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
4	PB85-05		30.6		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-85-06
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB85-06		320.7		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-06R
		Page 1 of 1
		Date Start: 2/10/2022
Project Name: PES Refinery		Date Finish: 2/10/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Sandy FILL with gray SILT	
1					
2					
3					
4					
5					
6					
7	PB85-06R		62.9		
8					
9					
10					
11					
12					
13					
14					
15	PB85-06R		43.8	14.0-15.0' Gray SILT with fine SAND	
16				**END OF BORING (15 ft.)**	
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-07
		Page 1 of 1
		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB85-07		973.2		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-85-08
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
5	PB85-08		230.3		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-09
		Page 1 of 1
		Date Start: 2/14/2022
Project Name: PES Refinery		Date Finish: 2/14/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4	PB85-09		17.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
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21					
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23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-10
		Page 1 of 1
		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Gray SILT	
1					
2					
3					
	PB85-10		521.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Client: PESRM		Boring No.: PB-85-11
		Page 1 of 1
		Date Start: 7/15/2021
Project Name: PES Refinery		Date Finish: 7/15/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT and SAND	
1					
2					
3					
4					
	PB85-11		663.4		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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20					
21					
22					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-85-12
		Page 1 of 1
Project Name: PES Refinery		Date Start: 7/16/2021
		Date Finish: 7/16/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB85-12		42.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-85-13
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown course SAND	
1					
2					
3					
4	PB85-13		129.8		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-85-14
		Page 1 of 1
Client: PESRM		Date Start: 7/12/2021
Project Name: PES Refinery		Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
4					
	PB85-14		365.2		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
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20					
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22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-85-15
		Page 1 of 1
Client: PESRM		Date Start: 7/26/2021
Project Name: PES Refinery		Date Finish: 7/26/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Brown/gray SILT and SAND	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB85-15		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM			Boring No.: PB-85-16
			Page 1 of 1
			Date Start: 7/12/2021
Project Name: PES Refinery			Date Finish: 7/12/2021
Project No.: 200.00135	Location: Philadephia, PA		Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
	PB85-16		111.8		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-85-17
		Page 1 of 1
Client: PESRM		Date Start: 7/26/2021
Project Name: PES Refinery		Date Finish: 7/26/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Brown/gray SILT and SAND	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB85-17		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-128-01
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine SAND	
1					
2					
3					
4	PB128-01		292.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-02
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/22/2021
		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Historic Fill	
1					
2					
3	PB128-02		78.9		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I | Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**		Boring No.: PB-128-03
			Page 1 of 1
Client: PESRM			Date Start: 6/22/2021
Project Name: PES Refinery			Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA		Permit No.:
Drilling Contractor: TPI			Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe		Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner		Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'		Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black course SAND	
1					
2					
3					
	PB128-03		840.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-04
		Page 1 of 1
Client: PESRM		Date Start: 6/22/2021
Project Name: PES Refinery		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black course SAND	
1					
2					
3					
	PB128-04		29.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-05
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/22/2021
		Date Finish: 6/22/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT with SAND	
1					
2					
3					
4					
	PB128-05		151.3		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I				Soil Boring Log	Boring No.: PB-128-05R
					Page 1 of 1
Client: PESRM					Date Start: 2/15/2022
Project Name: PES Refinery					Date Finish: 2/15/2022
Project No.: 200.00135				Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI					Ground Elevation: N/A
Driller:				Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"				Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short				Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A
Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB128-05R		43.7	0.0-6.0' Sandy FILL	
1					
2					
3					
4					
5					
6					
	PB128-05R		47.9	6.0-14.0' Gray SILT with SAND	
7					
8					
9					
10					
11					
12					
13					
14					
	PB128-05R		39.8	14.0-15.0' Gray SILT with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-06
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Brown SAND with SILT	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB128-06		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-07
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Brown sandy FILL with SILT	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB128-07		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-08
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black course SAND	
1					
2					
3					
4					
5	PB128-08		12.5		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-09
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB128-09		3.3		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-10
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB128-10		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-11
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB128-11		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-12
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 2.5-3.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3	PB128-12		2.1		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-128-13
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB128-13		23.8		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-14
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
	PB128-14		2.5		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-128-15
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB128-15		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-128-16
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB128-16		16.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

		Boring No.: PB-129-01
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine SAND	
1					
2					
3					
4					
	PB129-01		332.9		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-01(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.5'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown sandy FILL	
1					
2					
3					
4					
	PB129-01		0.0		
5				**END OF BORING (4.5 ft.)**	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-129-01R
		Page 1 of 1
Project Name: PES Refinery		Date Start: 2/15/2022
		Date Finish: 2/15/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5', 6.0-6.5', 14.0-14.5	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB129-01R		9.2	0.0-6.0' Sandy FILL	
1					
2					
3					
4					
5					
6					
	PB129-01R		29.3	6.0-14.0' Gray fine SAND	
7					
8					
9					
10					
11					
12					
13					
14					
	PB129-01R		58.4	14.0-15.0' Gray fine SAND with CLAY	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-02
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB129-02		30.7		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-129-03
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Black fine SAND	
1					
2					
3					
4					
5	PB129-03		150.3		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I — Soil Boring Log

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-129-04
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.0-4.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4					
5	PB129-04		63.2		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-05
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB129-05		439.1		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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21					
22					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-129-06
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/23/2021
		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4					
5	PB129-06		15000+		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-129-07
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB129-07		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-129-08
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB129-08		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-09
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
	PB129-09		0.7		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-10
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4	PB129-10		3.3		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
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21					
22					
23					
24					
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Ransom Consulting,	Soil Boring Log	Boring No.: PB-129-10(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 4.0'
Logged By: Tyler Short	Sample Interval: 3.5-4.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-4.0' Brown sandy FILL	
1					
2					
3					
4	PB129-10		0.0		
				END OF BORING (4.0 ft.)	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-11
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB129-11		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-12
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Sandy FILL with GRAVEL	
1					
2					
3					
4					
5	PB129-12		2.9		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-129-13
		Page 1 of 1
Client: PESRM		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB129-13		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-129-14
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB129-14		380.1		
5					
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-129-15
		Page 1 of 1
Client: PESRM		Date Start: 6/23/2021
Project Name: PES Refinery		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
4	PB129-15		1.7		
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-129-16
		Page 1 of 1
		Date Start: 2/16/2022
Project Name: PES Refinery		Date Finish: 2/16/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
			0.0	0.0-5.0' Sandy FILL with GRAVEL	
1			0.0		
			0.0		
2			0.0		
			0.0		
3			0.0		
	PB129-16		0.0		
4			0.0		
			0.0		
5			0.0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I | Soil Boring Log

Client: PESRM		Boring No.: PB-129-17
		Page 1 of 1
Project Name: PES Refinery		Date Start: 6/23/2021
		Date Finish: 6/23/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' FILL	
1					
2					
3					
	PB129-17		28.3		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Boring No.: PB-129-18
Page 1 of 1

Client: PESRM
Date Start: 2/15/2022
Project Name: PES Refinery
Date Finish: 2/15/2022
Project No.: 200.00135
Location: Philadephia, PA
Permit No.:
Drilling Contractor: TPI
Ground Elevation: N/A
Driller:
Drilling Method: Geoprobe
Datum: N/A
Hole Diameter: 2"
Sampling Method: Acetate Liner
Total Depth: 15.0'
Logged By: Tyler Short
Sample Interval: 6.0-6.5', 14.0-14.5
Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-14.0' Sandy FILL with SILT	
1					
2					
3					
4					
5					
6					
	PB129-18		109.4		
7					
8					
9					
10					
11					
12					
13					
14					
	PB129-18		152.7	14.0-15.0' Gray/brown SILT	
15					
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-01
		Page 1 of 1
		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
1				0.0-5.0' Brown/gray SILT	
2					
3					
4					
5	PB204-01		15000+		
6				**END OF BORING (5 ft.)**	
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-204-01R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5, 14.5-15'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB204-01R-0.0-0.5		10.5	0.0-6.0' Gray Sandy GRAVEL Fill	
1					
2					
3					
4					
5					
6					
	PB204-01R-6.0-6.5		26.7	6.0-14.5 Gray/Brown SILT	
7					
8					
9					
10					
11					
12					
13					
14					
15	PB204-01R-14.5-15.0		397.2	14.5-15.0 Brown fine SAND	
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-02
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SILT with fine SAND	
1					
2					
3					
	PB204-02		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-03
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB204-03		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-04
		Page 1 of 1
		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB204-04		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-05
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB204-05		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Boring No.: PB-204-06		
Page 1 of 1		
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SILT	
1					
2					
3					
	PB204-06		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-204-06(resample)
		Page 1 of 1
Client: PESRM		Date Start: 04/18/2022
Project Name: PES Refinery		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 3.5'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-3.5' Brown silty FILL	
1					
2					
3					
	PB204-06		0		
4				**END OF BORING (3.5 ft.)**	
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting,

Soil Boring Log

		Boring No.: PB-204-06R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 0.0-0.5, 6.0-6.5, 14.5-15'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
	PB204-06R-0.0-0.5		42.9	0.0-6.0' Gray SILT (fill)	
1					
2					
3					
4					
5					
6					
	PB204-06R-6.0-6.5		2827	6.0-14.5 Gray/Brown SILT and fine to coarse SAND	
7					
8					
9					
10					
11					
12					
13					
14					
15	PB204-06R-14.5-15.0		865.3	14.5-15.0 Gray/Brown fine SAND	
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-07
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB204-07		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-08
		Page 1 of 1
		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown SILT	
1					
2					
3					
	PB204-08		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-09
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown/gray SILT	
1					
2					
3					
	PB204-09		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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24					
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Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-10
		Page 1 of 1
Project Name: PES Refinery		Date Start: 10/04/2021
		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SILT	
1					
2					
3					
	PB204-10		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-11
		Page 1 of 1
		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SILT	
1					
2					
3					
	PB204-11		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
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21					
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23					
24					
25					

Ransom Consulting,

Soil Boring Log

Client: PESRM		Boring No.: PB-204-11(resample)
		Page 1 of 1
Project Name: PES Refinery		Date Start: 04/18/2022
		Date Finish: 04/18/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Brown fine SAND	
1					
2					
3					
4					
5	PB204-11		0		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	**Soil Boring Log**	Boring No.: PB-204-11R
		Page 1 of 1
Client: PESRM		Date Start: 02/07/2022
Project Name: PES Refinery		Date Finish: 02/07/2022
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 15.0'
Logged By: Tyler Short	Sample Interval: 6.0-6.5, 14.5-15'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-6.5' Gray SILT and fine SAND	
1					
2					
3					
4					
5					
6					
	PB204-11R-6.0-6.5		29.8		
7				6.5-15 Gray/Brown fine SAND	
8					
9					
10					
11					
12					
13					
14					
15	PB204-11R-14.5-15.0		949.5		
				END OF BORING (15 ft.)	
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I	Soil Boring Log	Boring No.: PB-204-12
		Page 1 of 1
Client: PESRM		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadelphia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 4.5-5.0'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SAND and GRAVEL	
1					
2					
3					
4					
5	PB204-12		15000+		
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Ransom Consulting, I

Soil Boring Log

Client: PESRM		Boring No.: PB-204-13
		Page 1 of 1
		Date Start: 10/04/2021
Project Name: PES Refinery		Date Finish: 10/04/2021
Project No.: 200.00135	Location: Philadephia, PA	Permit No.:
Drilling Contractor: TPI		Ground Elevation: N/A
Driller:	Drilling Method: Geoprobe	Datum: N/A
Hole Diameter: 2"	Sampling Method: Acetate Liner	Total Depth: 5.0'
Logged By: Tyler Short	Sample Interval: 3.0-3.5'	Hammer wt./fall: N/A

Depth (ft)	Sample No.	Recovery (Feet)	PID/FID (ppm)	Lithologic Description	Remarks
				0.0-5.0' Dark brown SAND and SILT	
1					
2					
3					
	PB204-13		15000+		
4					
5					
				END OF BORING (5 ft.)	
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
24					
25					

Project: **PESRM AST Closure**	Log of Boring PB-84-14R
Project Location: **3144 W. Passyunk Ave**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **11/22/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **15.0**	Sampling Method(s) **Grab**	Closest Tank **PB-84**
Borehole Backfill **Soil Cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	42/60			SM		SILTY SAND, brown, damp, dense, poorly graded, fine grained; Fill	0.9	
							2.3	
							1.6	
							2.7	
							3.7	
							9.2	
			PB-84-14R-3.0-3.5				9.5	Sample PB-84-14R-3.0-3.5 from 3.0-3.5' bgs
							11.5	
							35.8	
							14.4	
5	42/60			SP		SAND, brown, damp, loose, poorly graded; Fill	38.3	
							106.4	
				CH		CLAY, brown to gray, damp. firm, low dilatancy, high plasticity; Suspected backfill	17.9	
							1.4	
							3.3	
							1.3	
							1.9	
							99.3	
			PB-84-14R-9.0-9.5	SP		SAND, dark gray, moist, loose, poorly graded; Fill	224.0	Sample PB-84-14R-9.0-9.5 from 9.0-9.5' bgs
							10.7	
10	30/60			CH		CLAY, light brown, damp, low dilatancy, high plasticity; Fill	31.0	
							26.0	
							18.3	
							9.3	
							3.1	
							6.0	
							2.4	
							3.4	
							2.1	
			PB-84-14R-14.5-15.0				2.8	Sample PB-84-14R-14.5-15.0 from 14.5-15.0' bgs
15	48/60			SP		SAND, brown, wet, loose, poorly graded	1.2	
							4.3	
							5.6	
							2.2	
							3.4	
							5.8	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
	48/60			SP		SAND, brown, wet, loose, poorly graded	1.4 1.8 0.9 0.8	
20						End boring at 20.0' bgs		
25								
30								
35								

Project: **PESRM AST Closure**	Log of Boring TG02-MW-01
Project Location: **3144 W. Passyunk Ave**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **11/14/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **25.09' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-204**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	42/60			SM	SILTY SAND, brown, moist, dense, poorly graded, fine grained; Fill	3.0, 29.0, 368.0, 425.1, 395.0, 581.6, 501.8, 712.2, 609.2, 414.2	Concrete Pad
5	42/60		TG02-MW-01-6.5-7.0	CL	SANDY CLAY, brown, moist, soft, no dilatancy, low plasticity; Fill Saturated from 8.0-10.0' bgs	272.2, 193.6, 546.0, 517.0, 187.5, 122.9, 207.9, 72.4, 74.6, 9.7	Bentonite Sample TG02-MW-01-6.5-7.0 from 6.5-7.0' bgs
10	30/60			CH	CLAY, light brown, damp, firm, low dilatancy, high plasticity; Suspected backfill	97.1, 50.5, 149.1, 55.1, 49.9, 205.7	2-inch Schedule 40 PVC #00 Sand
				SP	SAND, gray, wet, loose, poorly graded	343.4, 235.7	
				ML	SANDY SILT, gray, moist, firm, no dilatancy, no plasticity	207.2, 133.2	
15	24/60		TG02-MW-01-17.5-18.0			157.4, 174.8, 245.0, 180.8, 206.1, 264.3	#01 Sand 2-inch 0.010 Slotted Schedule 40 PVC Sample TG02-MW-01-17.5-18.0 from 17.5-18.0' bgs

Project: **PESRM AST Closure**	Log of Boring TG02-MW-01
Project Location: **3144 W. Passyunk Ave**	**Sheet 2 of 2**
Project Number: **P044.001.002**	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	24/60			SW		GRAVELLY SAND, black, wet, loose, well graded, coarse grained	245.2 307.8 147.2 335.9		
20	24/60						134.7 82.5 151.8 76.2 95.8 87.8 49.1 41.6 27.5 63.5		
25						End boring at 25.0' bgs			
30									
35									

Project: **PESRM AST Closure**	Log of Boring TG02-MW-02/ PB-33-24
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **12/02/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **18.00' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-33**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION
0–7.5	54/60 (0–5)			SM	SILTY SAND, brown, damp, dense, poorly graded, fine grained; Petroleum-like odor, Fill
7.5–10	36/60 (5–10)			SP	SAND, gray, moist, loose, poorly graded, medium grained; Fill Saturated from 9.0-10.0' bgs
10–15	24/60 (10–15)	Grab (14.5–15.0)	TG02-MW-02-14.5-15.0	CH	CLAY, brown, moist. firm, low dilatancy, high plasticity; Fill Grades to gray
15–	12/60 (15–)			SW	GRAVELLY SAND, reddish brown, wet, loose, well graded; Saturated at 15.0'

Depth (feet)	PID Reading, ppm
0.0	28.8
0.5	398.0
1.0	630.7
1.5	628.8
2.0	169.2
2.5	179.9
3.0	39.9
3.5	42.1
4.0	65.6
4.5	22.2
5.0	617.1
5.5	457.7
6.0	223.2
6.5	213.7
7.0	654.6
7.5	309.9
8.0	664.9
8.5	612.0
9.0	634.8
9.5	571.2
10.0	23.4
10.5	36.9
11.0	25.3
11.5	26.9
12.0	159.3
12.5	24.0
13.0	14.9
13.5	17.1
14.0	7.6
14.5	13.3
15.0	6.9
15.5	46.1
16.0	16.8
16.5	14.3
17.0	9.3
17.5	7.6

REMARKS AND OTHER TESTS

- Concrete Pad
- Bentonite
- 2-inch Schedule 40 PVC
- #00 Sand
- #01 Sand
- 2-inch 0.010 Slotted Schedule 40 PVC
- Sample TG02-MW-02-14.5-15.0 from 14.5-15.0' bgs

V:\Projects\P044 - PESRM\PES\Deliverables\ASTClosure\Well Installation\Boring Logs\Boring GS-PESRM Boring Logs.bg4[PESRM_well PID 18 ft.tpl]

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	12/60			SW		GRAVELLY SAND, reddish brown, wet, loose, well graded; Saturated at 15.0'	24.9 12.4 9.1 4.0		
20						End boring at 20.0' bgs			
25									
30									
35									

Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-03/ PB-29-03R
Project Location: **3144 Passyunk Avenue**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **12/5/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **30 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **26.89 feet bgs**	Sampling Method(s) **Grab**	Closest Tank **PB 29**
Borehole Backfill **soil cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	40/60			SM		SILTY SAND, brown, damp, dense, poorly graded, some darker colored spots; Fill	2.4	Concrete Pad
							5.0	
							25.9	
							145.0	
						Increase in gravel content, large angular grains and rocks less than 2 cm in diameter	121.2	
							272.6	
				MH		SILT WITH SAND, dark brown to black, damp, dense, medium plasticity, no dilatancy, poorly graded; Fill	430.4	
							366.1	
							668.1	
							673.9	
5	32/60						426.2	
							299.1	Bentonite
						perched groundwater present	135.1	
							86.6	
							247.0	
							533.6	2-inch Schedule 40 PVC
				SM		SILTY SAND, tan brown, saturated (perched groundwater), loose, poorly graded, petroleum like odor	453.2	
							749.2	
							923.1	
							542.1	
10	16/60						462.0	
							700.2	
							25.4	
							30.0	
							43.3	
							71.7	
							46.2	
							44.1	
							95.2	
							658.9	
15	16/60						106.8	#00 Sand
				SP		SAND, dark brown to black, saturated (perched groundwater), loose, poorly graded, petroleum like odor	49.1	
							71.3	
							248.8	
							258.7	
							163.5	

Project: **Philadelphia Refinery PESRM AST Closure**
Project Location: **3144 Passyunk Avenue**
Project Number: **P044.001.002**

Log of Boring TG02-MW-03/ PB-29-03R

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
				SP		SAND, dark brown to black, saturated (perched groundwater), loose, poorly graded, petroleum like odor	323.8		
							176.4		
	16/60								2-inch 0.010 Slotted Schedule 40 PVC
							329.0		
							192.8		
20						grades to tan brown	76.0		
				SW		SAND WITH GRAVEL, tan brown, damp, well graded, petroleum like smell, small angular grains less than 1 cm in diameter	91.0		
							55.5		
							79.8		
							28.1		
	60/60								
							93.1		
									#01 Sand
							427.3		
							491.1		
							676.9		
							653.4		Sample TG02-MW-03-24.5-25.0
25						Saturation at 25.0' bgs	264.4		
							255.0		
							582.0		
							765.0		
							804.0		
	16/60								
							1102		
							810.4		
							798.8		
							609.1		
							818.5		
30						End of boring at 30.0 feet bgs			
35									

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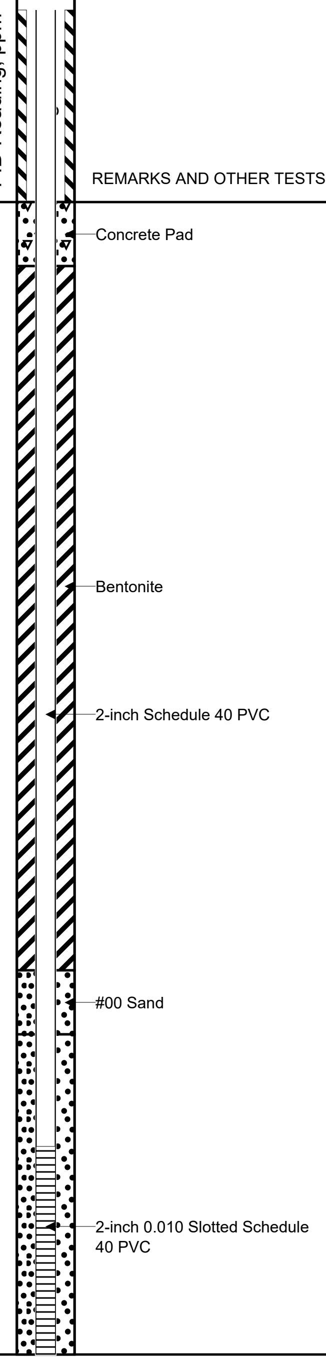
Project: **Philadelphia Refinery PESRM AST Closure**
Project Location: **3144 Passyunk Avenue**
Project Number: **P044.001.002**

Log of Boring TG02-MW-04/ PB-28-23

Date(s) Drilled **12/8/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **23.29 feet bgs**	Sampling Method(s)	Closest Tank **PB 28**
Borehole Backfill **soil cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm
0				SW		SAND WITH GRAVEL, tan, loose, moist, large angular pieces less than 2 cm in diameter, well graded; Fill	
				SP		SAND, red, sandstone chips less than 4 cm in diameter present, moist, loose, poorly graded; Fill	
	46/60			MH		SILT, black, moist, dense, low plasticity, low dilatancy; Fill grades to black grades to tan and decrease in plasticity	
5							
	42/60			SP		SAND, black, saturated (perched groundwater), loose, poorly graded, petroleum like odor; Fill	
10							
	60/60			CL		CLAY, reddish tan, damp, dense, high plasticity, low dilatancy; Fill	
				GW		GRAVEL WITH SAND, grey and brown, saturated (could be from fall in), loose, well graded, large angular pieces greater than an inch in diameter	
				SW		SAND WITH GRAVEL, tan brown, saturated to moist (could be from fall in), loose, well graded	
15	60/60			SP		SAND, black, saturated (perched groundwater), loose, poorly graded, petroleum like odor, fall in from above	



Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	60/60			GW		GRAVEL WITH SAND, tannish grey and brown, moist, loose, large angular pieces less than 4 cm in diameter			
				SP		SAND, grey and brown, moist, loose, poorly graded			
20						Saturation at 20.0' bgs			
	42/60			SP		SAND, black, saturated, loose, poorly graded, petroleum like odor (possibly all sluff)			#01 Sand
25						End boring at 25 feet bgs			
30									
35									

Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-05/ PB-27-02R
Project Location: **3144 Passyunk Avenue**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **12/6/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **23.50 feet bgs**	Sampling Method(s) **Grab**	Closest Tank **PB 27**
Borehole Backfill **soil cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	52/60			SM	SILTY SAND, tan brown, moist, dense, poorly graded; Fill	3.1, 38.4, 75.0, 167.0	Concrete Pad
				GP	GRAVEL, grey, damp, loose, poorly graded, coarse grains less than 1 cm in diameter; Fill	224.0	
				MH	SILT WITH SAND, black, damp, medium plasticity, low dilatancy, petroleum like odor; Fill	461.0, 362.3, 381.4	
					grades to tan brown	454.6	
5				CL	CLAY, reddish tan, damp, dense, high plasticity, low dilatancy; Fill	102.3, 355.3, 284.6	
	46/60			MH	SILT, black, saturated (perched groundwater), low plasticity and low dilatancy, poorly graded, petroleum like odor	378.2, 16.8, 175.6, 886.2, 982.1	Bentonite; 2-inch Schedule 40 PVC
				SP	SAND, black, saturated (perched groundwater), loose, poorly graded, product present	741.2, 792.0, 103.4	
10	36/60				grades to brown and slight increase in gravel	65.9, 37.9, 70.9, 152.6, 135.4, 244.7, 598.4	#00 Sand
					no longer saturated	299.1	
					GRAVEL, red, damp, loose, pieces larger than half an inch in diameter.	89.7, 19.2	
15	44/60			MH	SILT WITH SAND, black, saturated (possibly from fall in), low plasticity, low dilatancy, petroleum like odor	202.1, 264.3, 612.3, 570.0, 656.6	#01 Sand
				SP	SAND, black, damp, loose, poorly graded, petroleum like odor	592.3	2-inch 0.010 Slotted Schedule 40 PVC

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Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-05/ PB-27-02R
Project Location: **3144 Passyunk Avenue**	
Project Number: **P044.001.002**	**Sheet 2 of 2**

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
				SP		SAND, black, damp, loose, poorly graded, petroleum like odor	170.9		~~2-inch 0.010 Slotted Schedule~~ 40 PVC
							31.2		Sample TG02-MW-05-18.5-19.0
	44/60					Saturation at 19.0' bgs			
				SW		SAND WITH GRAVEL, tan to brown grey, saturated, loose, well graded	1121		
				SP			1100		
20				MH		SAND, grey, saturated, loose, poorly graded	70.6		
						SILT WITH SAND, black, saturated, low plasticity, low dilatancy, petroleum like odor	24.2		
							27.6		
							63.2		
	36/60						41.4		
							11.0		
							22.1		
							67.9		
							132.4		
							141.6		
25						End of boring at 25.0 feet bgs			
30									
35									

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-06/ PB-34-11R
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **11/23/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **22.61' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-34**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	48/60			SW		GRAVELLY SAND, light brown, damp, loose, well graded; Fill	3.5, 4.0, 6.8, 43.7	Concrete Pad
						Grades to black	245.1	
				SM		SILTY SAND, dark brown, damp, dense, poorly graded, fine grained, Fill	37.4, 23.8, 33.8, 26.9, 20.7	
5							10.3, 21.9, 2.3	Bentonite
	60/60			CL		SANDY CLAY, brown, damp, v. dense, no dilatancy, low plasticity; Fill	2.4, 3.0, 3.2, 5.4, 7.9, 9.1, 66.4	
10	36/60			SP		SAND, brown, moist, loose, poorly graded	14.1, 35.2, 61.7, 348.9	2-inch Schedule 40 PVC
							109.8, 321.6, 378.2, 785.3, 422.8, 728.3	#00 Sand
15	48/60			CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity; Fill	101.1, 12.5, 14.3, 17.4, 65.9, 32.3	#01 Sand; 2-inch 0.010 Slotted Schedule 40 PVC

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	48/60		TG02-MW-06-19.5-20.0	CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity; Fill	19.4 17.0 28.0 14.6		Sample TG02-MW-06-19.5-20.0 from 19.5-20.0' bgs
20	60/60			SP		SAND, brown, wet, loose, poorly graded; Saturated at 20.0' bgs	30.9 142.9 28.2 46.0 213.0 83.7		
				CH		CLAY, gray, wet, soft, low dilatancy, high plasticity	32.5 26.6 17 166.1		
25						End boring at 25.0' bgs			
30									
35									

Project: **PESRM AST Closure** Project Location: **3144 W. Passyunk Ave** Project Number: **P044.001.002**	# Log of Boring TG02-MW-07 **Sheet 1 of 2**

Date(s) Drilled **11/28/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **25.21' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-35**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	36/60			SM		SILTY SAND, light brown, damp, dense, poorly graded, fine grained; Petroleum-like odor (inferred from 5-10' bgs due to no recovery), Fill	2.3 5.5 20.8 11.4 92.1 83.9 32.5 292.8 299.2 146.6	Concrete Pad
5	0/60							Bentonite
10	24/60			SP		SAND, brown to dark brown, damp, loose, poorly graded, medium grained; Petroleum-like odor, Fill	80.4 125.2 130.3 302.0 180.3 180.9 172.7 122.3 128.8 114.7	2-inch Schedule 40 PVC
15	36/60					Saturated from 15.0-17.5' bgs	110.6 144.2 121.4 28.9 51.6	
				CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity;	38.9	#00 Sand

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Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Log of Boring TG02-MW-07
Sheet 2 of 2

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	36/60			CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity; suspected backfill	41.7, 9.1, 6.4, 4.5		
20	36/60		TG02-MW-07-23.5-24.0	CL		SANDY CLAY, dark brown, moist, firm, no dilatancy, low plasticity	66.1, 72.5, 53.5, 153.8, 7.2, 21.2, 27.9, 41.8		#01 Sand; Sample TG02-MW-07-23.5-24.0 from 23.5-24.0' bgs
				SM		SILTY SAND, dark brown, wet, dense, poorly graded, fine grained; saturated at 24.0' bgs	168.4, 25.4		
25						End boring at 25.0' bgs			2-inch 0.010 Slotted Schedule 40 PVC
30									
35									

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-08/ PB-36-19
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **11/28/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **30 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **26.75' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-36**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0	48/60			SM		SILTY SAND, orangish brown, damp, dense, poorly graded, fine grained (inferred from 0-5' bgs due to no recovery), Fill	Concrete Pad
5	42/60						Bentonite
9				SP		SAND, orange brown, damp, loose, poorly graded, medium grained; Petroleum-like odor, Fill	
10	36/60		TG02-MW-08-12.5-13.0				2-inch Schedule 40 PVC Sample TG02-MW-08-12.5-13.0 from 12.5-13.0' bgs
13.5						Saturated from 13.5-14.5' bgs	
14.5				CH		Clay, light brown, damp, v. firm, low dilatancy, high plasticity; Fill	
15	32/60			SW		GRAVELLY SAND, reddish-brown, damp, loose, well graded	#00 Sand

PID Reading, ppm (top to bottom, 0-18 ft): 4.3, 23.8, 216.4, 395.9, 310.4, 9.7, 17.9, 18.3, 8.9, 4.8, 7.9, 13.5, 4.9, 10.8, 12.8, 211.9, 36.3, 160.8, 50.0, 20.3, 9.2, 10.9, 22.3, 150.1, 259.3, 310.3, 175.0, 84.8, 44.3, 19.6, 74.9, 105.3, 31.2, 25.1, 54.9, 81.4

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-08/ PB-36-19
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 2 of 2**

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	32/60			SW		GRAVELLY SAND, reddish-brown, damp, loose, well graded	31.2, 15.2, 10.0, 9.8		
20	32/60						11.5, 14.3, 8.9, 30.2, 31.7, 57.0, 26.5, 45.1, 7.1, 6.2		#01 Sand 2-inch 0.010 Slotted Schedule 40 PVC
25	24/60		TG02-MW-08-25.5-26.0			Saturated at 26.0' bgs; petroleum like odor	457.1, 768.5, 974.4, 924.4, 823.5, 1026, 1129, 1168, 933.2, 389.4		Sample TG02-MW-08-25.5-26.0 from 25.5-26.0' bgs
30						End boring at 30.0' bgs			
35									

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Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Log of Boring TG02-MW-09

Sheet 1 of 2

Date(s) Drilled **11/30/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **30 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **26.19' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-37**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	0/60			SM		SILTY SAND, orangish brown, damp, dense, poorly graded, fine grained (inferred from 0-5' bgs due to no recovery); Fill		Concrete Pad
5	24/60						130.0 59.2 32.6 77.5 89.9 29.1 37.0 122.8	Bentonite
				SP		SAND, gray, damp, loose, poorly graded, medium grained; Petroleum-like odor, Fill	318.7 116.6	
10	54/60			ML		SANDY SILT, brown, damp, soft, no dilatancy, no plasticity; Petroleum-like odor, Fill	110.6 170.5 747.4 398.4 75.0 425.6 107.4	2-inch Schedule 40 PVC
				SW		GRAVELLY SAND, reddish-brown, damp, loose, well graded; Petroleum-like odor	375.0 325.4 208.6	
15	36/60						86.7 95.7 276.4 152.7 459.9 210.0	#00 Sand

Project: **PESRM AST Closure**	Log of Boring TG02-MW-09
Project Location: **3144 W. Passyunk Ave**	**Sheet 2 of 2**
Project Number: **P044.001.002**	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	36/60			SW		GRAVELLY SAND, reddish-brown, damp, loose, well graded; Petroleum-like odor	92.7 147.8 59.0		
20							60.2 46.2 56.2 96.8 162.8		#01 Sand
	42/60						242.2 284.2 573.3 247.0 904.2 1240		2-inch 0.010 Slotted Schedule 40 PVC
25			TG02-MW-09-25.5-26.0				528.2 794.4		Sample TG02-MW-09-25.5-26.0 from 25.5-26.0' bgs
	36/60					Saturated at 26.0' bgs	715.2 848.2 1059 1247 1212 948.8 1067 650.7		
30						End boring at 30.0' bgs			
35									

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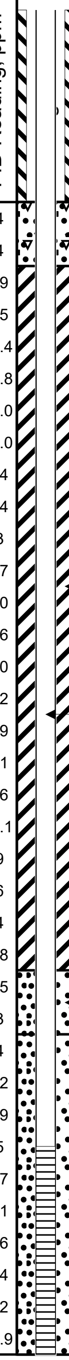
Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-10
Project Location: **3144 Passyunk Avenue**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **12/9/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **22.30 feet bgs**	Sampling Method(s) **Grab**	Closest Tank **PB 38**
Borehole Backfill **soil cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	PID Reading, ppm
0	38/60			SP	SAND, brown, damp, loose, poorly graded; Fill	2.4
				GW	GRAVEL, white, damp, loose, well graded, larger pieces of gravel grater than an inch in diameter; fill	7.4
				SM	SILTY SAND, black, moist, dense, poorly graded, petroleum like odor; Fill	10.9, 51.5, 269.4
				SP	SAND, black, moist, loose, poorly graded, petroleum like odor; Fill	317.8, 234.0, 537.0, 57.4, 68.4
5	36/60			MH	SILT, black, saturated (perched groundwater), dense, low plasticity, low dilatancy; Fill	2.3, 64.7, 66.0, 86.6, 60.0, 48.2, 17.9, 19.1, 58.6, 239.1
10	28/60			SM	SILTY SAND, black, saturated (perched groundwater), loose, poorly graded; petroleum like odor, Fill	8.9, 2.6, 2.4, 10.8, 14.5
				CL	CLAY, brown, damp, dense, high plasticity, low dilatancy; Fill	4.3, 5.4, 35.2, 12.9, 6.5
15	20/60			SW	SAND WITH GRAVEL, brown, saturated (may be fall in), loose, well graded, coarse grains less than 2 cm in diameter	34.7, 33.1, 26.6, 25.4, 76.2, 120.9



REMARKS AND OTHER TESTS

Concrete Pad

Bentonite

2-inch Schedule 40 PVC

#00 Sand

Project: **Philadelphia Refinery PESRM AST Closure**

Project Location: **3144 Passyunk Avenue**

Project Number: **P044.001.002**

Log of Boring TG02-MW-10

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
						dry material, not saturated	170.5		
	20/60						78.9		Sample TG02-MW-10-18.5-19.0
							18.5		
							12.4		
20						Saturation at 20.0' bgs	21.8		2-inch 0.010 Slotted Schedule 40 PVC
							78.3		
							56.1		
							28.6		#01 Sand
	8/60						500.0		
							387.0		
							360.4		
							311.8		
							462.5		
							1208		
25						End of boring at 25 feet bgs			
30									
35									

Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-11/ PB-39-12
Project Location: **3144 Passyunk Avenue**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **12/6/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **26.70 feet bgs**	Sampling Method(s)	Closest Tank **PB 39**
Borehole Backfill **soil cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	42/60			SW		SAND, tan brown, damp, loose, well graded; Fill	8.7, 4.1, 6.5, 9.8, 101.3, 32.6	Concrete Pad
				SM		SILTY SAND, grey brown, damp, dense, poorly graded; Fill	37.3, 49.8, 78.4, 300.5, 569.2	
5	60/60			MH		SILT, tan brown, dense, low dilatancy, medium plasticity, poorly graded; Fill	707.1, 833.9, 822.8, 367.8, 781.8, 775.6, 382.4, 91.2, 169.2, 613.7, 751.3	Bentonite; 2-inch Schedule 40 PVC
10	34/60			CL		CLAY, red brown, damp, firm, medium plasticity, low dilatancy; Fill	807.2, 596.2, 906.4, 1042	
				SW		SAND WITH GRAVEL, brown, damp, loose, well graded, large angular grains less than 2 cm in diameter	1187, 675.1, 501.6, 93.7, 276.2	
15	36/60			MH		SANDY SILT, tan brown, damp, dense, low dilatancy, medium plasticity, poorly graded	445.2, 107.1, 291.3	
				SW		SAND WITH GRAVEL, brown, damp, loose, well graded, large angular grains less than 2 cm	525.5, 747.7	#00 Sand

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Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	36/60			SW		SAND WITH GRAVEL, brown, damp, loose, well graded, large angular grains less than 2 cm	390.6 1184 682.6 595.5		
20							295.6 729.4 880.3		
	42/60			SP		SAND, tan and brownish red, damp, loose, poorly graded	535.6 823.4		#01 Sand
				SW		SAND WITH GRAVEL, grey and tannish brown, damp, loose, well graded, petroleum like odor	1147 1142 1037		
						Saturated at 24.0' bgs	1321 1325		2-inch 0.010 Slotted Schedule 40 PVC
25						End of boring at 25 feet bgs			
30									
35									

Project: **Philadelphia Refinery PESRM AST Closure**	Log of Boring TG02-MW-12
Project Location: **3144 Passyunk Avenue**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **12/6/2022**	Logged By **K. O'Rourke**	Checked By **M. McDonald**
Drilling Method **Direct Push**	Drill Bit Size/Type **2"x5' macrocore**	Total Depth of Borehole **30 feet bgs**
Drill Rig Type **7822DT Geoprobe**	Drilling Contractor **TPI Environemntal, Inc.**	Approximate Surface Elevation
Groundwater Level and Date Measured **27.0 feet bgs**	Sampling Method(s) **Grab**	Closest Tank **PB 85**
Borehole Backfill **Soil Cuttings**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	PID Reading, ppm
0				SM	SILTY SAND, tan brown, damp, dense, poorly graded; Fill	0.0
						0.7
						6.5
	56/60			SW	SAND WITH GRAVEL, black, damp, loose, well graded; Fill	0.0
				SM	SILTY SAND, tan brown, damp, dense, poorly graded; Fill	0.0
						0.0
						0.0
				MH	SILT WITH SAND, grey brown, damp, dense, medium plasticity, low dilatancy; Fill	0.0
						12.4
5						96.0
				SW	SAND WITH GRAVEL, black, damp, loose, well graded; Fill	471.0
						310.0
						1148
						306
	42/60			MH	SILT WITH SAND, black and brown, damp, dense, medium plasticity, low dilatancy, poorly graded; Fill	30.1
						28.2
						3.7
						64.0
						63.5
10						213.6
					grades to tan brown	90.4
						154.2
						78.2
	60/60					134.6
						71.4
						88.6
						28.1
						17.2
						14.9
15						304.1
						198.1
	22/60			SW	SAND WITH GRAVEL, greyish tan and brown, damp, loose, well graded, larger angular pieces less than 4 cm in diameter; Fill	298.0
						308.2
						495.5
						223.8

REMARKS AND OTHER TESTS

Concrete Pad

Bentonite

2-inch Schedule 40 PVC

#00 Sand

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Project: **Philadelphia Refinery PESRM AST Closure**
Project Location: **3144 Passyunk Avenue**
Project Number: **P044.001.002**

Log of Boring TG02-MW-12

Sheet 2 of 2

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	22/60			SW		SAND WITH GRAVEL, greyish tan and brown, damp, loose, well graded, larger angular pieces less than 4 cm in diameter; Fill	365.0 213.8 117.3 17.8		
20							464.8 268.4 288.8 235.6 33.3		#01 Sand
	24/60			CH		CLAY, red brown, damp, dense, high plasticity, low dilatancy; Fill	143.0 436.1 329.4 97.0		2-inch 0.010 slotted Schedule 40 PVC
25				SW		SAND WITH GRAVEL, red and tannish brown, damp, loose, well graded, angular pieces less than 2 cm in diameter	123.0 329.0 630.2 792.0 349.0 354.6		Sample TG02-MW-12-27.0-27.5
	28/60					Saturation at 27.5' bgs	856.0 901.0 615.2 792.6 702.0		
30						End of boring at 30.0 feet bgs			
35									

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-13
Project Location: **3144 W. Passyunk Ave**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **11/28/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **30 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **26.12' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-40**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	48/60			GW		SANDY GRAVEL, light brown, moist, loose, well graded, angular gravel,1/4-3/4" diameter; Fill	0.3 0.3 1.0	Concrete Pad
				ML		SANDY SILT, dark brown, damp, firm, no dilatancy, no plasticity; Fill	5.8 4.6 22.3 32.2	
				SM		SILTY SAND, dark brown, damp, dense, poorly graded, fine grained; Petroleum-like odor, Fill	97.7 56.8 25.7	
5	36/60						2.3 2.4 17.5 17.1 12.1 19.2 32.2 14.1 26.0 23.8	Bentonite
10	30/60			SP		SAND, gray, moist, loose, poorly graded, medium grained; Petroleum-like odor, Fill	3.1 2.4 16.9 29.6	2-inch Schedule 40 PVC
						Grades to coarser grained	147.6 117.7 28.3 222.7	
			TG02-MW-13-13.5-14.0					Sample TG02-MW-13-13.5-14.0' bgs from 13.5-14.0' bgs
15	36/60					Saturated from 14.0-16.0' bgs	35.6 39.1 115.3 65.7	
				CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity; suspected backfill	171.8 49.6 42.5 44.1	#00 Sand

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Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Log of Boring TG02-MW-13
Sheet 2 of 2

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	36/60			CH		CLAY, light brown, damp, firm, low dilatancy, high plasticity; suspected backfill	14.1 13.6 6.2 8.3		
20	30/60		TG02-MW-13-24.5-25.0	CL		SANDY CLAY, dark brown, moist, firm, no dilatancy, low plasticity	12.1 17.1 10.5 15.5 4.2 8.5 9.1 4.2 3.0 5.5		#01 Sand Sample TG02-MW-13-24.5-25.0 from 24.5-25.0' bgs
25	30/60						11.8 31.4		
				SW		GRAVELLY SAND, Reddish-brown and gray, wet, loose, well graded	16.2 16.6 34.5 12.1 317.7 133.5 81.4 7.4		2-inch 0.010 Slotted Schedule 40 PVC
30						End boring at 30.0' bgs			
35									

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-14/ PB-84-04R
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **11/18/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **23.71' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-84**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	48/60			SM		SILTY SAND, light brown, damp, dense, poorly graded, fine grained, Fill	4.0, 22.5, 26.7, 22.9, 121.1, 23.9, 8.5, 6.9, 19.3, 130.0	Concrete Pad
5	60/60					Grades to dark brown/gray	43.3, 15.9, 18.8, 24.9, 10.1, 17.8, 106.7	Bentonite
			TG02-MW-14-8.5-9.0	SP		SAND, black, moist, loose, poorly graded, fine grained; Petroleum-like odor, Fill Saturated from 9.0-10.0' bgs	146.8, 78.6, 111.1	Sample TG02-MW-14-8.5-9.0 from 8.5-9.0' bgs
10	60/60			CH		Clay, light brown, damp, firm, low dilatancy, high plasticity; Fill	103.0, 16.3, 32.3, 79.1, 28.4, 24.6, 12.8, 11.7, 5.7, 3.3	2-inch Schedule 40 PVC
15	32/60						32.2, 15.9, 12.9, 6.0, 25.7, 14.2	#00 Sand

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Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
				CH		Clay, light brown, damp, firm, low dilatancy, high plasticity; Fill	10.4		
							3.5		
	32/60						1.4		
							7.9		
20							17.7		#01 Sand
							5.6		
							12.0		
							4.4		
	24/60						3.6		2-inch 0.010 Slotted Schedule 40 PVC
							3.3		
							2.4		
							2.1		
			TG02-MW-14-24.0-24.5	SP		SAND, gray, wet, loose, poorly graded; Saturated at 24.5' bgs	7.3		Sample TG02-MW-14-24.0-24.5 from 24.0-24.5' bgs
							3.4		
25						End boring at 25.0' bgs			
30									
35									

Project: **PESRM AST Closure**	# Log of Boring TG02-MW-15
Project Location: **3144 W. Passyunk Ave**	**Sheet 1 of 2**
Project Number: **P044.001.002**	

Date(s) Drilled **12/01/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **20 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **19.41' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-83**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0	48/60			GW	SANDY GRAVEL, brown, damp, dense, well graded; Fill	1.8, 2.7	Concrete Pad
				SM	SILTY SAND, brown, damp, dense, poorly graded, fine grained; Petroleum-like odor, Fill	19.1, 107.9, 251.4, 216.7, 386.9, 605.2, 102.7	Bentonite
					Saturated from 4.5-5.0' bgs	145.6	
5	42/60			CH	CLAY, brown, moist. firm, low dilatancy, high plasticity; Fill	3.5, 4.5, 3.8, 6.5, 5.6	2-inch Schedule 40 PVC
					Grades to gray	2.8, 7.1, 2.5, 5.1, 4.0	#00 Sand
10	24/60			SW	GRAVELLY SAND, reddish brown, damp, loose, well graded	2.2, 2.7, 2.7, 3.7, 3.3, 2.4, 3.6, 3.7, 3.0, 1.8	#01 Sand 2-inch 0.010 Slotted Schedule 40 PVC
			TG02-MW-15-14.5-15.0				Sample TG02-MW-15-14.5-15.0 from 14.5-15.0' bgs
15	24/60				Saturated at 15.0' bgs	16.1, 107.9, 23.2, 11.5, 3.2, 2.5	

Project: **PESRM AST Closure**	Log of Boring TG02-MW-15
Project Location: **3144 W. Passyunk Ave**	**Sheet 2 of 2**
Project Number: **P044.001.002**	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	24/60					Saturated at 15.0' bgs	7.0 2.0 2.5 258.4		
20						End boring at 20.0' bgs			
25									
30									
35									

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Log of Boring TG02-MW-16

Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Date(s) Drilled **12/01/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **18 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **14.67' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-42**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Number	Material Type	MATERIAL DESCRIPTION
0	48/60	TG02-MW-16-0.0-0.5	GW	SANDY GRAVEL, brown, damp, dense, well graded; Fill
2			SM	SILTY SAND, brown, damp, dense, poorly graded, fine grained; Petroleum-like odor, Fill
5	60/60	TG02-MW-16-5.0-5.5		
10	60/60			
11			CH	CLAY, gray, damp, v. firm, low dilatancy, high plasticity; Fill
14				Transitions to soft and moist
15	36/36	TG02-MW-16-14.5-15.0		Saturated at 15.0'
17.5			SW	GRAVELLY SAND, reddish brown, wet, loose, well graded
				End boring at 18.0' due to large cobble

PID Reading, ppm (0.5 ft intervals, 0.0 to 18.0 ft): 1.6, 2.7, 12.4, 170.8, 56.4, 270.7, 72.7, 248.7, 58.7, 231.6, 56.6, 13.8, 34.5, 5.3, 1.3, 4.3, 2.4, 3.3, 0.9, 0.5, 6.0, 6.3, 0.5, 0.6, 1.2, 1.6, 1.1, 1.5, 1.5, 0.9, 0.6, 1.5, 0.7, 2.0, 1.6, 222.6

REMARKS AND OTHER TESTS
- Sample TG02-MW-16-0.0-0.5 from 0.0-0.5' bgs
- Concrete Pad
- Bentonite
- 2-inch Schedule 40 PVC
- Sample TG02-MW-16-5.0-5.5 from 5.0-5.5' bgs
- #00 Sand
- #01 Sand
- 2-inch 0.010 Slotted Schedule 40 PVC
- Sample TG02-MW-16-14.5-15.0 from 14.5-15.0' bgs

Project: **PESRM AST Closure**	Log of Boring TG02-MW-17/ PB-128-05R
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **11/18/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **23.63' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-128**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	MATERIAL DESCRIPTION	REMARKS AND OTHER TESTS
0	36/60			Concrete	Concrete and subbase	Concrete Pad
				GW	SANDY GRAVEL, tan, damp, loose, well graded, angular gravel, 1" diameter; Fill	
5	54/60					Bentonite
			TG02-MW-17-7.5-8.0	SP	SAND, black, moist, loose, poorly graded, medium grained; Staining present from 6.0-23.5' bgs, petroleum-like odor	Sample TG02-MW-17-7.5-8.0 from 7.5-8.0' bgs
10	60/60					2-inch Schedule 40 PVC
						#00 Sand
15	24/60					#01 Sand
						2-inch 0.010 Slotted Schedule 40 PVC

PID Reading, ppm (from top, 0 to 18 feet):

0.2, 0.1, 0.1, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 0.2, 5.2, 143.2, 181.4, 274.4, 47.5, 199.2, 96.7, 91.3, 65.3, 68.5, 79.0, 36.2, 27.0, 34.9, 21.5, 15.6, 100.3, 150.0, 78.7, 106.8, 11.3, 23.5, 42.5, 33.5, 64.3, 76.0

Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Log of Boring TG02-MW-17/
PB-128-05R

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	24/60			SP		SAND, black, moist, loose, poorly graded, medium grained; Staining present from 6.0-23.5' bgs, petroleum-like odor	39.9 15.8 24.9 29.3		
20	60/60						8.9 10.0 25.0 46.6 30.4 9.2 9.2		
			TG02-MW-17-23.5-24.0	SC		CLAYEY SAND, brown, moist, dense, poorly graded, fine grained Saturated at 24.0	4.3 3.1 2.4		Sample TG02-MW-17-23.5-24.0 from 23.5-24.0' bgs
25						End boring at 25.0' bgs			
30									
35									

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Project: **PESRM AST Closure**	Log of Boring TG02-MW-18/ PB-129-06R
Project Location: **3144 W. Passyunk Ave**	
Project Number: **P044.001.002**	**Sheet 1 of 2**

Date(s) Drilled **11/21/22**	Logged By **S. Metzger**	Checked By **M. McDonald**
Drilling Method **Direct Push/HSA**	Drill Bit Size/Type **2"x5' macrocore/4"ID HSA**	Total Depth of Borehole **25 feet bgs**
Drill Rig Type **7822DT**	Drilling Contractor **TPI Environmental, Inc.**	Approximate Surface Elevation **N/A**
Groundwater Level and Date Measured **16.92' bgs**	Sampling Method(s) **Grab**	Closest Tank **PB-129**
Borehole Backfill **N/A**	Location	

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	REMARKS AND OTHER TESTS
0				Concrete		Concrete and subbase	7.6	
	42/60			SW		GRAVELLY SAND, light brown, damp, loose, well graded (inferred from 15.0-20.0' due to no recovery); Fill	4.5	Concrete Pad
							7.4	
							50.9	
							389.3	
							429.6	
							324.6	
							343.6	
							176.8	
							169.7	
5	54/60						44.6	
							43.8	Bentonite
							45.3	
							38.7	
							65.8	
							73.9	
							25.4	
							160.6	
							35.5	
							26.6	
10	42/60		TG02-MW-18-10.0-10.5; TG02-MW-18-10.0-10.5D				614.8	Sample TG02-MW-18-10.0-10.5 and TG02-MW-18-10.0-10.5D from 10.0-10.5' bgs
							293.4	
							399.7	
							357.8	2-inch Schedule 40 PVC
							226.7	
							21.2	
							20.2	
						Potential staining, black, petroleum-like smell	17.6	
							18.5	
							27.3	
15	0/60							#00 Sand

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Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
	0/60					Potential staining, black, petroleum-like smell			
20				SP		SAND, black, moist, loose, poorly graded; potential staining, petroleum-like smell	167.6		#01 Sand
							56.1		
							95.6		
							49.8		Sample TG02-MW-18-22.0-22.5 from 22.0-22.5' bgs
	36/60		TG02-MW-18-22.0-22.5				5.6		
						Saturated at 22.5' bgs	102.6		
							109.4		
							31.9		
							63.8		
							45.8		
25						End boring at 25.0' bgs			2-inch 0.010 Slotted Schedule 40 PVC
30									
35									

Project: **PESRM AST Closure**
Project Location: **3144 W. Passyunk Ave**
Project Number: **P044.001.002**

Key to Log of Boring
Sheet 1 of 1

Depth (feet)	Recovery	Sample Type	Sample Number	Material Type	Graphic Log	MATERIAL DESCRIPTION	PID Reading, ppm	Well Log	REMARKS AND OTHER TESTS
1	2	3	4	5	6	7	8	9	10

COLUMN DESCRIPTIONS

1 Depth (feet): Depth in feet below the ground surface.
2 Recovery : Percent Recovery
3 Sample Type: Type of soil sample collected at the depth interval shown.
4 Sample Number: Sample identification number.
5 Material Type: Type of material encountered.
6 Graphic Log: Graphic depiction of the subsurface material encountered.
7 MATERIAL DESCRIPTION: Description of material encountered. May include consistency, moisture, color, and other descriptive text.
8 PID Reading, ppm: The reading from a photo-ionization detector, in parts per million.
9 Well Log: Graphical representation of well installed upon completion of drilling and sampling.
10 REMARKS AND OTHER TESTS: Comments and observations regarding drilling or sampling made by driller or field personnel.

FIELD AND LABORATORY TEST ABBREVIATIONS

CHEM: Chemical tests to assess corrosivity
COMP: Compaction test
CONS: One-dimensional consolidation test
LL: Liquid Limit, percent
PI: Plasticity Index, percent
SA: Sieve analysis (percent passing No. 200 Sieve)
UC: Unconfined compressive strength test, Qu, in ksf
WA: Wash sieve (percent passing No. 200 Sieve)

MATERIAL GRAPHIC SYMBOLS

Bentonite
Portland Cement Concrete
Poorly graded SAND (SP)
Well graded SAND (SW)

TYPICAL SAMPLER GRAPHIC SYMBOLS

Auger sampler
Bulk Sample
3-inch-OD California w/ brass rings
CME Sampler
Grab Sample
2.5-inch-OD Modified California w/ brass liners
Pitcher Sample
2-inch-OD unlined split spoon (SPT)
Shelby Tube (Thin-walled, fixed head)

OTHER GRAPHIC SYMBOLS

Water level (at time of drilling, ATD)
Water level (after waiting, AW)
Minor change in material properties within a stratum
Inferred/gradational contact between strata
? Queried contact between strata

GENERAL NOTES

1: Soil classifications are based on the Unified Soil Classification System. Descriptions and stratum lines are interpretive, and actual lithologic changes may be gradual. Field descriptions may have been modified to reflect results of lab tests.
2: Descriptions on these logs apply only at the specific boring locations and at the time the borings were advanced. They are not warranted to be representative of subsurface conditions at other locations or times.

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Figure B-1

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:

DATE 12/05/22 TIME 8:10

WELL INSTALLATION BEGAN:

DATE 12/05/22 TIME 8:50

WELL COMPLETION FINISHED:

DATE 12/05/22 TIME 12:15

DRILLING CO. TPI Environmental, Inc.

DRILLER Brad Frace

LICENSE 573102

DRILL RIG 7822DT

DRILLING METHOD:

- ☑ HOLLOW STEM AUGER
- ☐ SONIC
- ☐ OTHER:

DIAMETER OF AUGERS:

ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED

AMOUNT USED 1 bag (50 lbs)

- ☐ PELLETS, SIZE
- ☐ CHIPS, SIZE
- ☑ #00 Sand

PRODUCT Superior Quartz

MFG. BY Filpro

METHOD INSTALLED

☑ POURED ☐ TREMIE

AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED

AMOUNT USED 11.0 bags (550 lbs)

☑ SAND, SIZE #1

☐ FORMATION COLLAPSE:

FROM TO

PRODUCT Superior Quartz

MFG. BY Filpro

METHOD INSTALLED:

☑ POURED ☐ TREMIE

SURVEY INFORMATION

TOC ELEVATION

GROUND ELEVATION

NORTHING COORD.

EASTING COORD.

DATE SURVEYED

SURVEY CO.

TOC MEASURING POINT:

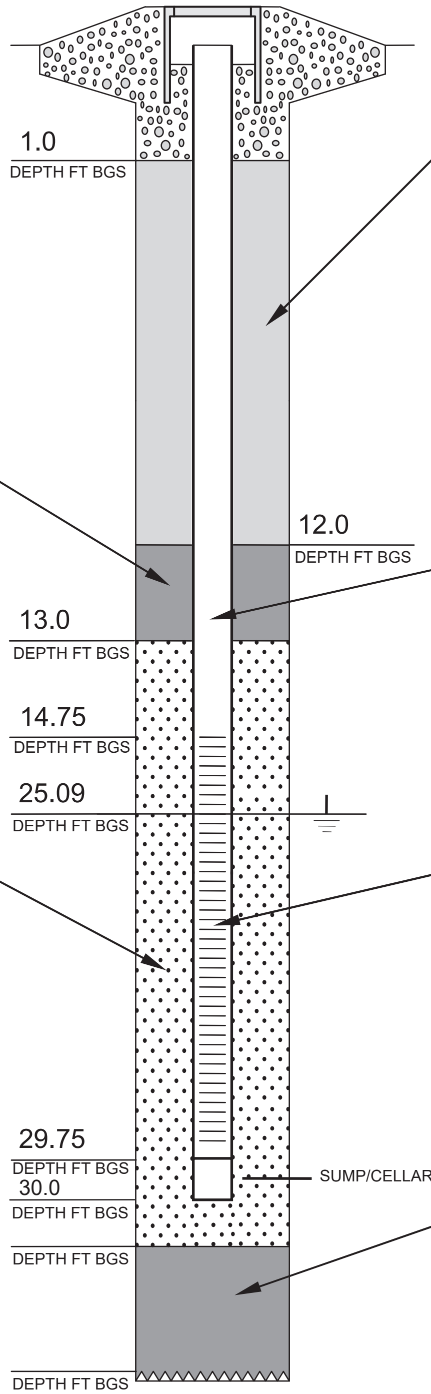
CENTRALIZERS USED?

☐ YES ☐ NO

CENTRALIZER DEPTHS:

SURFACE COMPLETION

- ☐ FLUSH MOUNT
- ☑ ABOVE GROUND W/BUMPER POST
- ☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-01

PROJECT PESRM AST Closure

SITE 3144 W. Passyunk Ave

BOREHOLE NO. N/A

WELL PERMIT NO. N/A

TOC TO BOTTOM OF WELL 30.0'

ANNULAR SEAL

AMOUNT CALCULATED

AMOUNT USED 6.0 bags (300 lbs)

☑ GROUT FORMULA

PORTLAND CEMENT

BENTONITE PDS Bentonite

WATER

☐ PREPARED MIX

PRODUCT

MFG. BY

METHOD INSTALLED

☑ POURED ☐ TREMIE

CASING

- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT

MFG BY.

CASING DIAMETER:

ID 2" OD 2.375"

LENGTH OF CASING 9.75' bgs

WELL SCREEN

- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT

MFG. BY:

CASING DIAMETER:

ID 2" OD 2.375"

SLOT SIZE 0.010

LENGTH OF SCREEN 15.0'

LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED

AMOUNT USED

- ☐ BENTONITE CHIPS, SIZE
- ☐ BENTONITE PELLETS, SIZE
- ☐ SLURRY
- ☐ FORMATION COLLAPSE

FROM TO

PRODUCT

MFG. BY

METHOD INSTALLED:

☐ POURED ☐ TREMIE

terraphase engineering

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

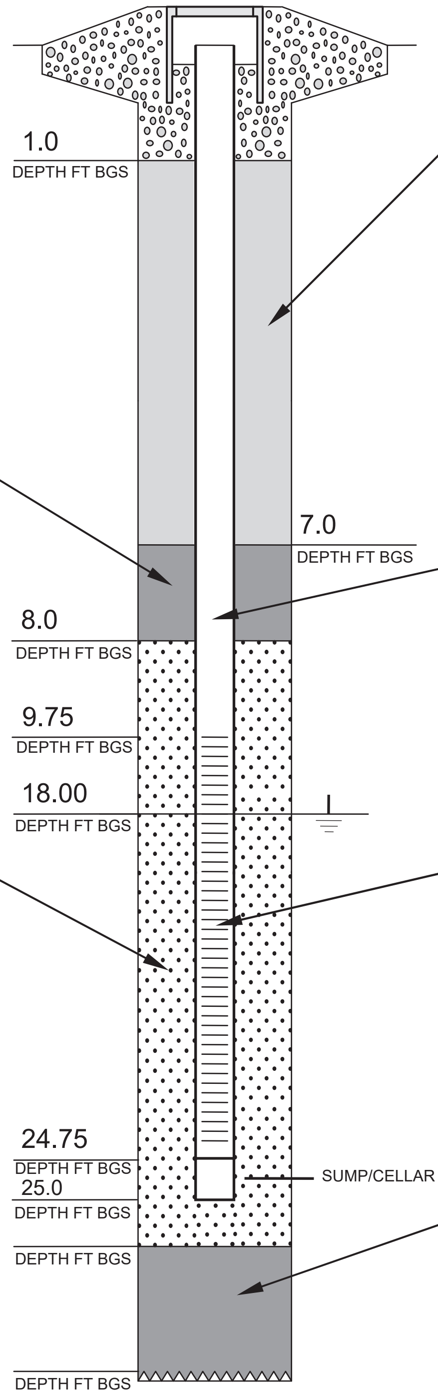
DRILLING BEGAN:
DATE 12/02/22 TIME 12:55
WELL INSTALLATION BEGAN:
DATE 12/02/22 TIME 13:55
WELL COMPLETION FINISHED:
DATE 12/02/22 TIME 15:04
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-02
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 25.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 4.0 bags (200 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 9.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10.0 bags (500 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

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DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/05/22 TIME 12:45
WELL INSTALLATION BEGAN:
DATE 12/05/22 TIME 13:33
WELL COMPLETION FINISHED:
DATE 12/06/22 TIME 8:09
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10 bags (500 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION

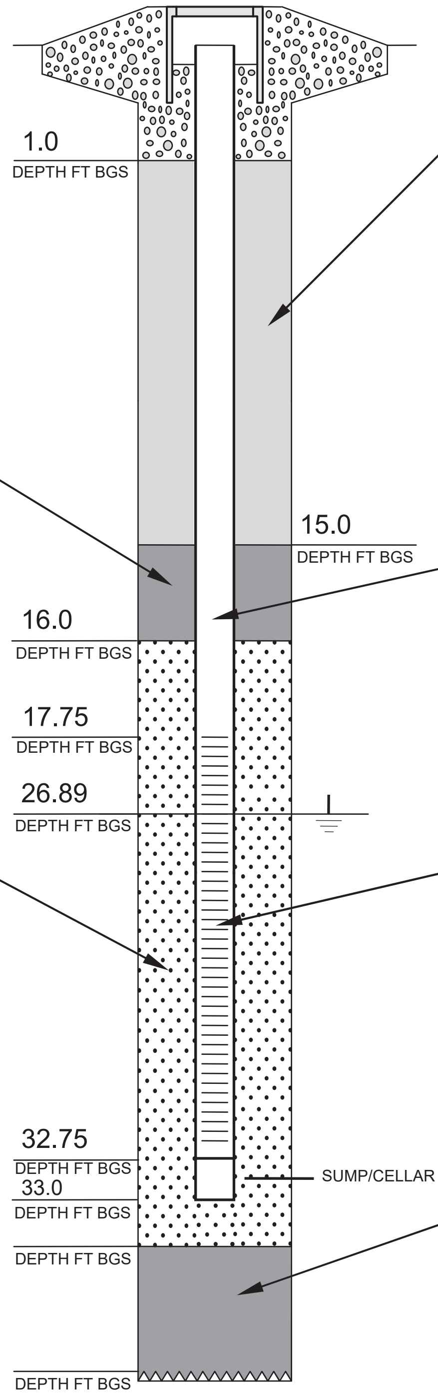
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-03
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 33.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 17.75' bgs

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

MONITORING WELL COMPLETION RECORD

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DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/8/22 TIME 13:11
WELL INSTALLATION BEGAN:
DATE 12/8/22 TIME 13:34
WELL COMPLETION FINISHED:
DATE 12/9/22 TIME 13:50
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

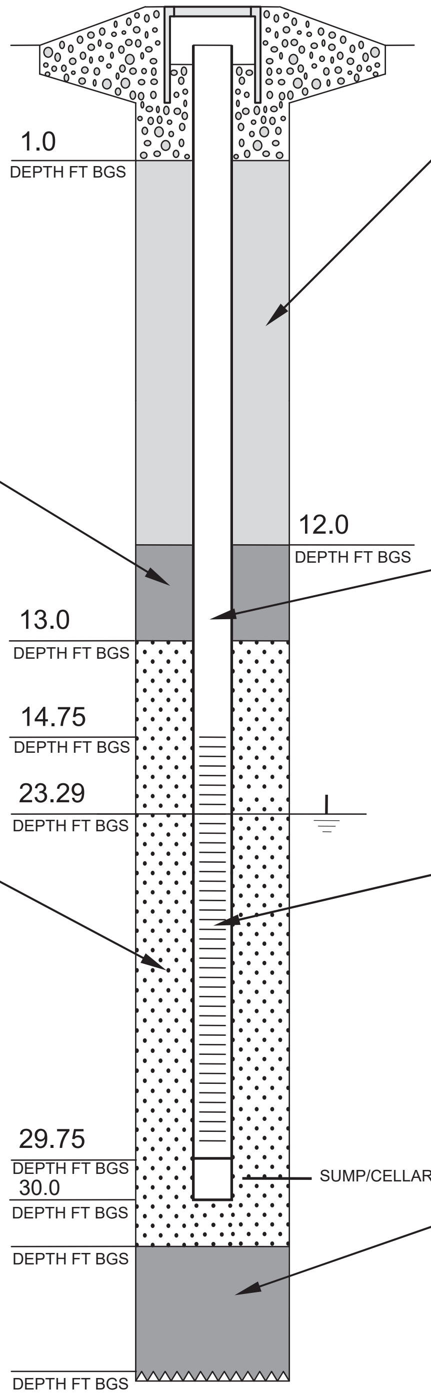
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-04
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
- [x] GROUT FORMULA

PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
- [ ] PREPARED MIX

PRODUCT
MFG. BY
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 14.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10 bags (500 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

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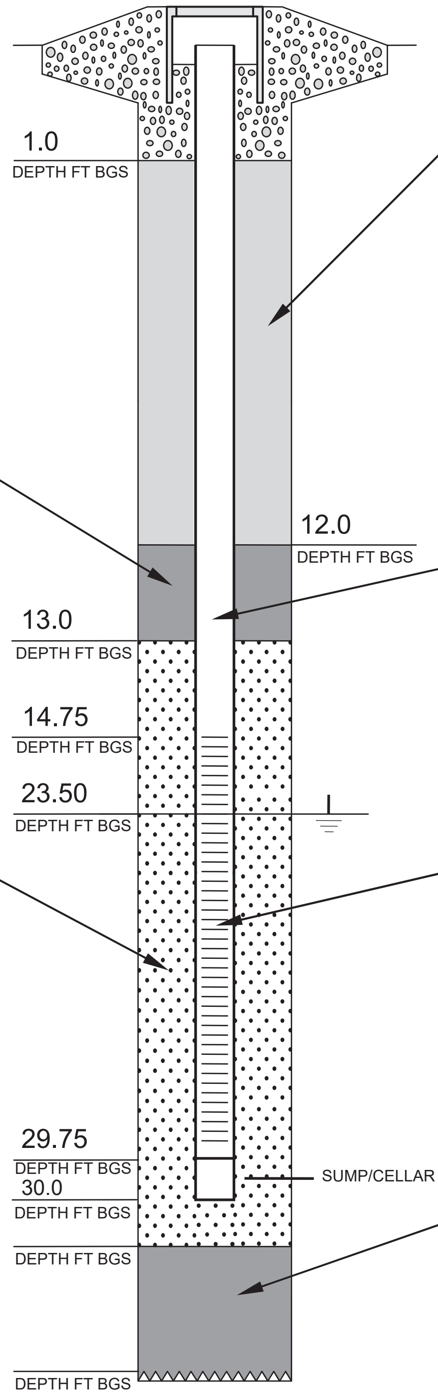
MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/8/22 TIME 9:40
WELL INSTALLATION BEGAN:
DATE 12/8/22 TIME 10:09
WELL COMPLETION FINISHED:
DATE 12/8/22 TIME 12:35
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-05
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 15' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10 bags (500 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 14.75' bgs
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/23/22 TIME 9:00
WELL INSTALLATION BEGAN:
DATE 11/23/22 TIME 9:21
WELL COMPLETION FINISHED:
DATE 11/23/22 TIME 11:37
DRILLING CO. TPI Environmental, Inc.
DRILLER Justin Verpa
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 3/4 bag (37.5 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10.5 bags (525 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION

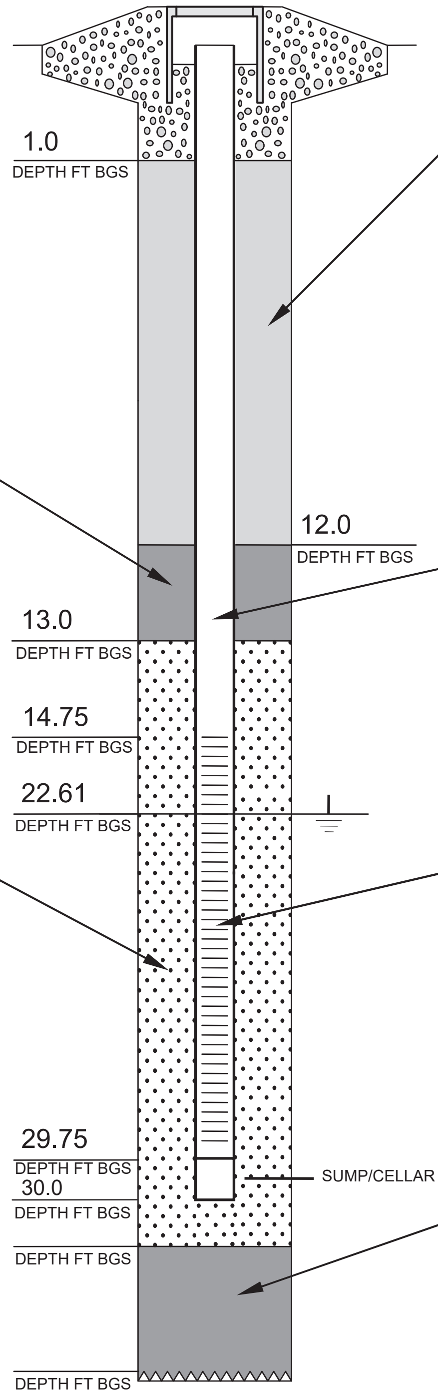
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-06
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 14.75' bgs

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

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MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/29/22 TIME 8:30
WELL INSTALLATION BEGAN:
DATE 11/29/22 TIME 9:18
WELL COMPLETION FINISHED:
DATE 11/30/22 TIME 10:14
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- ☑ HOLLOW STEM AUGER
- ☐ SONIC
- ☐ OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 11 bags (550 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION

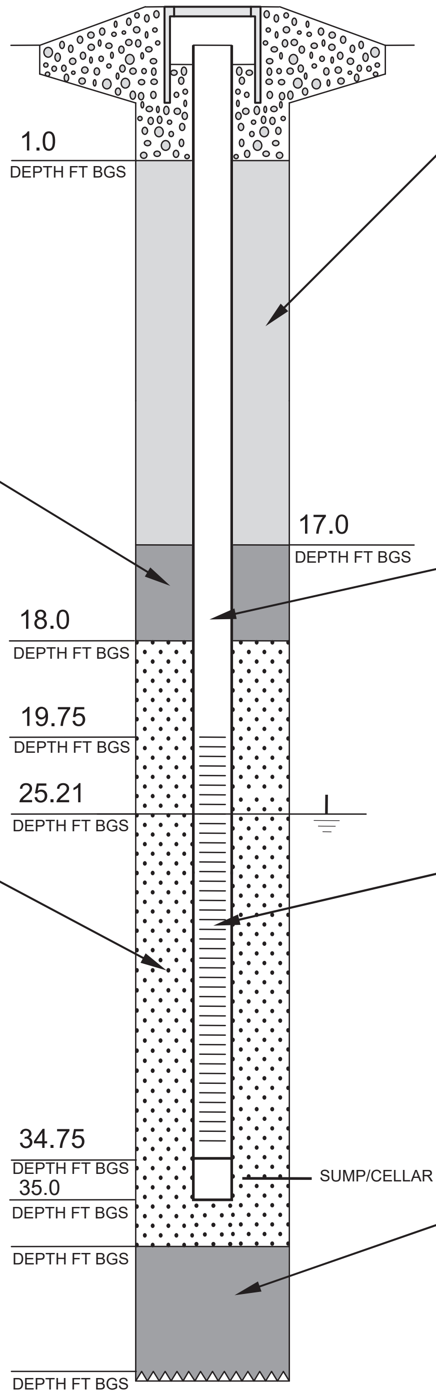
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-07
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 35.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8.5 bags (425 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/29/22 TIME 13:36
WELL INSTALLATION BEGAN:
DATE 11/29/22 TIME 14:30
WELL COMPLETION FINISHED:
DATE 11/30/22 TIME 11:15
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

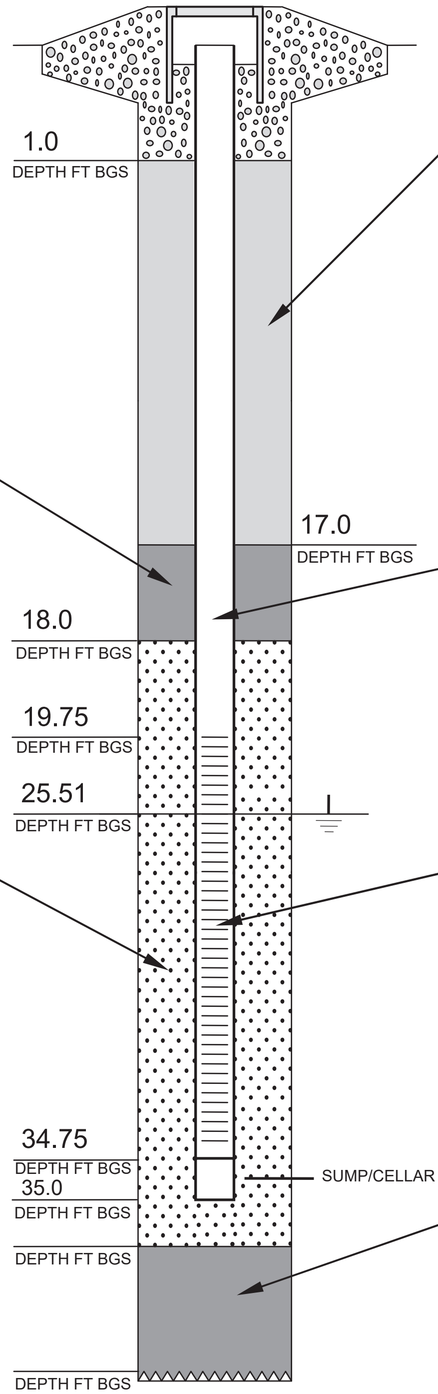
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-08
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 35.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8.5 bags (425 lbs)
- [x] GROUT FORMULA
  - PORTLAND CEMENT
  - BENTONITE PDS Bentonite
  - WATER
- [ ] PREPARED MIX
  - PRODUCT
  - MFG. BY

METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10.5 bags (525 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/30/22 TIME 9:19

WELL INSTALLATION BEGAN:
DATE 11/30/22 TIME 11:30

WELL COMPLETION FINISHED:
DATE 11/30/22 TIME 13:28

DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT

DRILLING METHOD:
- ☑ HOLLOW STEM AUGER
- ☐ SONIC
- ☐ OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- ☐ PELLETS, SIZE
- ☐ CHIPS, SIZE
- ☑ #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 8.0 bags (400 lbs)
- ☑ SAND, SIZE #1
- ☐ FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION

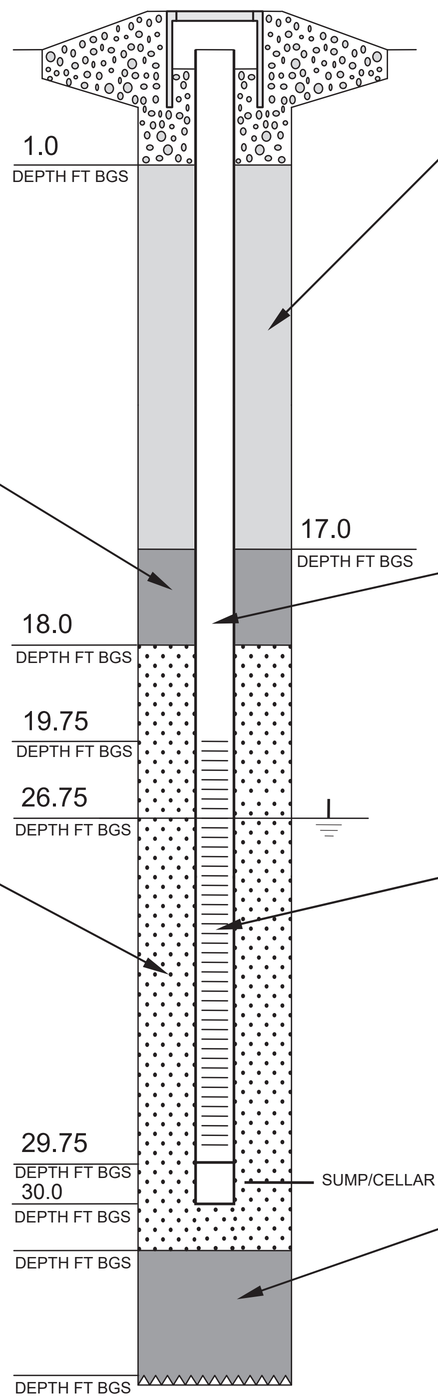
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

- ☐ FLUSH MOUNT
- ☑ ABOVE GROUND W/BUMPER POST
- ☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-09
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8.0 bags (400 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING

- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

WELL SCREEN

- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- ☐ BENTONITE CHIPS, SIZE
- ☐ BENTONITE PELLETS, SIZE
- ☐ SLURRY
- ☐ FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/9/22 TIME 9:21
WELL INSTALLATION BEGAN:
DATE 12/9/22 TIME 10:15
WELL COMPLETION FINISHED:
DATE 12/9/22 TIME 12:16
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10 bags (500 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION

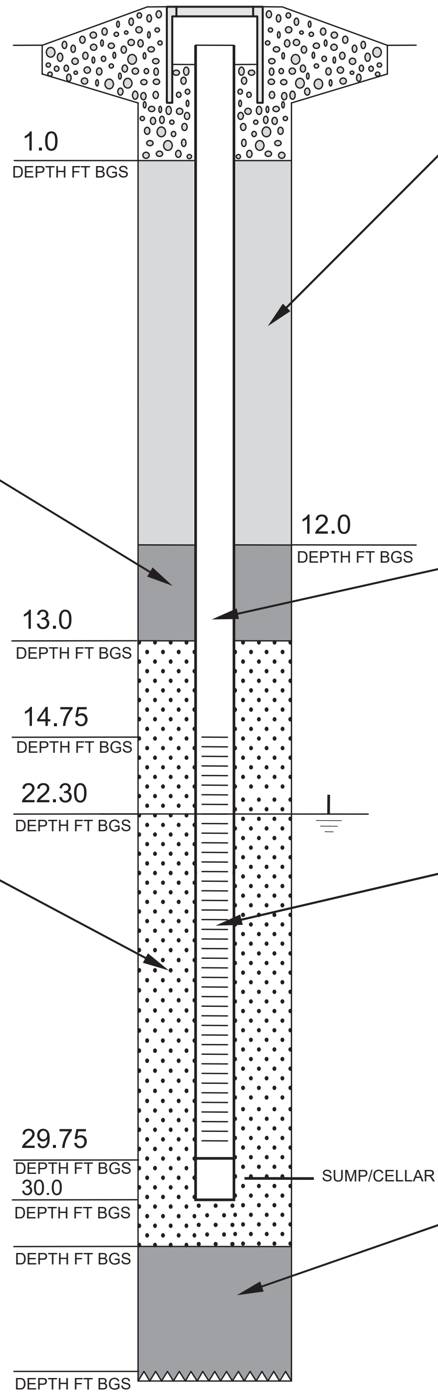
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-10
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 7 bags (350 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 14.75' bgs

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

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MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/7/22 TIME 8:12
WELL INSTALLATION BEGAN:
DATE 12/7/22 TIME 9:55
WELL COMPLETION FINISHED:
DATE 12/7/22 TIME 14:18
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

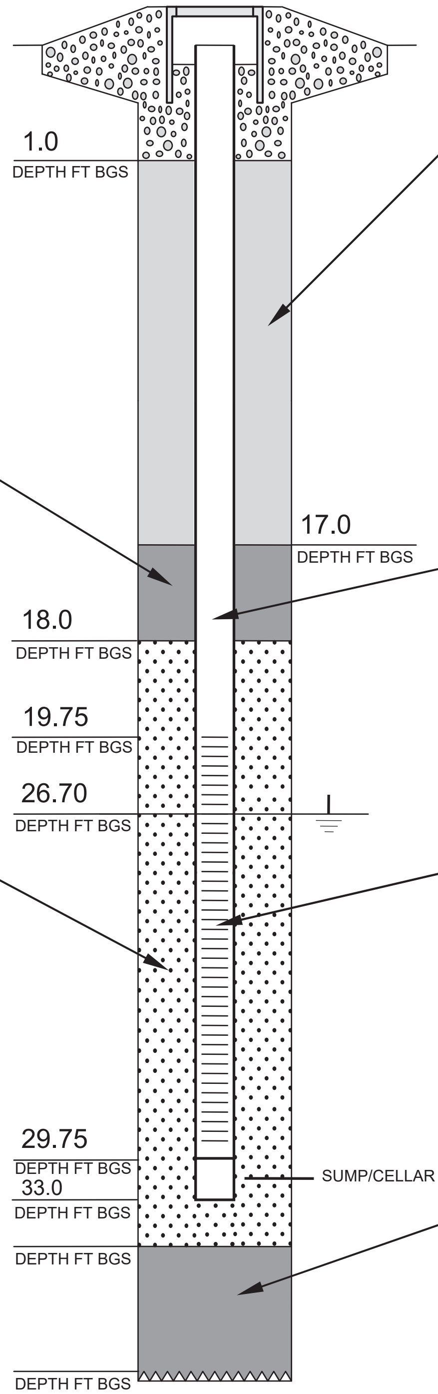
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-11
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 11 bags (550 lbs)
- [x] GROUT FORMULA
  - PORTLAND CEMENT
  - BENTONITE PDS Bentonite
  - WATER
- [ ] PREPARED MIX
  - PRODUCT
  - MFG. BY

METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 10.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

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DRILLING INFORMATION

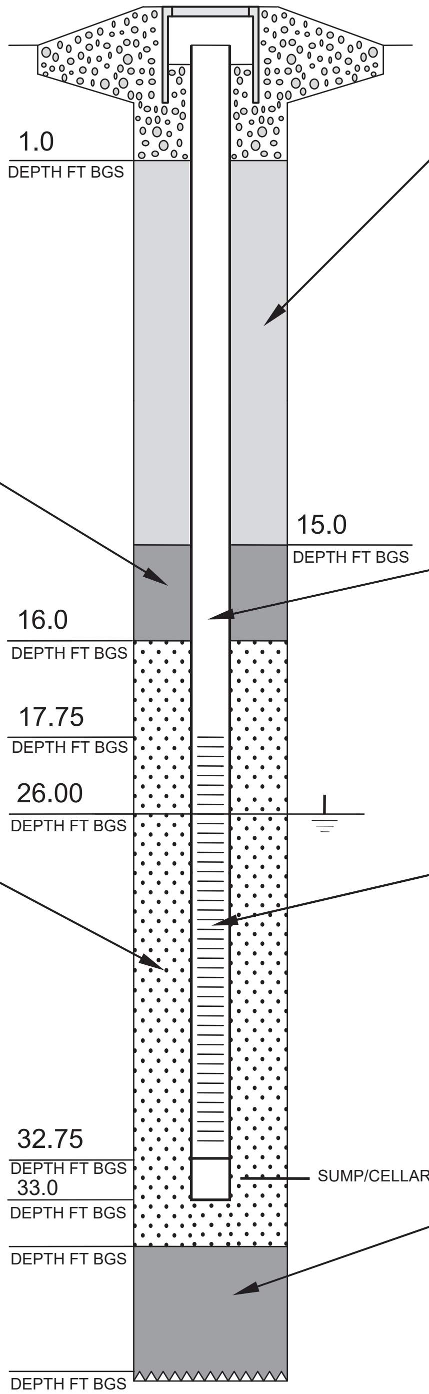
DRILLING BEGAN:
DATE 12/6/22 TIME 9:42
WELL INSTALLATION BEGAN:
DATE 12/6/22 TIME 10:30
WELL COMPLETION FINISHED:
DATE 12/6/22 TIME 14:30
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-12
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 33.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8.5 bags (450 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 17.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10 bags (500 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

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DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/28/22 TIME 10:30
WELL INSTALLATION BEGAN:
DATE 11/28/22 TIME 11:15
WELL COMPLETION FINISHED:
DATE 11/28/22 TIME 15:28
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 12 bags (600 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

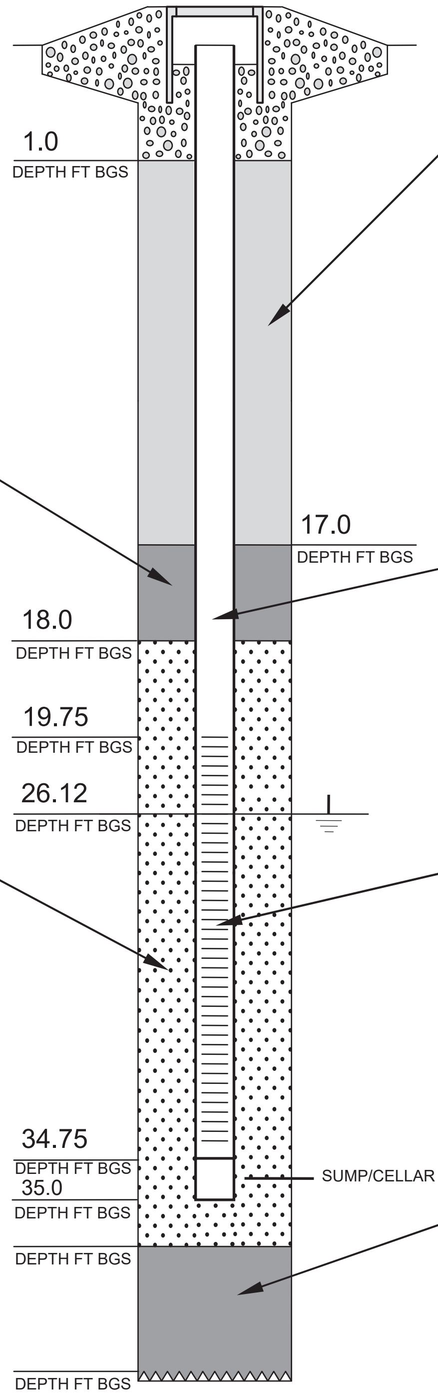
CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-13
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 35.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8 bags (400 lbs)
- [x] GROUT FORMULA

PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
- [ ] PREPARED MIX

PRODUCT
MFG. BY
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

DRILLING BEGAN:
DATE 11/18/22 TIME 9:18
WELL INSTALLATION BEGAN:
DATE 11/18/22 TIME 9:56
WELL COMPLETION FINISHED:
DATE 11/18/22 TIME 12:30
DRILLING CO. TPI Environmental, Inc.
DRILLER Justin Verpa
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 3/4 bag (37.5 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10.5 bags (525 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

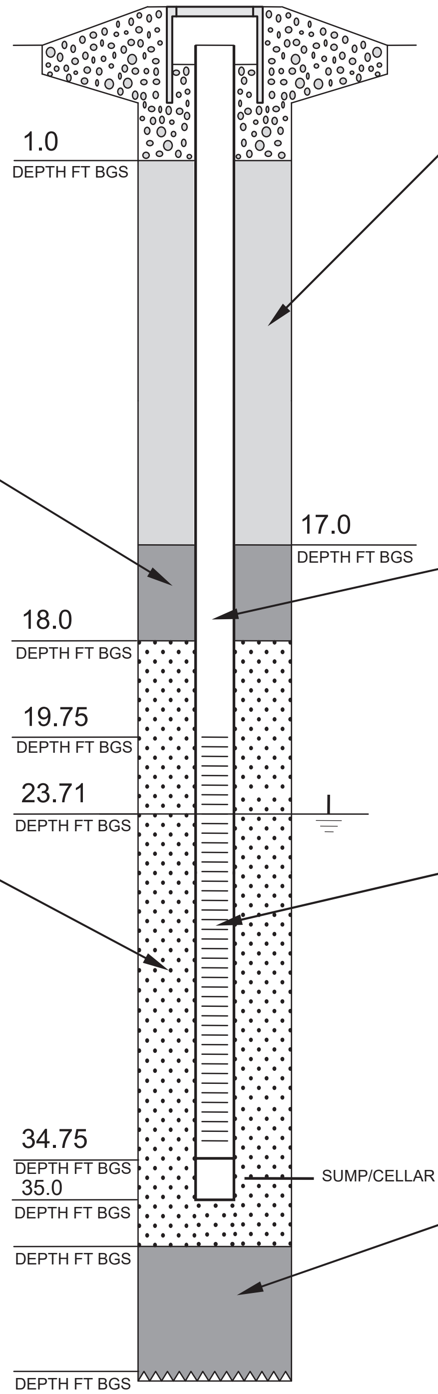
CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-14
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 35.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 8.5 bags (425 lbs)
- [x] GROUT FORMULA

PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
- [ ] PREPARED MIX

PRODUCT
MFG. BY
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 19.75' bgs

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

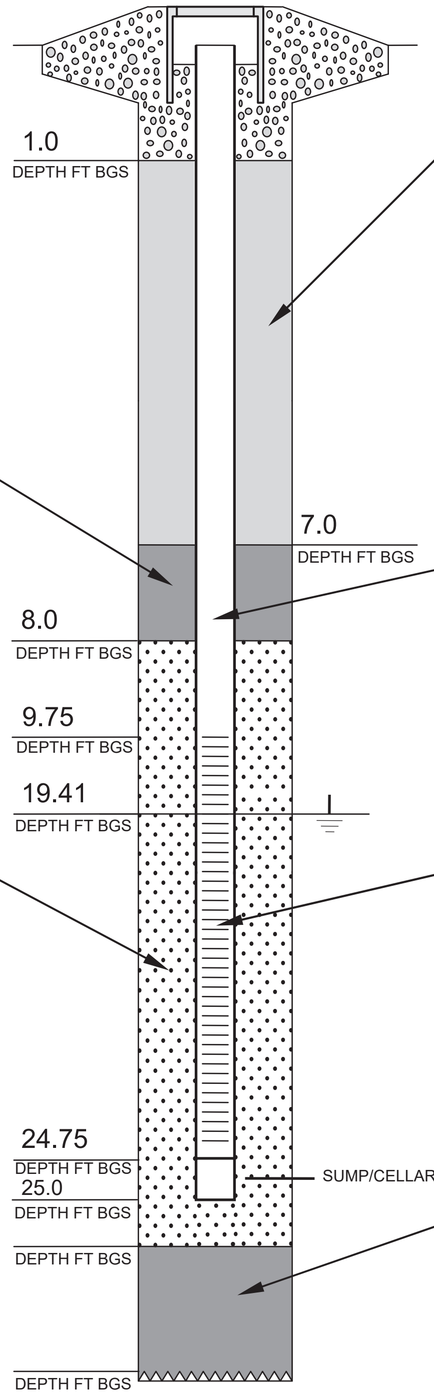
DRILLING BEGAN:
DATE 12/01/22 TIME 10:10
WELL INSTALLATION BEGAN:
DATE 12/01/22 TIME 10:23
WELL COMPLETION FINISHED:
DATE 12/01/22 TIME 13:11
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-15
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 25.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 4.0 bags (200 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 9.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 12.0 bags (600 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

MONITORING WELL COMPLETION RECORD

DRILLING INFORMATION

DRILLING BEGAN:
DATE 12/01/22 TIME 12:55
WELL INSTALLATION BEGAN:
DATE 12/01/22 TIME 13:55
WELL COMPLETION FINISHED:
DATE 12/02/22 TIME 9:00
DRILLING CO. TPI Environmental, Inc.
DRILLER Brad Frace
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- [x] HOLLOW STEM AUGER
- [ ] SONIC
- [ ] OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 1 bag (50 lbs)
- [ ] PELLETS, SIZE
- [ ] CHIPS, SIZE
- [x] #00 Sand

PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

AMOUNT OF WATER USED

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 11.0 bags (550 lbs)
- [x] SAND, SIZE #1
- [ ] FORMATION COLLAPSE:

FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
- [x] POURED
- [ ] TREMIE

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

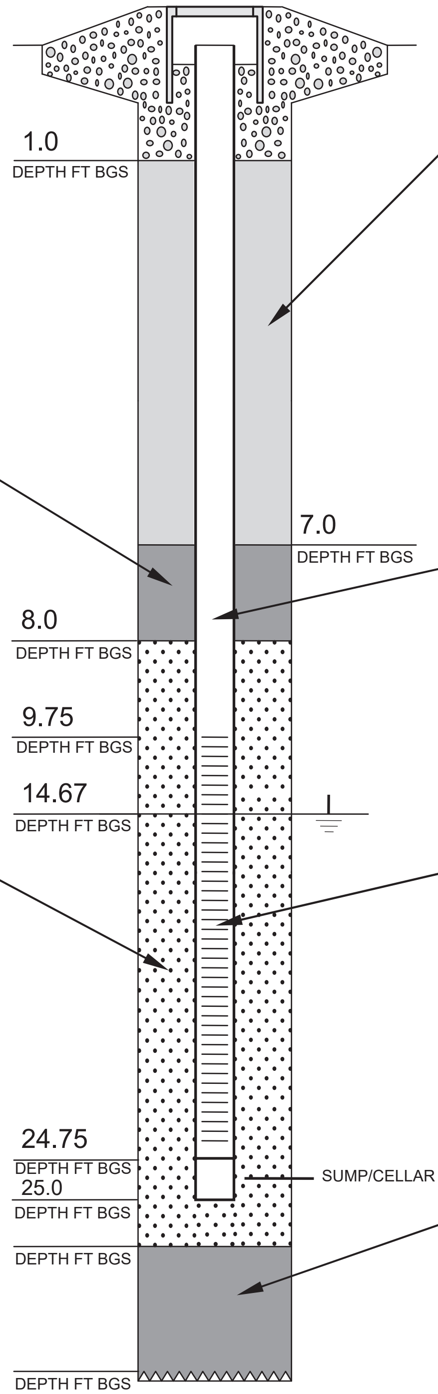
CENTRALIZERS USED?

- [ ] YES
- [ ] NO

CENTRALIZER DEPTHS:

SURFACE COMPLETION

- [ ] FLUSH MOUNT
- [x] ABOVE GROUND W/BUMPER POST
- [x] CONCRETE
- [ ] ASPHALT



MONITORING WELL

MONITORING WELL NO. TG02-MW-15
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 25.0'

ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 4.0 bags (200 lbs)
- [x] GROUT FORMULA

PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
- [ ] PREPARED MIX

PRODUCT
MFG. BY
METHOD INSTALLED
- [x] POURED
- [ ] TREMIE

CASING

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 9.75' bgs

WELL SCREEN

- [x] SCHEDULE 40 PVC
- [ ]

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
- [ ] BENTONITE CHIPS, SIZE
- [ ] BENTONITE PELLETS, SIZE
- [ ] SLURRY
- [ ] FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
- [ ] POURED
- [ ] TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION

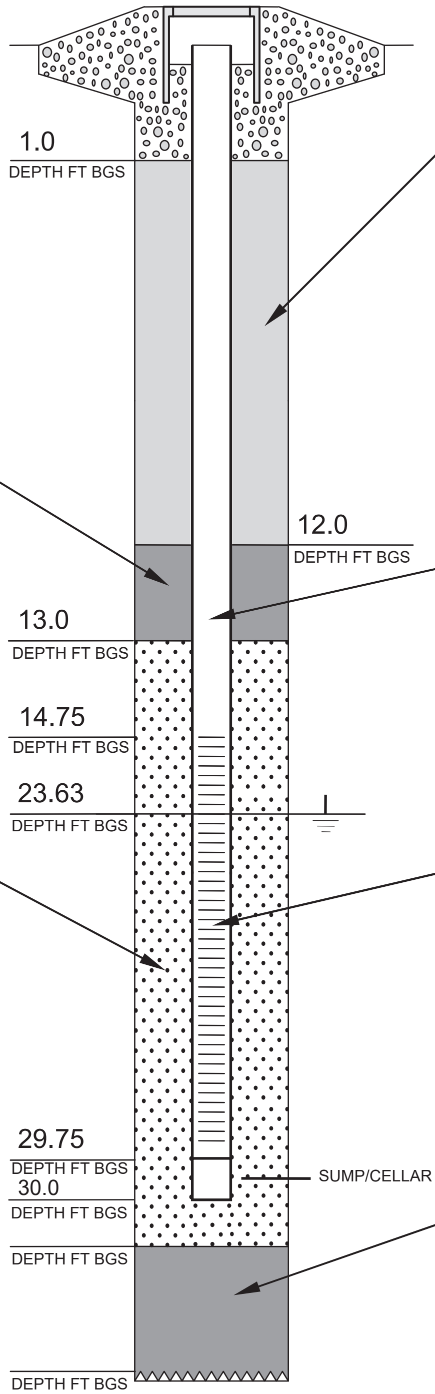
DRILLING BEGAN:
DATE 11/21/22 TIME 8:15
WELL INSTALLATION BEGAN:
DATE 11/21/22 TIME 9:25
WELL COMPLETION FINISHED:
DATE 11/21/22 TIME 13:16
DRILLING CO. TPI Environmental, Inc.
DRILLER Justin Verpa
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
☑ HOLLOW STEM AUGER
☐ SONIC
☐ OTHER:
DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

SURFACE COMPLETION

☐ FLUSH MOUNT
☑ ABOVE GROUND W/BUMPER POST
☑ CONCRETE ☐ ASPHALT

MONITORING WELL

MONITORING WELL NO. TG02-MW-17
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 30.0'



ANNULAR SEAL

AMOUNT CALCULATED
AMOUNT USED 6 bags (300 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

Choker Sand

AMOUNT CALCULATED
AMOUNT USED 3/4 bag (37.5 lbs)
☐ PELLETS, SIZE
☐ CHIPS, SIZE
☑ #00 Sand
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

CASING

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 14.75' bgs

FILTER PACK

AMOUNT CALCULATED
AMOUNT USED 10.5 bags (525 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

WELL SCREEN

☑ SCHEDULE 40 PVC
☐
PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

SURVEY INFORMATION

TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?

☐ YES ☐ NO
CENTRALIZER DEPTHS:

BOREHOLE BACKFILL

AMOUNT CALCULATED
AMOUNT USED
☐ BENTONITE CHIPS, SIZE
☐ BENTONITE PELLETS, SIZE
☐ SLURRY
☐ FORMATION COLLAPSE
FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

MONITORING WELL COMPLETION RECORD

terraphase engineering

DRILLING INFORMATION
DRILLING BEGAN:
DATE 11/22/22 TIME 8:15
WELL INSTALLATION BEGAN:
DATE 11/22/22 TIME 9:42
WELL COMPLETION FINISHED:
DATE 11/22/22 TIME 11:55
DRILLING CO. TPI Environmental, Inc.
DRILLER Justin Verpa
LICENSE 573102
DRILL RIG 7822DT
DRILLING METHOD:
- ☑ HOLLOW STEM AUGER
- ☐ SONIC
- ☐ OTHER:

DIAMETER OF AUGERS:
ID 4 1/4" OD 6 7/8"

Choker Sand
AMOUNT CALCULATED
AMOUNT USED 3/4 bag (37.5 lbs)
- ☐ PELLETS, SIZE
- ☐ CHIPS, SIZE
- ☑ #00 Sand

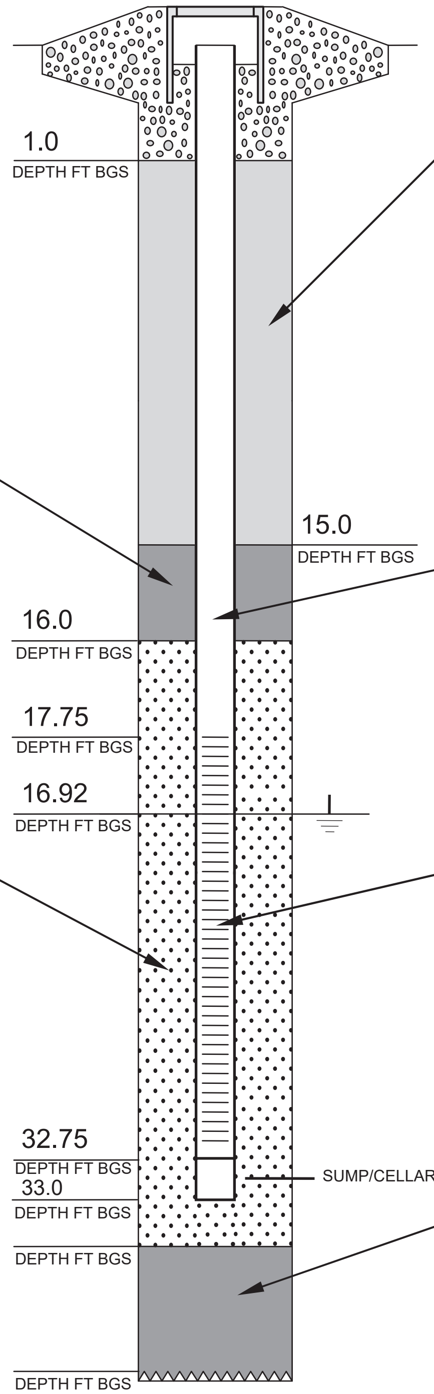
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED
☑ POURED ☐ TREMIE
AMOUNT OF WATER USED

FILTER PACK
AMOUNT CALCULATED
AMOUNT USED 10.5 bags (525 lbs)
☑ SAND, SIZE #1
☐ FORMATION COLLAPSE:
FROM TO
PRODUCT Superior Quartz
MFG. BY Filpro
METHOD INSTALLED:
☑ POURED ☐ TREMIE

SURVEY INFORMATION
TOC ELEVATION
GROUND ELEVATION
NORTHING COORD.
EASTING COORD.
DATE SURVEYED
SURVEY CO.
TOC MEASURING POINT:

CENTRALIZERS USED?
☐ YES ☐ NO
CENTRALIZER DEPTHS:

SURFACE COMPLETION
- ☐ FLUSH MOUNT
- ☑ ABOVE GROUND W/BUMPER POST
- ☑ CONCRETE ☐ ASPHALT



MONITORING WELL
MONITORING WELL NO. TG02-MW-18
PROJECT PESRM AST Closure
SITE 3144 W. Passyunk Ave
BOREHOLE NO. N/A
WELL PERMIT NO. N/A
TOC TO BOTTOM OF WELL 33.0'

ANNULAR SEAL
AMOUNT CALCULATED
AMOUNT USED 8 bags (400 lbs)
☑ GROUT FORMULA
PORTLAND CEMENT
BENTONITE PDS Bentonite
WATER
☐ PREPARED MIX
PRODUCT
MFG. BY
METHOD INSTALLED
☑ POURED ☐ TREMIE

CASING
- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT
MFG BY.
CASING DIAMETER:
ID 2" OD 2.375"
LENGTH OF CASING 17.75' bgs

WELL SCREEN
- ☑ SCHEDULE 40 PVC
- ☐

PRODUCT
MFG. BY:
CASING DIAMETER:
ID 2" OD 2.375"
SLOT SIZE 0.010
LENGTH OF SCREEN 15.0'
LENGTH OF SUMP 3"

BOREHOLE BACKFILL
AMOUNT CALCULATED
AMOUNT USED
- ☐ BENTONITE CHIPS, SIZE
- ☐ BENTONITE PELLETS, SIZE
- ☐ SLURRY
- ☐ FORMATION COLLAPSE

FROM TO
PRODUCT
MFG. BY
METHOD INSTALLED:
☐ POURED ☐ TREMIE

S-200

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	24.90
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	4	Well Depth (ft bmp)	32.73' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	29'	Water Column (ft)	
Purge Start Time:	16:15	Screen Interval (ft bmp):	35-20'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	17:25	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-200-221221	Bottles:	
Duplicate Sample ID:		Odor:	Yes
Duplicate Sample Time:		Remarks:	Odor while sampling, pump to maximum efficiency for low flow and drawdown still constant

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
16:40	215	3785	25.55	17.23	5.37	271	98	0.46	76	Clear with odor and slight sheen
16:45	215	4860.0	25.75	17.71	5.24	286	96	0	84.1	Clear with odor and slight sheen
16:50	215	5935.0	26.0	17.83	5.24	294	89	0.0	80.5	Clear with odor
16:55	160	6735.0	26.31	17.73	5.29	306	79	0	66.5	Flow rate adjusted due to continued draw down
17:00	160	7535.0	26.38	17.74	5.31	309	75	0	60	Clear with odor
17:05	160	8335.0	26.50	17.75	5.35	315	71	0	56.4	Clear with odor
17:10	160	9135.0	26.65	17.68	5.39	318	66	0	48.9	Clear with odor
17:15	160	9935.0	26.75	17.72	5.46	320	60	0	42.5	Clear with odor
17:20	160	10735.0	26.94	17.78	5.54	321	56	0	44.6	Clear with odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Round 18
Well secured on initial inspection	X			
Is well ID visible?		X		
Water in the well box		X		
Sleeve around the well box in good condition			X	
Remarks				PID 73.8 ppm in well, 0.1 in breathing zone; 26% LEL in well, 0.0 % in breathing zone.

Photos

S-206

Date:	12/22/2022	Casing Material:	PVC	Depth to Water (ft bmp):	27.54'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	4	Well Depth (ft bmp)	35' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	31	Water Column (ft)	7.46'
Purge Start Time:	08:45	Screen Interval (ft bmp):	30-15'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:		COC:	
Sample Time:		Analysis:	VOCs|VOCs via 8011|SVOC|Dissolved Metals
Sample ID:	S-200-221222	Bottles:	
Duplicate Sample ID:		Odor:	Yes
Duplicate Sample Time:		Remarks:	Slight odor

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:20	355	11000	27.60	16.08	6.23	2660	229	1.26	25.3	Slight brown color, clear, with odor
09:25	355	12775.0	27.60	16.65	6.36	2640	147	0.25	36	Slight brown color, clear, with odor
09:30	355	14550.0	27.61	16.8	6.44	2580	65	0.0	34.4	Slight brown color, clear, with odor
09:35	355	16325.0	27.58	16.85	6.51	2530	25	0	30.6	Slight brown color, clear, with odor
09:40	355	18100.0	27.60	16.85	6.52	2530	9	0	26	Colorless, clear with odor
09:45	355	19875.0	27.60	16.88	6.54	2480	-5	0	22.2	Colorless, clear with odor
09:50	355	21650.0	27.59	16.86	6.56	2470	-16	0	20.6	Colorless, clear with odor
09:55	355	23425.0	27.60	16.86	6.55	2440	-20	0	15.6	Colorless, clear with odor
10:00	355	25200.0	27.61	16.95	6.56	2390	-25	0	13.8	Colorless, clear with odor
10:05	355	26975.0	27.60	16.95	6.56	2400	-30	0	14.4	
10:10	355	28750.0	27.62	16.88	6.56	2380	-34	0	13.3	
10:15	355		27.6	16.92	6.56	2400	-36	0	13.4	Colorless, clear with odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

Item	Yes	No	NA	Notes
Water in the well box		X		
Sleeve around the well box in good condition			X	
Remarks				0.0 PID and 0% LEL

Photos


Location name: 'S-206', Date: 12/22/22 08:46, Azimuth: 103.48220382232552,Latitude: 39.917627593764536, Longitude: -75.19625914585973


DO IT
GHT
Location name: 'S-206', Date: 12/22/22 10:02, Azimuth: 347.7746156400859,Latitude: 39.91760048713259, Longitude: -75.1962745276285

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure

3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-207

Date:	12/22/2022	Casing Material:	PVC	Depth to Water (ft bmp):	14.04'
Purge Method:	QED Bladder Pump	Casing Diameter (in):	4	Well Depth (ft bmp)	31.50' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	23.0	Water Column (ft)	
Purge Start Time:	9:10	Screen Interval (ft bmp):	25.0-10.0'	Water Quality Meter:	Horiba

Comments:

Sampling Summary

Sample Date:	12/22/2022	COC:	
Sample Time:	10:50	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	S-207-221222	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:55	250	14250	14.30	14.99	6.21	0.817	94	1.00	16.4	
10:00	250	15500.0	14.30	15.17	6.25	0.82	41	0.93	13.5	
10:05	250	16750.0	14.30	15.22	6.31	0.825	15	0.89	10.1	
10:10	250	18000.0	14.31	15.28	6.36	0.83	-6	0.84	7.8	
10:15	250	19250.0	14.32	15.33	6.41	0.834	-23	0.81	5.4	
10:20	250	20500.0		15.31	6.49	0.84	-39	0.89	4.6	
10:25	250	21750.0	14.30	15.21	6.45	0.843	-51	0.78	4.0	
10:30	250	23000.0	14.33	15.20	6.45	0.845	-55	0.78	3.6	
10:35	250	24250.0	14.33	15.24	6.46	0.848	-59	0.77	3.5	
10:40	250	25500.0	14.33	15.09	6.48	0.851	-66	0.76	3.0	
10:45	250	26750.0	14.33	15.06	6.48	0.853	-71	0.75	2.9	
10:50	250	28000.0	14.34	15.00	6.49	0.854	-75	0.74	2.9	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection		X		
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition		X		

Photos

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-271

Date:	12/22/2022	Casing Material:	PVC	Depth to Water (ft bmp):	24.05
Purge Method:	low flow	Casing Diameter (in):	4	Well Depth (ft bmp)	37' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	31	Water Column (ft)	
Purge Start Time:	12:00	Screen Interval (ft bmp):	35-15'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/22/2022	COC:	
Sample Time:	13:20	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	S-271-221222	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
12:01	365	14365	24.15	14.83	6.20	1370	13	0.32	51.9	Clear, colorless with odor
12:35	365	26775.0	24.16	15.30	6.36	1370	-12	0	49.7	Clear, colorless with odor
12:40	365	28600.0	24.16	15.41	6.47	1390	-31	0	41	Clear, colorless with odor
12:45	365	30425.0	24.15	15.40	6.48	1440	-43	0.0	30.0	Clear, colorless with odor
12:50	365	32250.0	24.16	15.47	6.48	1480	-48	0.0	25.9	Clear, colorless with odor
12:55	365	34075.0	24.16	15.37	6.49	1550	-53	0.0	17.0	Clear, colorless with odor
13:00	365	35900.0	24.16	15.48	6.50	1580	-56	0.0	16.2	Clear, colorless with odor
13:05	365	37725.0	24.16	15.44	6.52	1640	-59	0.0	16.4	Clear, colorless with odor
13:10	365	39550.0	24.16	15.60	6.51	1640	-61	0.0	16.6	Clear, colorless with odor
13:14	365	41010.0	24.16	15.63	6.52	1670	-63	0.0	16.9	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	
Remarks				OID 1.6 in well, 0.0 in breathing zone

Photos

S-77P

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	27.14
Purge Method:	QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	34.97' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	32'	Water Column (ft)	
Purge Start Time:	16:30	Screen Interval (ft bmp):	unknown	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	17:35	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	S-77P-221221	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
17:00	300	3350	27.24	16.96	6.80	1.36	-63	0.62	75.2	
17:05	300	4850.0	27.24	17.07	6.86	1.35	-86	0.55	43.6	
17:10	300	6350.0	27.24	17.23	6.90	1.35	-100	0.51	22.7	
17:15	300	7850.0	27.24	17.15	6.88	1.35	-111	0.55	10.6	
17:20	300	9350.0	27.24	17.16	6.93	1.35	-118	0.47	6.5	
17:25	300	10850.0	27.24	17.28	6.99	1.35	-124	0.45	2.7	
17:30	300	12350.0	27.24	17.25	6.96	1.34	-126	0.44	1.5	
17:35	300	13850.0	27.24	17.30	6.96	1.35	-128	0.44	0.5	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection		X		
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition		X		

Photos

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-01

Date:	12/20/2022	Casing Material:	PVC	Depth to Water (ft bmp):	28.35'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	32.99 (including stick up)
Volume Units:	mL	Pump Intake (ft bmp)	30.5'	Water Column (ft)	4.64'
Purge Start Time:	9:12	Screen Interval (ft bmp):	29.75'-14.75'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/20/2022	COC:	
Sample Time:	10:25	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-01-221220	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:25	180	7570	28.43	14.58	6.78	1.07	-10	0.37	153	
09:30	180	8470.0	28.44	14.48	6.80	1.07	-18	0.0	184	
09:35	180	9370.0	28.45	14.49	6.83	1.07	-25	0.0	131	
09:40	180	10270.0	28.45	14.47	6.86	1.07	-31	0.0	130	
09:45	180	11170.0	28.45	14.46	6.89	1.07	-37	0.0	132	
09:50	180	12070.0	28.45	14.54	6.91	1.08	-40	0.0	132	
09:55	180	12970.0	28.44	14.66	6.94	1.08	-46	0.0	108	
10:00	180	13870.0	28.44	14.62	6.97	1.09	-49	0.0	110	
10:05	180	14770.0	28.44	14.44	6.99	1.09	-53	0.0	98.2	
10:10	180	15670.0	28.45	14.56	6.99	1.09	-55	0.0	102	
10:15	180	16570.0	28.45	14.61	7.01	1.10	-58	0.0	88.7	
10:20	180	17470.0	28.44	14.65	7.02	1.10	-60	0.0	81.7	
10:25	180	18370.0	28.44	14.75	7.03	1.10	-62	0.0	82.0	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

TG02-MW-02

Date:	12/20/2022	Casing Material:	PVC	Depth to Water (ft bmp):	24.74
Purge Method:	QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	27.97
Volume Units:	mL	Pump Intake (ft bmp)	26.50	Water Column (ft)	3.23
Purge Start Time:	11:45	Screen Interval (ft bmp):	24.75-9.75'	Water Quality Meter:	Horiba

Comments:

Sampling Summary

Sample Date:	12/20/2022	COC:	
Sample Time:	13:10	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-02-221220	Bottles:	
Duplicate Sample ID:	TG02-MW-02-221220D	Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
12:25	350	14000	24.80	15.76	7.02	0.75	76	1.84	93.2	
12:30	350	15750.0	24.81	16.25	7.18	0.752	47	0.23	112	
12:35	350	17500.0	24.80	16.41	7.23	0.753	34	0.03	86.1	
12:40	350	19250.0	24.80	16.46	7.25	0.753	28	0.0	64.4	
12:45	350	21000.0	24.80	16.47	7.26	0.752	23	0.0	67.1	
12:50	350	22750.0	24.82	16.49	7.26	0.75	20	0.0	56.4	
12:55	350	24500.0	24.80	16.52	7.26	0.749	19	0.0	63.1	
13:00	350	26250.0	24.80	16.44	7.25	0.748	17	0.0	59.8	
13:05	350	28000.0	24.80	16.52	7.24	0.746	17	0.0	62.1	
13:10	350	29750.0	24.80	16.50	7.23	0.746	16	0.0	63.1	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-07

Date:	12/20/2022	Casing Material:	PVC	Depth to Water (ft bmp):	28.51
Purge Method:	QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	33.5	Water Column (ft)	
Purge Start Time:	14:20	Screen Interval (ft bmp):	34.75-19.75'	Water Quality Meter:	Horiba

Comments:

Sampling Summary

Sample Date:	12/20/2022	COC:	
Sample Time:	16:15	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-07-221220	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

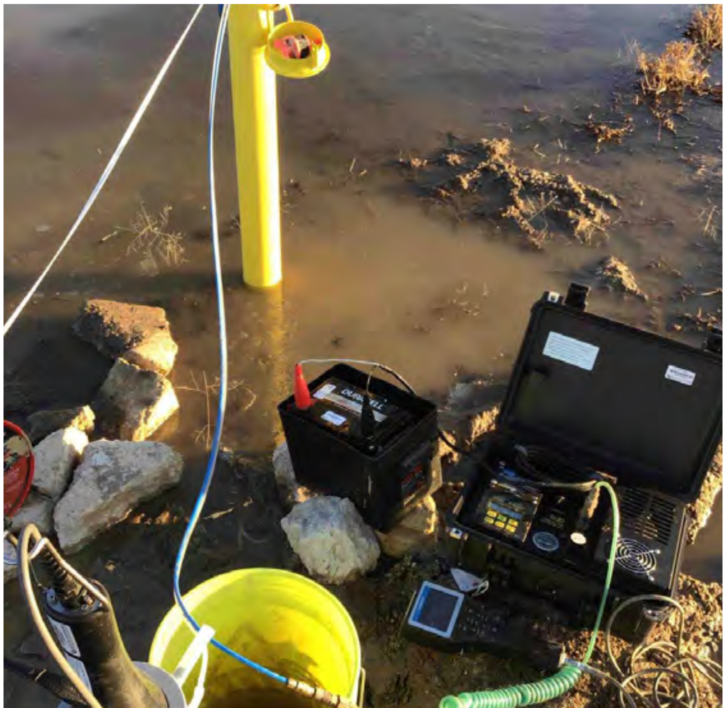
Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
15:15	270	14770	28.64	15.19	6.40	1.83	32	0.76	186	
15:20	270	16120.0	28.64	15.17	6.44	1.84	-1	0.0	159	
15:25	270	17470.0	28.64	15.17	6.46	1.85	-16	0.0	131	
15:30	270	18820.0	28.64	15.09	6.48	1.86	-27	0.0	132	
15:35	270	20170.0	28.63	15.05	6.49	1.86	-33	0.0	101	
15:40	270	21520.0	28.64	14.89	6.64	1.85	-37	0.0	88.0	
15:45	270	22870.0	28.64	14.95	6.51	1.85	-40	0.0	65.4	
15:50	270	24220.0	28.64	14.96	6.50	1.85	-42	0.0	60.5	
15:55	270	25570.0	28.64	14.94	6.50	1.85	-44	0.0	39.1	
16:00	270	26920.0	28.64	15.00	6.50	1.86	-47	0.0	36.8	
16:05	270	28270.0	28.64	14.99	6.51	1.86	-48	0.0	31.6	
16:10	270	29620.0	28.64	14.94	6.51	1.86	-50	0.0	29.5	
16:15	270	30970.0	28.64	14.81	6.52	1.87	-51	0.0	30.6	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos



Location name: 'TG02-MW-07', Date: 12/20/22 15:49, Azimuth: -1.0,Latitude: 39.917987943664116, Longitude: -75.19511668018549

TG02-MW-13

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	30.22'
Purge Method:	QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	36.2	Water Column (ft)	
Purge Start Time:	8:45	Screen Interval (ft bmp):	34.75-17.75'	Water Quality Meter:	Horiba

Comments:

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	11:05	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-13-221221, TG02-MW-13-221221MS, TG02-MW-13-221221MSD	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:50	310	19000	30.25	14.33	6.08	1.51	219	1.60	164	
09:55	310	20550.0	30.25	14.89	6.55	1.49	86	0.24	156	
10:00	310	22100.0	30.25	15.07	6.77	1.49	20	0.0	120	
10:05	310	23650.0	30.25	15.24	6.97	1.49	-26	0.0	77.9	
10:10	310	25200.0	30.25	15.22	7.03	1.49	-46	0.0	55.1	
10:15	310	26750.0	30.25	15.23	7.07	1.49	-58	0.0	45.8	
10:20	310	28300.0	30.25	15.23	7.11	1.48	-70	0.0	34.2	
10:25	310	29850.0	30.25	15.09	7.11	1.48	-74	0.0	31.0	
10:30	310	31400.0	30.25	15.12	7.11	1.48	-79	0.0	27.0	
10:35	310	32950.0	30.25	15.11	7.11	1.48	-83	0.0	24.1	
10:40	310	34500.0	30.25	15.22	7.10	1.48	-87	0.0	20.9	
10:45	310	36050.0	30.25	15.22	7.10	1.48	-89	0.0	19.0	
10:50	310	37600.0	30.25	15.33	7.11	1.48	-91	0.0	17.3	
10:55	310	39150.0	30.25	15.16	7.14	1.48	-94	0.0	15.6	
11:00	310	40700.0	30.25	15.19	7.14	1.48	-97	0.0	14.9	
11:05	310	42250.0	30.25	15.24	7.15	1.48	-98	0.0	15.6	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection	X			

Item	Yes	No	NA	Notes
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-14

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	27.15
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	31	Water Column (ft)	
Purge Start Time:	9:30	Screen Interval (ft bmp):	34.75-19.75'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	11:50	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-14-221221	Bottles:	
Duplicate Sample ID:		Odor:	Yes - petroleum
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
10:00	250	3785	27.15	12.75	5.96	1290	32	1.24	48.5	Clear with odor
10:05	250	5035.0	27.15	13.35	6.17	1270	-26	0.73	29.5	Clear with odor
10:10	250	6285.0	27.16	13.47	6.23	1260	-43	0.66	27.3	Clear with odor
10:15	250	7535.0	27.16	13.52	6.27	1250	-56	0.62	24.0	Clear with odor
10:20	250	8785.0	27.16	13.52	6.36	1250	-70	0.58	18.7	
10:25	250	10035.0	27.16	13.52	6.39	1240	-78	0.56	17.3	Clear with odor
10:30	250	11285.0	27.16	13.41	6.42	1240	-86	0.53	12.7	Clear with odor
10:35	250	12535.0	27.16	13.34	6.43	1240	-90	0.52	11.5	Clear with odor
10:40	250	13785.0	27.16	13.26	6.43	1240	-93	0.51	11.6	Clear with odor
10:45	250	15035.0	27.16	13.16	6.42	1240	-95	0.53	11.0	Clear with odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	
Remarks				PID 57.8 ppm in well, 0.0 ppm in breathing zone; 15 % LEL in well (not sustained), 0% in breathing zone

Photos

O IT
GHT
Location name: 'TG02-MW-14', Date: 12/21/22 10:26, Azimuth: 311.33851012390505,Latitude: 39.91768257248955, Longitude: -75.19417432480633

Location name: 'TG02-MW-14', Date: 12/21/22 10:26, Azimuth: 337.18869307788646,Latitude: 39.917706132425494, Longitude: -75.1941554346674


DO IT RIGHT
Location name: 'TG02-MW-14', Date: 12/21/22 10:27, Azimuth: 279.4888478450073,Latitude: 39.91769575895456, Longitude: -75.19415600466448


Location name: 'TG02-MW-14', Date: 12/21/22 10:27, Azimuth: 129.07375100625995,Latitude: 39.91771594114412, Longitude: -75.19417659054018

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-16

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	22.29'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	25.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	25	Water Column (ft)	
Purge Start Time:	13:20	Screen Interval (ft bmp):	24.75-9.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	15:10	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-16-221221	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
13:45	310	5000	22.42	14.39	5.65	582	129	1.83	130	Cloudy, slight brown color with odor
13:50	310	6550.0	22.43	14.96	5.55	595	100	0.85	98.3	Cloudy, slight brown color with odor
13:55	310	8100.0	22.43	15.13	5.71	614	73	0.69	53.0	Cloudy, slight brown color with odor
14:00	310	9650.0	22.43	15.28	5.78	636	58	0.62	48.5	Cloudy, slight brown color with odor
14:05	310	11200.0	22.44	15.29	5.77	643	45	0.57	44.6	Cloudy, slight brown color with odor
14:10	310	12750.0	22.43	15.21	5.80	656	41	0.54	31.7	Cloudy, slight brown color with odor
14:15	310	14300.0	22.43	15.32	5.98	670	22	0.59	25.3	Cloudy, slight brown color with odor
14:20	310	15850.0	22.44	15.36	6.01	674	13	0.53	22.7	Cloudy, slight brown color with odor
14:25	310	17400.0	22.44	15.24	6.09	680	6	0.53	18.8	Cloudy, slight brown color with odor
14:30	310	18950.0	22.43	15.22	6.04	686	5	0.52	18.3	Cloudy, slight brown color with odor
14:35	310	20500.0	22.44	15.28	6.09	688	-1	0.51	16.2	Clear with odor

Groundwater Monitoring Field Data Form

Project No.: P044.001.002

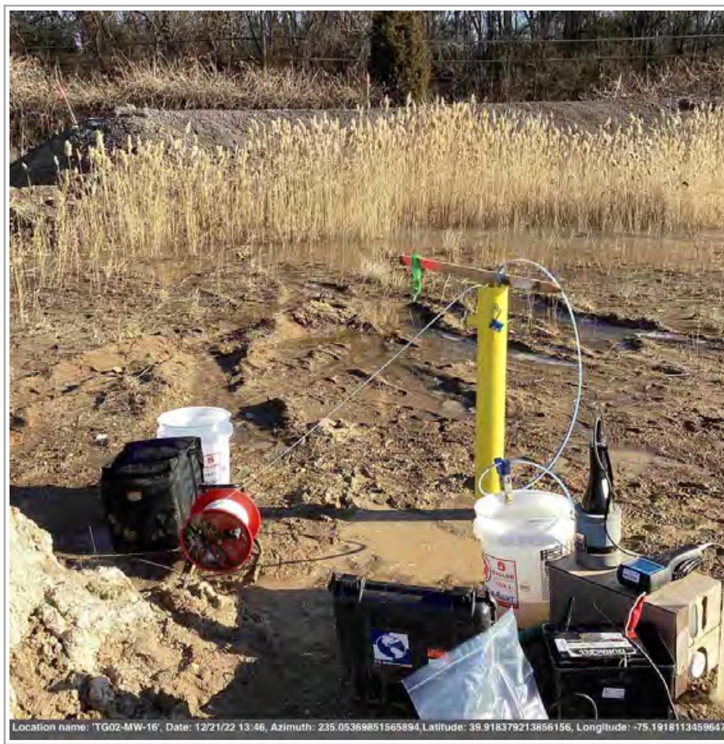
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
14:40	310	22050.0	22.44	15.26	6.16	685	-10	0.51	13.5	Clear with odor
14:45	310	23600.0	22.44	15.35	6.15	703	-13	0.51	14.1	Clear with odor
14:50	310	25150.0	22.44	15.37	6.17	709	-19	0.53	14.3	Clear with odor
14:55	310	26700.0	22.45	15.37	6.22	712	-23	0.52	13.4	Clear with odor
15:00	310	28250.0	22.45	15.48	6.21	714	-26	0.52	12.5	Clear with odor
15:05	310	29800.0	22.44	15.42	6.23	720	-30	0.52	13.7	Clear with odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	
Remarks				48.5 ppm PID in well, 0.3 in breathing zone; LEL 0% in well.

Photos




Location name: 'TG02-MW-16', Date: 12/21/22 13:46, Azimuth: 52.5161218957285,Latitude: 39.91836767321098, Longitude: -75.19179134348198


Location name: 'TG02-MW-16', Date: 12/21/22 13:46, Azimuth: 332.54167746831035,Latitude: 39.91837486027643, Longitude: -75.19174977723382

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-18

Date:	12/21/2022	Casing Material:	PVC	Depth to Water (ft bmp):	20.30
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	33.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	28	Water Column (ft)	
Purge Start Time:	12:10	Screen Interval (ft bmp):	32.75-17.75'	Water Quality Meter:	Horiba

Comments:

Sampling Summary

Sample Date:	12/21/2022	COC:	
Sample Time:	14:30	Analysis:	vocs|vocs 8011|SVOC|Dissolved Metals
Sample ID:	TG02-MW-18-221221	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
14:00	295	18295	20.29	16.00	6.63	1.16	-20	0.0	3.5	
14:05	295	19770.0	22.29	16.55	6.53	1.15	-29	0.0	2.6	
14:10	295	21245.0	20.29	16.75	6.55	1.15	-34	0.0	2.3	
14:15	295	22720.0	22.29	16.84	6.56	1.15	-38	0.0	2.2	
14:20	295	24195.0	20.29	16.90	6.59	1.14	-43	0.0	1.9	
14:25	295	25670.0	22.29	16.89	6.60	1.14	-44	0.0	2.1	
14:30	295	27145.0	20.29	16.90	6.65	1.14	-47	0.0	2.7	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				utility vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-200

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	24.7'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	5	Well Depth (ft bmp)	32.73' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	29'	Water Column (ft)	
Purge Start Time:	14:55	Screen Interval (ft bmp):	35-20'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	15:50	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-200-230124	Bottles:	
Duplicate Sample ID:		Odor:	Yes, petroleum
Duplicate Sample Time:		Remarks:	Pump issues after stabilization right before and during sampling. Flow decreased significantly. Visible small oil breakdown particles in the sample. Pump was paused after VOCs were collected and turned back on to collect additional volume. Pump stopped working. Phone call with Michael, decide to bail remaining SVOC and field-filtered metals volume

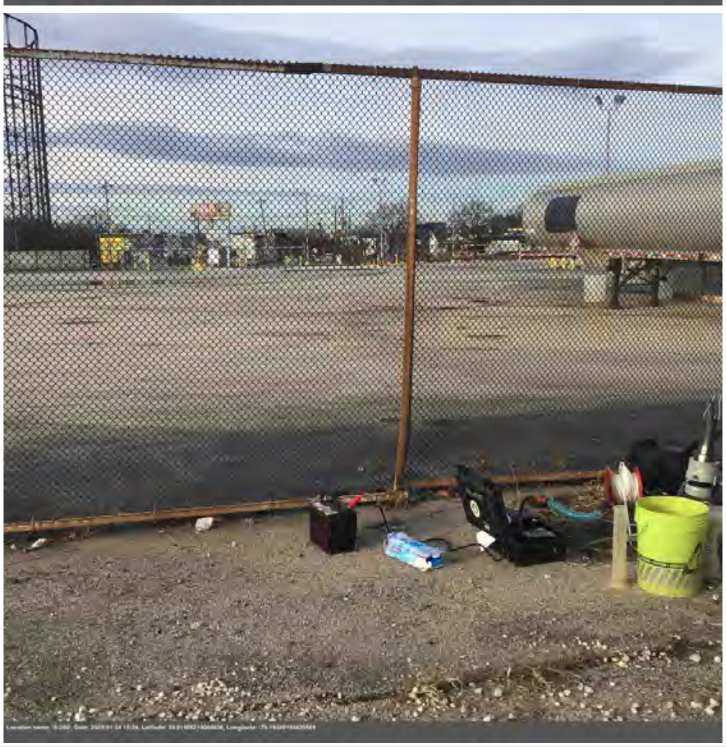
Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
15:15	120	2400	25.20	16.22	6.41	294	-2	0.58	29.7	Colorless, clear, petroleum odor with slight sheen
15:20	120	3000.0	25.33	16.7	6.33	293	-3	0.17	29.7	Colorless, clear, petroleum odor with slight sheen
15:25	120	3600.0	25.46	16.79	6.34	293	-5	0	22.4	Colorless, clear, petroleum odor with slight sheen
15:30	120	4200.0	25.54	16.91	6.34	296	-7	0	14.2	Colorless, clear, petroleum odor with slight sheen
15:35	120	4800.0	25.66	17	6.34	300	-8	0	10.9	Colorless, clear, petroleum odor with slight sheen

Well Integrity Checklist

Item	Yes	No	NA	Notes
Well secured on initial inspection	X			
Is well ID visible?		X		
Water in the well box		X		
Sleeve around the well box in good condition			X	

Photos



Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-206

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	27.79'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	4	Well Depth (ft bmp)	35' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	31'	Water Column (ft)	
Purge Start Time:	08:25	Screen Interval (ft bmp):	30-15'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	10:00	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-206-230124	Bottles:	
Duplicate Sample ID:		Odor:	Yes, petroleum
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:15	120	6000	27.81	11.33	6.08	2320	-39	43	10.7	Prolonged purge due to DO sensor issues
09:20	120	6600.0	27.82	13.08	6.57	2240	-66	40.67	10.2	Clear, colorless, petroleum odor
09:25	120	7200.0	27.83	13.6	6.67	2230	-68	38.44	11	Clear, colorless, petroleum odor
09:30	120	7680.0	27.82	13.81	6.7	2220	-68	37.55	11.6	Clear, colorless, petroleum odor
09:35	120	8520.0	27.83	14.05	6.72	2200	-67	36.72	9.7	Clear, colorless, petroleum odor
09:40	120	9120.0	27.83	14.37	6.72	2190	-65	35.93	4.4	Clear, colorless, petroleum odor
09:45	120	9720.0	27.83	14.37	6.71	2190	-65	36.06	1.9	Clear, colorless, petroleum odor
09:50	120	10320.0	27.83	14.44	6.73	2180	-65	37.84	1.8	Clear, colorless, petroleum odor
09:55	120	10920.0	27.83	14.56	6.73	2170	-65	37.51	1.2	Clear, colorless, petroleum odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			

Photos


UPAGS1W2


PINE
AutoCal Solution
4.0 pH 4.49 mS/cm 0 NTU
Exp: 10/31/2023
Lot#: 22370141
Manufacturer: GFS Chemicals
www.pine-environmental.com


HORIBA
CALIBRATION
Auto Calibration
3.99 pH
4.57 mS/cm
0.2 NTU
50.00 mg/L DO
500.0 % DO
0.05 m
Please wait.
MEAS
LIGHT
WATER QUALITY MONITOR


HORIBA
Span calibration error
1/2
Cause
Span calibration is not possible.
Parameter:DO
Corrective Action
Press ESC key and clean the
sensors. Confirm if the
calibration solution isn't correc
WATER QUALITY MONITOR

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-207

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	13.76'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	5	Well Depth (ft bmp)	31.50' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	23'	Water Column (ft)	
Purge Start Time:	11:25	Screen Interval (ft bmp):	25.0-10.0'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	12:30	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-207-230124	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
12:00	100	3500	13.95	12.41	6.64	675	-37	0.49	10	Clear, colorless, slight petroleum odor.
12:05	100	4000.0	13.96	12.65	6.64	681	-49	0.26	1.4	Clear, colorless, slight petroleum odor.
12:10	100	4500.0	13.96	12.72	6.64	685	-53	0.11	2.2	Clear, colorless, slight petroleum odor.
12:15	100	5000.0	13.96	12.77	6.64	690	-56	0.04	1.3	Clear, colorless, slight petroleum odor.
12:20	100	5500.0	13.96	12.83	6.65	694	-58	0.03	0.0	Clear, colorless, odorless
12:25	100	6000.0	13.96	12.89	6.66	698	-60	0.03	0	Clear, colorless, odorless

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	

Photos

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

S-271

Date:	01/23/2023	Casing Material:	PVC	Depth to Water (ft bmp):	24.08'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	4	Well Depth (ft bmp)	37' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	31'	Water Column (ft)	
Purge Start Time:	13:45	Screen Interval (ft bmp):	35-15'	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/23/2023	COC:	
Sample Time:	14:45	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-271-230123	Bottles:	
Duplicate Sample ID:		Odor:	Yes; petroleum
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
14:00	130	1950	24.10	11.84	6.54	1300	-65	0.55	26.8	Colorless, relatively clear with few sediment, petroleum odor
14:05	130	2600.0	24.10	12.25	6.57	1300	-68	0.48	24.6	Colorless, clear, petroleum odor
14:10	130	3250.0	24.10	12.56	6.61	1310	-72	0.16	13	Colorless, clear, petroleum odor
14:12	130	3510.0	24.10	12.83	6.62	1310	-73	0.02	11.1	Colorless, clear, petroleum odor
14:20	130	4550.0	24.10	12.91	6.63	1320	-75	0.00	7.9	Colorless, clear with few sediment, petroleum odor
14:25	130	5200.0	24.10	13.00	6.63	1430	-75	0.00	5.7	Colorless, clear with few sediment, petroleum odor
14:30	130	5850.0	24.10	13.03	6.64	1410	-77	0.0	3.5	Colorless, clear with few sediment, petroleum odor
14:35	130	6500.0	24.10	13.03	6.64	1410	-77	0.0	4.6	Colorless, clear with few sediment, petroleum odor
14:40	130	7150.0	24.10	13.07	6.62	1410	-78	0	2.9	Colorless, clear with few sediment, petroleum odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			

Item	Yes	No	NA	Notes
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	

Photos

S-77P

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	28.82'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	34.97' (TOC)
Volume Units:	mL	Pump Intake (ft bmp)	32'	Water Column (ft)	
Purge Start Time:	14:15	Screen Interval (ft bmp):	unknown	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	15:20	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	S-77P-230124	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
15:05	120	12120	28.85	15.43	7.25	1060	-131	0.34	9.5	
15:10	120	12720.0	28.85	15.71	7.28	1060	-132	0.20	8.8	
15:15	120	13320.0	28.85	15.72	7.28	1060	-134	0.14	8.7	
15:20	120	13920.0	28.85	15.87	7.28	1060	-135	0.13	8.1	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection		X		
Is well ID visible?		X		
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-01

Date:	01/23/2023	Casing Material:	PVC	Depth to Water (ft bmp):	28.16'
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	30.0' (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	31'	Water Column (ft)	
Purge Start Time:	08:30	Screen Interval (ft bmp):	29.75-14.75 feet bgs	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/23/2023	COC:	
Sample Time:	09:55	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-01-230123	Bottles:	
Duplicate Sample ID:	TG02-MW-01-230123D	Odor:	Yes; Petroleum
Duplicate Sample Time:	09:55	Remarks:	Clear, colorless with petroleum odor

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
08:55	110	2750	28.22	12.66	6.27	994	9	1.53	335	Cloudy, colorless with petroleum odor
09:00	110	3300.0	28.3	12.49	6.57	919	-37	0.33	205	Cloudy, colorless with petroleum odor
09:05	110	3850.0	28.22	12.37	6.60	901	-30	0.26	180	Cloudy, colorless with petroleum odor
09:10	110	4400.0	28.22	12.28	6.62	897	-45	0.37	157	Cloudy, colorless with petroleum odor
09:15	110	4950.0	28.22	12.17	6.65	896	-50	0.31	110	Clear, colorless with petroleum odor
09:20	110	5500.0	28.22	12.00	6.68	896	-55	0.25	66	Clear, colorless with petroleum odor
09:25	110	6050.0	28.23	11.86	6.70	898	-56	0.20	50.2	Clear, colorless with petroleum odor
09:30	110	6600.0	28.22	11.66	6.72	897	-60	0.18	47.7	Clear, colorless with petroleum odor
09:35	110	7150.0	28.22	11.48	6.74	903	-63	0.06	22.1	Clear, colorless with petroleum odor
09:40	110	7700.0	28.23	11.34	6.77	908	-66	0.07	19.1	Clear, colorless with petroleum odor

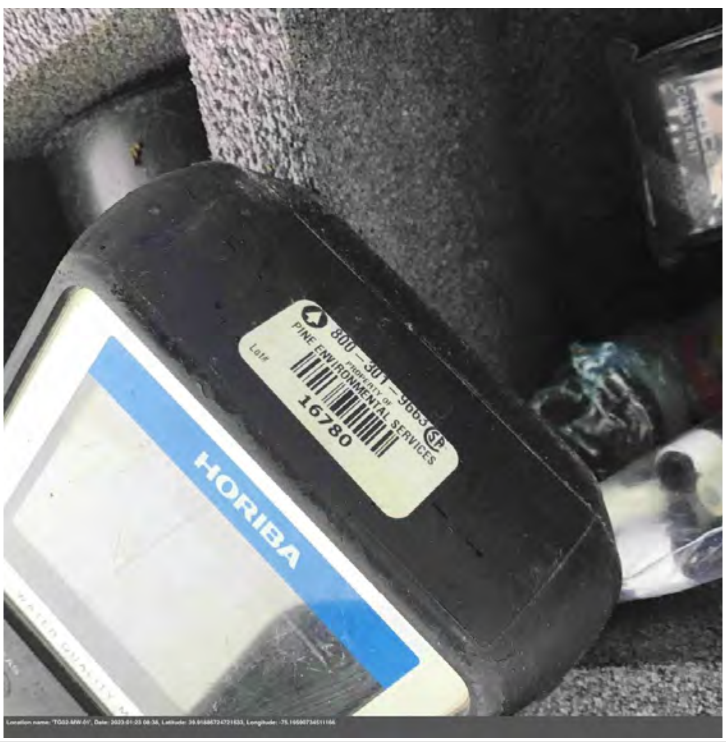
Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:45	110	8250.0	28.22	11.26	6.83	911	-67	0.08	15.1	Clear, colorless with petroleum odor
09:50	110	8800.0	28.22	11.19	6.82	915	-68	0.07	15.2	Clear, colorless with petroleum odor
09:55	110	9350.0	28.22	11.18	6.80	915	-69	0.07	13.9	Clear, colorless with petroleum odor

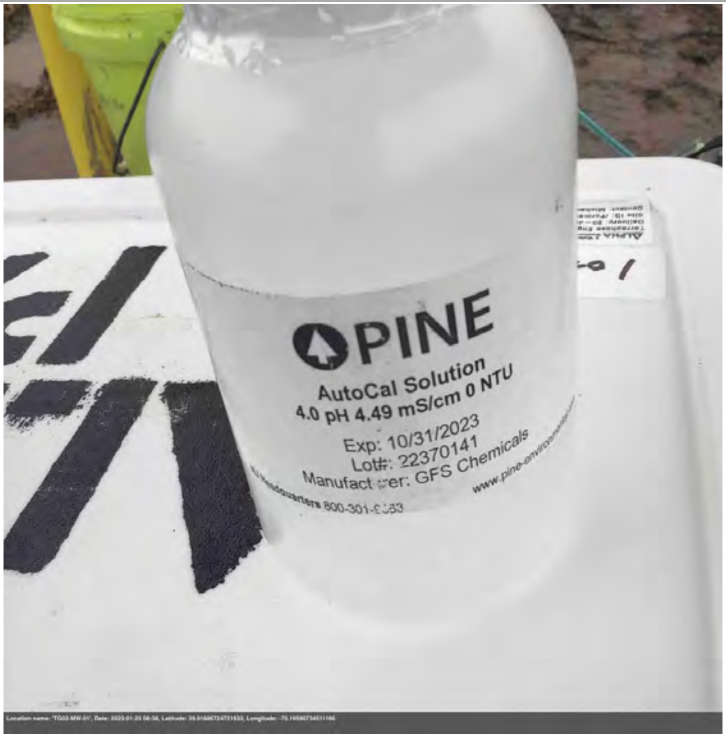
Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	

Photos



800-301-9663
PINE ENVIRONMENTAL SERVICES
16780
HORIBA


PINE
AutoCal Solution
4.0 pH 4.49 mS/cm 0 NTU
Exp: 10/31/2023
Lot#: 22370141
Manufacturer: GFS Chemicals

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-02

Date:	01/23/2023	Casing Material:	PVC	Depth to Water (ft bmp):	24.32
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	25.00 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	27	Water Column (ft)	
Purge Start Time:	10:50	Screen Interval (ft bmp):	24.75-9.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/23/2023	COC:	
Sample Time:	12:00	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-02-230123	Bottles:	
Duplicate Sample ID:	TG02-MW-02-230123 MS; TG02-MW-02-230123 MSD	Odor:	Slight petroleum odor
Duplicate Sample Time:	12:00	Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
11:10	130	2600	24.65	11.98	6.73	572	17	3.90	23.3	Clear, colorless, petroleum odor
11:15	130	3250.0	24.64	12.18	6.75	573	23	3.91	14.3	Clear, colorless, petroleum odor
11:20	130	3900.0	24.63	12.20	6.74	572	26	3.82	10.2	Clear, colorless, slight petroleum odor
11:25	130	4550.0	24.64	12.23	6.76	573	33	4.07	6.9	Clear, colorless, slight petroleum odor
11:30	130	5200.0	24.64	12.26	6.75	572	35	4.57	4.0	Clear, colorless, slight petroleum odor
11:35	130	5850.0	24.63	12.33	6.77	574	39	4.33	3.4	Clear, colorless, slight petroleum odor
11:40	130	6500.0	24.63	12.35	6.76	572	40	4.13	3.2	Clear, colorless, slight petroleum odor
11:45	130	7150.0	24.63	12.38	6.78	574	43	4.22	3.2	Clear, colorless, slight petroleum odor
11:50	130	7800.0	24.64	12.30	6.78	573	43	4.30	2.9	Clear, colorless, slight petroleum odor
11:55	130	8450.0	24.63	12.32	6.76	574	44	4.23	2.7	Clear, colorless, slight petroleum odor

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition			X	

Photos

TG02-MW-07

Date:	01/25/2023	Casing Material:	PVC	Depth to Water (ft bmp):	28.55
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	33.3	Water Column (ft)	
Purge Start Time:	10:31	Screen Interval (ft bmp):	34.75-19.75 feet bgs	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/25/2023	COC:	
Sample Time:	11:35	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-07-230125	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
11:00	120	6060	28.57	6.35	6.62	1780	-55	1.25	144	
11:05	120	6660.0	28.57	6.42	6.63	1770	-61	0.35	134	
11:10	120	7260.0	28.57	6.53	6.63	1760	-63	0.29	126	
11:15	120	7860.0	28.57	6.45	6.63	1750	-64	0.20	113	
11:20	120	8460.0	28.57	6.60	6.63	1730	-65	0.14	102	
11:25	120	9060.0	28.57	6.60	6.63	1710	-65	0.06	96.2	
11:30	120	9660.0	28.57	6.63	6.67	1690	-65	0.07	93.9	
11:35	120	10260.0	28.57	6.57	6.65	1690	-66	0.04	91.7	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form

Site: PESRM AST Closure

3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-13

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	29.12
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	36	Water Column (ft)	
Purge Start Time:	08:36	Screen Interval (ft bmp):	34.75-19.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	10:10	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-13-230124	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:35	100	14100	30.16	12.38	7.02	1220	-92	0.21	123	
09:40	100	14600.0	30.16	12.79	7.06	1220	-100	0.07	79.1	
09:45	100	15100.0	30.16	12.98	7.09	1220	-104	0.3	55.6	
09:50	100	15600.0	30.16	13.22	7.10	1250	-107	0.0	36.9	
09:55	100	16100.0	30.16	13.28	7.11	1250	-108	0.0	27.3	
10:00	100	16600.0	30.16	13.23	7.11	1240	-109	0.0	20.2	
10:05	109	17145.0	30.16	13.33	7.12	1240	-110	0.0	19.0	
10:10	100	17645.0	30.16	13.39	7.13	1240	-110	0.0	18.8	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-14

Date:	01/25/2023	Casing Material:	PVC	Depth to Water (ft bmp):	27.10
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	35.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	31	Water Column (ft)	
Purge Start Time:	08:04	Screen Interval (ft bmp):	34.75-19.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/25/2023	COC:	
Sample Time:	09:30	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-14-230125	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
08:45	155	13655	27.10	9.67	6.29	1100	-26	0.50	39.8	
08:50	155	14430.0	27.07	10.70	6.56	1070	-62	0.24	35.4	
08:55	155	15205.0	27.07	11.05	6.62	1070	-72	0.15	29.0	
09:00	155	15980.0	27.07	11.10	6.64	1070	-77	0.08	21.6	
09:05	155	16755.0	27.07	11.24	6.66	1070	-81	0.03	12.4	
09:10	155	17530.0	27.07	11.14	6.66	1080	-82	0.0	8.5	
09:15	155	18305.0	27.07	11.44	6.68	1080	-84	0.0	3.2	
09:20	155	19080.0	27.07	11.44	6.67	1080	-86	0.0	1.4	
09:25	155	19855.0	27.07	11.59	6.68	1080	-87	0.0	0.0	
09:30	155	20630.0	27.07	11.86	6.69	1080	-87	0.0	0.0	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

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Groundwater Monitoring Field Data Form

Site: PESRM AST Closure

3144 West Passyunk Avenue, Philadelphia

Project No.: P044.001.002

TG02-MW-16

Date:	01/26/2023	Casing Material:	PVC	Depth to Water (ft bmp):	21.94
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	25.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	25	Water Column (ft)	
Purge Start Time:	08:34	Screen Interval (ft bmp):	24.75-9.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/26/2023	COC:	
Sample Time:	10:25	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-16-230126	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
09:05	110	13110	21.94	10.60	5.74	591	121	1.21	111	
09:10	110	13660.0	21.98	11.64	6.04	536	54	0.45	94.6	
09:15	110	14210.0	21.98	12.03	6.11	510	22	0.27	79.0	
09:20	110	14760.0	21.98	12.18	6.15	507	15	0.19	89.8	
09:25	110	15310.0	21.98	12.22	6.16	509	9	0.15	73.7	
09:30	110	15860.0	21.98	12.37	6.17	511	5	0.08	62.7	
09:35	110	16410.0	21.98	12.43	6.17	511	2	0.31	51.3	
09:40	110	16960.0	21.98	12.46	6.18	514	0	0.14	45.8	
09:45	110	17510.0	21.98	12.41	6.17	517	-2	5.05	42.3	
09:50	110	18060.0	21.98	12.43	6.17	520	-4	5.64	38.4	
09:55	110	18610.0	21.98	12.47	6.20	522	-4	5.22	35.1	
10:00	110	19160.0	21.98	12.37	6.18	524	-7	4.89	34.5	
10:05	110	19710.0	21.98	12.47	6.20	527	-8	4.51	33.2	
10:10	110	20260.0	21.98	12.54	6.20	529	-9	4.18	32.3	
10:15	110	20810.0	21.98	12.50	6.22	535	-10	3.85	30.4	
10:20	110	21360.0	21.98	12.44	6.20	536	-11	3.66	29.7	
10:25	110	21910.0	21.98	12.51	6.21	538	-13	3.67	30.6	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition		X		

Photos

Groundwater Monitoring Field Data Form
Site: PESRM AST Closure
3144 West Passyunk Avenue, Philadelphia

TG02-MW-18

Date:	01/24/2023	Casing Material:	PVC	Depth to Water (ft bmp):	20.15
Purge Method:	Low Flow - QED Bladder Pump	Casing Diameter (in):	2	Well Depth (ft bmp)	33.0 (not including stick-up)
Volume Units:	mL	Pump Intake (ft bmp)	28	Water Column (ft)	
Purge Start Time:	11:45	Screen Interval (ft bmp):	32.75-17.75	Water Quality Meter:	Horiba
Comments:					

Sampling Summary

Sample Date:	01/24/2023	COC:	
Sample Time:	12:35	Analysis:	VOCs|VOCs via 8011|SVOCs|Dissolved Metals
Sample ID:	TG02-MW-18-230124	Bottles:	
Duplicate Sample ID:		Odor:	
Duplicate Sample Time:		Remarks:	

Field Stabilization Parameters

Time	Flow Rate	Cuml Volume	DTW (ft bmp)	Temp (C)	pH	Conductivity (us/cm)	ORP (mV)	Disssolved Oxygen (mg/l)	Turbidity	Remarks
Historical Range:										
12:20	100	1300	20.17	13.78	6.76	834	-80	0.44	1.0	
12:25	100	1800.0	20.17	13.90	6.74	834	-87	0.35	1.6	
12:30	100	2300.0	20.17	13.96	6.74	835	-90	0.34	1.9	
12:35	100	2800.0	20.17	14.05	6.75	835	-92	0.23	1.8	

Well Integrity Checklist

Item	Yes	No	NA	Notes
Type of Well Head				Utility Vault
Well secured on initial inspection	X			
Is well ID visible?	X			
Water in the well box		X		
Sleeve around the well box in good condition	X			

Photos

Appendix D

Historical Soil and Groundwater Sampling Results

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	864-01 / 864-01_0-2_20211012 / 0.0 - 2.0 / 10/12/2021	864-01 / 864-01_12-14_20211018_Dup / 0 / 10/18/2021 / Field Duplicate	864-01 / 864-01_12-14_20211018 / 12.0 - 14.0 / 10/18/2021	864-02 / 864-02_0-2_20211012 / 0.0 - 2.0 / 10/12/2021	864-03 / 864-03_0-2_20211013 / 0.0 - 2.0 / 10/13/2021	864-04 / 864-04_0-2_20211012 / 0.0 - 2.0 / 10/12/2021
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.32)	0.12 (0.0054)	0.17 (0.0049)	ND (0.0064)	ND (0.0038)	0.013 (0.0044)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.63 (0.32)	0.011 (0.0054)	0.016 (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.32)	ND (0.0054)	ND (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	1.3 (0.32)	0.0054 (0.0054)	0.013 (0.0049)	ND (0.0064)	ND (0.0038)	0.0049 (0.0044)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.32)	ND (0.0054)	ND (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.32)	0.008 (0.0054)	0.018 (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	5.7 (0.32)	0.014 (0.0054)	0.039 (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
1,3,5-Trimethylbenzene	4700	5400	93	93	3.5 (0.32)	0.0066 (0.0054)	0.017 (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
Xylenes (total)	7900	9100	1000	990	7 (0.64)	0.025 (0.011)	0.077 (0.0098)	ND (0.013)	ND (0.0075)	0.031 (0.0088)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.42 (0.094)	0.026 (0.021)	0.048 (0.02)	0.028 (0.019)	ND (0.018)	ND (0.018)
Benzo(a)anthracene	130	190000	340	--	ND (0.094)	ND (0.021)	ND (0.02)	0.17 (0.019)	0.11 (0.018)	ND (0.018)
Benzo(a)pyrene	91	190000	46	--	ND (0.094)	ND (0.021)	ND (0.02)	0.12 (0.019)	0.14 (0.018)	ND (0.018)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.094)	ND (0.021)	ND (0.02)	0.17 (0.019)	0.13 (0.018)	ND (0.018)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.094)	ND (0.021)	ND (0.02)	0.11 (0.019)	0.3 (0.018)	ND (0.018)
Chrysene	760	190000	230	--	ND (0.094)	ND (0.021)	ND (0.02)	0.23 (0.019)	0.28 (0.018)	ND (0.018)
Fluorene	130000	190000	3800	--	0.7 (0.094)	0.038 (0.021)	0.081 (0.02)	ND (0.019)	ND (0.018)	ND (0.018)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.32)	ND (0.0054)	ND (0.0049)	ND (0.0064)	ND (0.0038)	ND (0.0044)
Phenanthrene	190000	190000	10000	--	2 (0.094)	0.1 (0.021)	0.21 (0.02)	0.14 (0.019)	0.038 (0.018)	ND (0.018)
Pyrene	96000	190000	2200	--	0.33 (0.094)	0.022 (0.021)	0.035 (0.02)	0.26 (0.019)	0.13 (0.018)	ND (0.018)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	10 (1.5)	10 (1.5)	12 (1.3)	92 (1.6)	46 (1.4)	6.7 (1.2)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	864-04	865-866-01	865-866-01	865-866-02	865-866-02	865-866-02
Field Sample ID					864-04_14-16_20211018	865_866-01_0-2_20211109	865_866-01_14-16_20211115	865_866-02_0-2_20211110	865-866-02_16-18_2021111	865-866-02_16-18_20211111-DUP
Collection Depth (ft bgs)					14.0 - 16.0	0.0 - 2.0	14.0 - 16.0	0.0 - 2.0	16.0 - 18.0	16.0 - 18.0
Sample Date					10/18/2021	11/9/2021	11/15/2021	11/10/2021	11/11/2021	11/11/2021
Comments										Field Duplicate
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	1.5 (0.24)	ND (0.0042)	0.011 (0.0048)	ND (0.21)	6.9 (0.23)	6.8 (0.46)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.43 (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	3.7 (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
1,3,5-Trimethylbenzene	4700	5400	93	93	1.8 (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	ND (0.23)	ND (0.46)
Xylenes (total)	7900	9100	1000	990	3.9 (0.49)	ND (0.0085)	ND (0.0096)	ND (0.42)	ND (0.46)	ND (0.92)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.65 (0.02)	ND (0.017)	ND (0.021)	ND (0.018)	0.71 (0.018)	0.44 (0.018)
Benzo(a)anthracene	130	190000	340	--	0.13 (0.02)	ND (0.017)	ND (0.021)	ND (0.018)	0.036 (0.018)	0.032 (0.018)
Benzo(a)pyrene	91	190000	46	--	0.12 (0.02)	ND (0.017)	ND (0.021)	ND (0.018)	0.026 (0.018)	0.021 (0.018)
Benzo(b)fluoranthene	76	190000	170	--	0.13 (0.02)	0.02 (0.017)	ND (0.021)	ND (0.018)	0.028 (0.018)	0.03 (0.018)
Benzo(g,h,i)perylene	190000	190000	180	--	0.13 (0.02)	ND (0.017)	ND (0.021)	ND (0.018)	ND (0.018)	ND (0.018)
Chrysene	760	190000	230	--	0.17 (0.02)	ND (0.017)	ND (0.021)	ND (0.018)	0.071 (0.018)	0.071 (0.018)
Fluorene	130000	190000	3800	--	0.84 (0.02)	ND (0.017)	0.031 (0.021)	ND (0.018)	1.7 (0.018)	1.6 (0.018)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.24)	ND (0.0042)	ND (0.0048)	ND (0.21)	0.82 (0.23)	0.99 (0.46)
Phenanthrene	190000	190000	10000	--	3.5 (0.02)	ND (0.017)	0.048 (0.021)	ND (0.018)	4 (0.018)	3.1 (0.018)
Pyrene	96000	190000	2200	--	0.43 (0.02)	0.026 (0.017)	ND (0.021)	ND (0.018)	0.32 (0.018)	0.25 (0.018)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	45 (1.7)	2.4 (1.4)	13 (1.7)	1.3 (1.2)	7.6 (1.4)	6.6 (1.5)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	865-866-03 865_866-03_0-2_20211110 0.0 - 2.0 11/10/2021	865-866-03 865-866-03_10-12_20211112 10.0 - 12.0 11/12/2021	865-866-03 865-866-03_14-16_20211112 14.0 - 16.0 11/12/2021	865-866-04 865_866-04_0-2_20211109 0.0 - 2.0 11/9/2021	868B-04 868B-04_0-2_20211109 0.0 - 2.0 11/9/2021	865-866-04 865-866-04_16-18_20211111 16.0 - 18.0 11/11/2021
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0049)	ND (0.26)	ND (0.27)	ND (0.25)	ND (0.0045)	ND (0.25)
Xylenes (total)	7900	9100	1000	990	ND (0.0099)	ND (0.52)	ND (0.53)	ND (0.49)	ND (0.009)	ND (0.49)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.018)	0.12 (0.018)	0.17 (0.093)	0.092 (0.087)	ND (0.018)	ND (0.092)
Benzo(a)anthracene	130	190000	340	--	ND (0.018)	0.023 (0.018)	0.31 (0.093)	0.19 (0.087)	0.23 (0.018)	ND (0.092)
Benzo(a)pyrene	91	190000	46	--	ND (0.018)	ND (0.018)	0.36 (0.093)	0.22 (0.087)	0.35 (0.018)	ND (0.092)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.018)	ND (0.018)	0.31 (0.093)	0.26 (0.087)	0.34 (0.018)	ND (0.092)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.018)	ND (0.018)	0.26 (0.093)	0.15 (0.087)	0.2 (0.018)	ND (0.092)
Chrysene	760	190000	230	--	ND (0.018)	ND (0.018)	0.4 (0.093)	0.22 (0.087)	0.6 (0.018)	ND (0.092)
Fluorene	130000	190000	3800	--	ND (0.018)	0.6 (0.018)	0.42 (0.093)	0.088 (0.087)	ND (0.018)	ND (0.092)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0049)	ND (0.26)	ND (0.27)	1.2 (0.25)	ND (0.0045)	ND (0.25)
Phenanthrene	190000	190000	10000	--	ND (0.018)	1.1 (0.018)	0.99 (0.093)	0.23 (0.087)	0.024 (0.018)	0.15 (0.092)
Pyrene	96000	190000	2200	--	ND (0.018)	0.051 (0.018)	0.53 (0.093)	0.41 (0.087)	0.95 (0.018)	ND (0.092)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	7 (1.2)	7.1 (1.4)	22 (1.5)	12 (1.2)	17 (1.5)	3.7 (1.2)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	868B-04 868B-04_10-12_20211116 10.0 - 12.0 11/16/2021	AOI1_B001 AOI1_B001_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_B002 AOI1_B002_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_B003 AOI1_B003_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_B004 AOI1_B004_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_B005 AOI1_B005_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0052)	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0052)	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0052)	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0052)	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0052)	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0052)	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0052)	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0052)	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	ND (0.01)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.019)	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	ND (0.019)	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	ND (0.019)	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	ND (0.019)	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.019)	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	ND (0.019)	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.019)	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0052)	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	ND (0.019)	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	ND (0.019)	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	0.00041 (0.00058)	0.0024 (0.00057)	0.00031 (0.00059)	ND (0.00061)	ND (0.00058)
Perfluorohexanesulfonic acid	--	--	--	--	NA	ND (0.00058)	0.00032 (0.00057)	ND (0.00059)	ND (0.00061)	0.0014 (0.00058)
Perfluorononanoic acid	--	--	--	--	NA	0.00068 (0.00058)	0.019 (0.00057)	0.0005 (0.00059)	0.0019 (0.00061)	ND (0.00058)
Perfluorooctanoic Acid	64	190000	--	--	NA	0.00042 (0.00058)	0.0231 (0.00057)	ND (0.00059)	0.0004 (0.00061)	ND (0.00058)
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	ND (0.00058)	0.0023 (0.00057)	0.00048 (0.00059)	0.00055 (0.00061)	0.0067 (0.00058)
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	9.3 (1.2)	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_B006	AOI1_B007	AOI1_B008	AOI1_B009	AOI1_B010	AOI1_B010
Field Sample ID					AOI1_B006_PFAS_0-1_20220623	AOI1_B007_PFAS_0-1_20220623	AOI1_B008_PFAS_0-1_20220623	AOI1_B009_PFAS_0-1_20220623	AOI1_B010_PFAS_0-1_20220623	AOI1_B010_PFAS_0-1_20220623_DUP
Collection Depth (ft bgs)					0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0	0.0 - 1.0
Sample Date					6/23/2022	6/23/2022	6/23/2022	6/23/2022	6/23/2022	6/23/2022
Comments										Field Duplicate
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	ND (0.00057)	ND (0.0006)	ND (0.00064)	ND (0.00058)	ND (0.0006)	ND (0.0006)
Perfluorohexanesulfonic acid	--	--	--	--	ND (0.00057)	ND (0.0006)	0.00042 (0.00064)	ND (0.00058)	ND (0.0006)	ND (0.0006)
Perfluorononanoic acid	--	--	--	--	ND (0.00057)	0.0011 (0.0006)	0.0011 (0.00064)	0.00039 (0.00058)	0.00094 (0.0006)	0.0016 (0.0006)
Perfluorooctanoic Acid	64	190000	--	--	ND (0.00057)	ND (0.0006)	0.00038 (0.00064)	0.00038 (0.00058)	ND (0.0006)	0.00041 (0.0006)
Perfluorooctane Sulfonic Acid	64	190000	--	--	ND (0.00057)	0.0012 (0.0006)	0.00067 (0.00064)	0.0179 (0.00058)	ND (0.0006)	ND (0.0006)
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_B011 AOI1_B011_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_B012 AOI1_B012_PFAS_0-1_20220622 0.0 - 1.0 6/22/2022	AOI1_B013 AOI1_B013_PFAS_0-1_20220622 0.0 - 1.0 6/22/2022	AOI1_B014 AOI1_B014_PFAS_0-1_20220623 0.0 - 1.0 6/23/2022	AOI1_BH-14-001 AOI1_BH-14-001_0-2_051515 0.0 - 2.0 5/15/2015	AOI1_BH-14-001 AOI1_BH-14-001_2-4_051515 2.0 - 4.0 5/15/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	ND (0.00055)	ND (0.00056)	ND (0.00055)	ND (0.00053)	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	ND (0.00055)	0.0015 (0.00056)	0.00091 (0.00055)	ND (0.00053)	NA	NA
Perfluorononanoic acid	--	--	--	--	ND (0.00055)	0.0016 (0.00056)	ND (0.00055)	ND (0.00053)	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	ND (0.00055)	0.0004 (0.00056)	ND (0.00055)	ND (0.00053)	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	ND (0.00055)	0.0135 (0.00056)	0.0023 (0.00055)	0.0007 (0.00053)	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	130 J (0.41)	300 J (0.46)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-001 / AOI1_BH-14-001_4-6_051515 / 4.0 - 6.0 / 5/15/2015	AOI1_BH-14-002 / AOI1_BH-14-002_0-2_051515 / 0.0 - 2.0 / 5/15/2015	AOI1_BH-14-002 / AOI1_BH-14-002_2-4_051515 / 2.0 - 4.0 / 5/15/2015	AOI1_BH-14-002 / AOI1_BH-14-002_4-6_051515 / 4.0 - 6.0 / 5/15/2015	AOI1_BH-14-003 / AOI1_BH-14-003_0-2_052215 / 0.0 - 2.0 / 5/22/2015	AOI1_BH-14-003 / AOI1_BH-14-003_8-10_052615 / 8.0 - 10.0 / 5/26/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	0.055 (0.0052)	NA	0.11 (0.0055)	0.018 (0.0044)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	ND (0.0055)	0.021 (0.0044)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	ND (0.0055)	ND (0.0044)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	ND (0.0052)	NA	0.013 (0.0055)	0.057 (0.0044)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	0.043 (0.0055)	0.0069 (0.0044)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	0.024 (0.0052)	NA	0.11 (0.0055)	0.047 (0.0044)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	0.062 (0.0055)	0.31 (0.24)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	0.067 (0.0055)	0.26 (0.0044)
Xylenes (total)	7900	9100	1000	990	NA	NA	0.0083 J (0.016)	NA	0.22 (0.017)	0.39 (0.013)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	0.015 (0.0081)	0.022 (0.0072)
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	0.04 (0.0081)	0.0058 J (0.0072)
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	0.039 (0.0081)	0.0041 J (0.0072)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	0.13 (0.0081)	0.0086 (0.0072)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	0.027 (0.0081)	0.0051 J (0.0072)
Chrysene	760	190000	230	--	NA	NA	NA	NA	0.078 (0.0081)	0.0078 (0.0072)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	0.01 (0.0081)	0.03 (0.0072)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	0.52 (0.0081)	0.14 (0.0072)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	0.12 (0.0081)	0.055 (0.0072)
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	0.091 (0.0081)	0.022 (0.0072)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	13.4 (0.43)	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	95.3 (1.7)	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	0.28 (0.26)	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	29.8 (0.43)	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	48.2 (0.87)	NA	NA	NA
Lead	1000	190000	450	--	8.1 J (0.42)	**497 J (0.48)**	**2110 J (0.43)**	11 J (0.4)	67.3 (0.47)	12 (0.37)
Mercury	510	190000	10	--	NA	NA	0.22 (0.13)	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	16.2 (1.7)	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	136 (0.87)	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-004	AOI1_BH-14-004	AOI1_BH-14-005	AOI1_BH-14-005	AOI1_BH-14-006	AOI1_BH-14-006
Field Sample ID					**AOI1_BH-14-004_0-2_052715**	**AOI1_BH-14-004_8-10_052915**	**AOI1_BH-14-005_0-2_052715**	**AOI1_BH-14-005_10-12_060415**	**AOI1_BH-14-006_0-2_052715**	**AOI1_BH-14-006_15-17_052815**
Collection Depth (ft bgs)					**0.0 - 2.0**	**8.0 - 10.0**	**0.0 - 2.0**	**10.0 - 12.0**	**0.0 - 2.0**	**15.0 - 17.0**
Sample Date					**5/27/2015**	**5/29/2015**	**5/27/2015**	**6/4/2015**	**5/27/2015**	**5/28/2015**
Comments										
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.18 (0.0058)	ND (0.24)	0.49 (0.24)	**2.5 (0.21)**	0.022 (0.0047)	0.33 (0.29)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.02 (0.0058)	1.2 (0.24)	9.7 (2.4)	1.2 (0.21)	0.0031 J (0.0047)	0.31 (0.29)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0058)	ND (0.24)	ND (0.24)	ND (0.21)	ND (0.0047)	ND (0.29)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.12 (0.0058)	0.24 J (0.24)	38 (2.4)	9.1 (0.21)	0.012 (0.0047)	0.59 (0.29)
Methyl tert-butyl ether	8500	9800	2	1.4	0.0042 J (0.0058)	ND (0.24)	ND (0.24)	ND (0.21)	ND (0.0047)	ND (0.29)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.23 (0.0058)	ND (0.24)	1.4 (0.24)	0.71 (0.21)	0.0069 (0.0047)	0.17 J (0.29)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	6.1 (0.37)	3.1 (0.24)	256 (23.6)	50.6 (2.1)	0.016 (0.0047)	0.45 (0.29)
1,3,5-Trimethylbenzene	4700	5400	93	93	1.8 (0.37)	2.3 (0.24)	**94.8 (2.4)**	16.2 (0.21)	0.0036 J (0.0047)	0.15 J (0.29)
Xylenes (total)	7900	9100	1000	990	1.1 (0.017)	2.9 (0.71)	146 (7.1)	80.2 (6.3)	0.035 (0.014)	1.6 (0.87)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.024 (0.0076)	0.087 (0.0077)	0.41 (0.015)	0.048 (0.015)	0.057 (0.0076)	ND (0.0081)
Benzo(a)anthracene	130	190000	340	--	0.026 (0.0076)	0.0084 (0.0077)	0.37 (0.015)	0.05 (0.015)	0.24 (0.0076)	ND (0.0081)
Benzo(a)pyrene	91	190000	46	--	0.023 (0.0076)	0.0044 J (0.0077)	0.3 (0.015)	0.058 (0.015)	0.23 (0.0076)	ND (0.0081)
Benzo(b)fluoranthene	76	190000	170	--	0.074 (0.0076)	0.0089 (0.0077)	0.78 (0.015)	0.099 (0.015)	0.35 (0.0076)	ND (0.0081)
Benzo(g,h,i)perylene	190000	190000	180	--	0.016 (0.0076)	0.0013 J (0.0077)	0.12 (0.015)	0.057 (0.015)	0.12 (0.0076)	ND (0.0081)
Chrysene	760	190000	230	--	0.049 (0.0076)	0.013 (0.0077)	0.42 (0.015)	0.066 (0.015)	0.24 (0.0076)	ND (0.0081)
Fluorene	130000	190000	3800	--	0.015 (0.0076)	0.47 (0.0077)	0.66 (0.015)	0.12 (0.015)	0.016 (0.0076)	0.0056 J (0.0081)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.3 (0.0076)	0.28 (0.0077)	**32.8 (0.38)**	8.3 (0.15)	0.073 (0.0076)	0.019 (0.0081)
Phenanthrene	190000	190000	10000	--	0.15 (0.0076)	0.77 (0.0077)	1.7 (0.015)	0.3 (0.015)	0.23 (0.0076)	0.0067 J (0.0081)
Pyrene	96000	190000	2200	--	0.099 (0.0076)	0.049 (0.0077)	1 (0.015)	0.13 (0.015)	0.35 (0.0076)	ND (0.0081)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	212 (0.42)	9.2 (0.48)	258 (0.33)	8.6 (0.33)	46.8 (0.42)	6.7 (0.49)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-007 AOI1_BH-14-007_0-2_051515 0.0 - 2.0 5/15/2015	AOI1_BH-14-007 AOI1_BH-14-007_14-16_051915 14.0 - 16.0 5/19/2015	AOI1_BH-14-008 AOI1_BH-14-008_0-2_052015 0.0 - 2.0 5/20/2015	AOI1_BH-14-008 AOI1_BH-14-008_10-12_052215 10.0 - 12.0 5/22/2015	AOI1_BH-14-009 AOI1_BH-14-009_0-2_052015 0.0 - 2.0 5/20/2015	AOI1_BH-14-009 AOI1_BH-14-009_14-16_052215 14.0 - 16.0 5/22/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0052)	ND (0.25)	0.0045 J (0.0046)	ND (0.24)	ND (0.0048)	**0.98 (0.22)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0052)	0.72 (0.25)	ND (0.0046)	0.17 J (0.24)	ND (0.0048)	0.67 (0.22)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	ND (0.22)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0052)	0.19 J (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	0.13 J (0.22)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	ND (0.22)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.0027 J (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	0.15 J (0.22)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0052)	0.26 (0.25)	ND (0.0046)	0.16 J (0.24)	0.0036 J (0.0048)	0.17 J (0.22)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0052)	ND (0.25)	ND (0.0046)	ND (0.24)	ND (0.0048)	ND (0.22)
Xylenes (total)	7900	9100	1000	990	ND (0.016)	0.29 J (0.74)	ND (0.014)	0.21 J (0.73)	0.0031 J (0.014)	0.23 J (0.65)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.23 (0.038)	0.022 (0.016)	0.82 (0.015)	0.038 (0.0079)	0.032 (0.016)	0.01 J (0.015)
Benzo(a)anthracene	130	190000	340	--	0.79 (0.038)	0.036 (0.016)	1.6 (0.015)	0.0033 J (0.0079)	0.12 (0.016)	ND (0.015)
Benzo(a)pyrene	91	190000	46	--	1 (0.038)	0.035 (0.016)	1.5 (0.015)	ND (0.0079)	0.11 (0.016)	ND (0.015)
Benzo(b)fluoranthene	76	190000	170	--	1.4 (0.038)	0.077 (0.016)	2.3 (0.015)	0.0025 J (0.0079)	0.24 (0.016)	0.0032 J (0.015)
Benzo(g,h,i)perylene	190000	190000	180	--	0.59 (0.038)	0.02 (0.016)	0.53 (0.015)	ND (0.0079)	0.052 (0.016)	ND (0.015)
Chrysene	760	190000	230	--	0.77 (0.038)	0.041 (0.016)	1.5 (0.015)	0.0021 J (0.0079)	0.12 (0.016)	0.0022 J (0.015)
Fluorene	130000	190000	3800	--	0.19 (0.038)	0.22 (0.016)	0.43 (0.015)	0.18 (0.0079)	0.0093 J (0.016)	0.1 (0.015)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.14 (0.038)	0.33 (0.016)	0.085 (0.015)	0.11 (0.0079)	0.0056 J (0.016)	0.19 (0.015)
Phenanthrene	190000	190000	10000	--	0.88 (0.038)	0.15 (0.016)	3 (0.037)	0.16 (0.0079)	0.13 (0.016)	0.05 (0.015)
Pyrene	96000	190000	2200	--	1.2 (0.038)	0.062 (0.016)	3.1 (0.037)	0.0076 J (0.0079)	0.21 (0.016)	0.0031 J (0.015)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	113 (0.39)	28.5 (0.36)	70.1 (0.33)	8 (0.35)	29.4 (0.4)	9.1 (0.34)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-010 AOI1_BH-14-010_0-2_051915 0.0 - 2.0 5/19/2015	AOI1_BH-14-010 AOI1_BH-14-010_14-16_051915 14.0 - 16.0 5/19/2015	AOI1_BH-14-011 AOI1_BH-14-011_0-2_050615 0.0 - 2.0 5/6/2015	AOI1_BH-14-011 AOI1_BH-14-011_14-16_051115 14.0 - 16.0 5/11/2015	AOI1_BH-14-012 AOI1_BH-14-012_0-2_050815 0.0 - 2.0 5/8/2015	AOI1_BH-14-012 AOI1_BH-14-012_14-16_051415 14.0 - 16.0 5/14/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.062 (0.0052)	**4.5 (0.24)**	0.025 (0.0044)	**3.4 J (3.5)**	0.11 (0.0054)	**5.8 (0.36)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.016 (0.0052)	2.9 (0.24)	ND (0.0044)	17.6 (3.5)	ND (0.0054)	12.1 (0.36)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0052)	ND (0.24)	ND (0.0044)	ND (3.5)	ND (0.0054)	ND (0.36)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.14 (0.0052)	14.7 (0.24)	ND (0.0044)	8 (3.5)	ND (0.0054)	7.8 (0.36)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0052)	0.22 J (0.24)	ND (0.0044)	ND (3.5)	ND (0.0054)	ND (0.36)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.027 (0.0052)	2 (0.24)	0.0099 (0.0044)	5.7 (3.5)	0.048 (0.0054)	2.9 (0.36)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.19 (0.0052)	55 (2.4)	ND (0.0044)	31.3 (3.5)	ND (0.0054)	39.2 (3.6)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.064 (0.0052)	17.9 (0.24)	ND (0.0044)	10.8 (3.5)	ND (0.0054)	14.6 (0.36)
Xylenes (total)	7900	9100	1000	990	0.23 (0.016)	68.2 (7.1)	ND (0.013)	31.9 (10.5)	0.0046 J (0.016)	22.4 (1.1)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.02 J (0.041)	0.034 (0.0072)	0.0051 J (0.0083)	2.2 J (2.4)	ND (0.17)	5.8 J (16.7)
Benzo(a)anthracene	130	190000	340	--	0.1 (0.041)	0.026 (0.0072)	0.0074 J (0.0083)	0.98 J (2.4)	ND (0.17)	ND (16.7)
Benzo(a)pyrene	91	190000	46	--	0.17 (0.041)	0.009 (0.0072)	0.0056 J (0.0083)	0.75 J (2.4)	ND (0.17)	ND (16.7)
Benzo(b)fluoranthene	76	190000	170	--	0.39 (0.041)	0.018 (0.0072)	0.0081 J (0.0083)	1 J (2.4)	ND (0.17)	ND (16.7)
Benzo(g,h,i)perylene	190000	190000	180	--	0.13 (0.041)	0.0054 J (0.0072)	0.0031 J (0.0083)	ND (2.4)	ND (0.17)	ND (16.7)
Chrysene	760	190000	230	--	0.15 (0.041)	0.031 (0.0072)	0.0064 J (0.0083)	2.2 J (2.4)	ND (0.17)	ND (16.7)
Fluorene	130000	190000	3800	--	0.0053 J (0.041)	0.066 (0.0072)	0.0054 J (0.0083)	5 (2.4)	ND (0.17)	4.7 J (16.7)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.25 (0.041)	2.8 (0.036)	0.0026 J (0.0083)	**69.2 (2.4)**	ND (0.17)	19 (16.7)
Phenanthrene	190000	190000	10000	--	0.059 (0.041)	0.16 (0.0072)	0.017 (0.0083)	9.3 (2.4)	ND (0.17)	19.1 (16.7)
Pyrene	96000	190000	2200	--	0.17 (0.041)	0.1 (0.0072)	0.012 (0.0083)	3.1 (2.4)	ND (0.17)	9.7 J (16.7)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	359 (0.44)	25.7 (0.38)	28.2 (0.48)	**160000 (52.7)**	13.9 (0.56)	**3360 (0.39)**
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
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NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

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Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-013 AOI1_BH-14-013_0-2_051115 0.0 - 2.0 5/11/2015	AOI1_BH-14-013 AOI1_BH-14-013_12-14_051115 12.0 - 14.0 5/11/2015	AOI1_BH-14-013 AOI1_BH-14-013_4-6_051115 4.0 - 6.0 5/11/2015	AOI1_BH-14-017 AOI1_BH-14-017_0-2_051215 0.0 - 2.0 5/12/2015	AOI1_BH-14-017 AOI1_BH-14-017_12-14_051215 12.0 - 14.0 5/12/2015	AOI1_BH-14-017 AOI1_BH-14-017_4-6_051215 4.0 - 6.0 5/12/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.37)	**1.4 (0.64)**	ND (0.51)	ND (0.25)	ND (0.27)	**1 (0.3)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	17.5 (0.37)	5.3 (0.64)	16.7 (0.51)	0.6 (0.25)	2.9 (0.27)	19 (0.3)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.37)	ND (0.64)	ND (0.51)	ND (0.25)	ND (0.27)	ND (0.3)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	**72.2 (3.7)**	10.3 (0.64)	**112 (5.1)**	2.9 (0.25)	6.7 (0.27)	**108 (3)**
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.37)	ND (0.64)	ND (0.51)	ND (0.25)	ND (0.27)	ND (0.3)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.94 (0.37)	1.9 (0.64)	2.4 (0.51)	1.1 (0.25)	0.39 (0.27)	32.7 (3)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	**903 (36.7)**	160 (6.4)	**431 (50.6)**	53.1 (2.5)	287 (26.9)	**487 (30.2)**
1,3,5-Trimethylbenzene	4700	5400	93	93	**359 (36.7)**	47.4 (6.4)	**246 (5.1)**	16.2 (0.25)	88.4 (2.7)	**222 (3)**
Xylenes (total)	7900	9100	1000	990	457 (11)	59.6 (1.9)	619 (15.2)	34.1 (0.76)	183 (8.1)	631 (90.5)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.87 (0.17)	0.63 (0.16)	0.43 (0.18)	0.1 J (0.15)	0.4 (0.16)	0.17 (0.09)
Benzo(a)anthracene	130	190000	340	--	0.18 (0.17)	1.8 (0.16)	0.12 J (0.18)	0.046 J (0.15)	0.46 (0.16)	0.19 (0.09)
Benzo(a)pyrene	91	190000	46	--	0.17 (0.17)	1.9 (0.16)	0.085 J (0.18)	0.046 J (0.15)	0.44 (0.16)	0.31 (0.09)
Benzo(b)fluoranthene	76	190000	170	--	0.29 (0.17)	3 (0.16)	0.15 J (0.18)	0.077 J (0.15)	0.85 (0.16)	0.51 (0.09)
Benzo(g,h,i)perylene	190000	190000	180	--	0.29 (0.17)	0.66 (0.16)	0.089 J (0.18)	0.056 J (0.15)	0.3 (0.16)	0.33 (0.09)
Chrysene	760	190000	230	--	0.26 (0.17)	1.8 (0.16)	0.17 J (0.18)	0.05 J (0.15)	0.82 (0.16)	0.29 (0.09)
Fluorene	130000	190000	3800	--	1.9 (0.17)	1.1 (0.16)	1.1 (0.18)	0.17 (0.15)	2 (0.16)	0.77 (0.09)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	**27 (0.17)**	12.8 (0.16)	**57.1 (0.92)**	9.6 (0.15)	**<u>140 (0.82)</u>**	**72.3 (0.9)**
Phenanthrene	190000	190000	10000	--	2.6 (0.17)	1.9 (0.16)	1.6 (0.18)	0.25 (0.15)	2.9 (0.16)	1.1 (0.09)
Pyrene	96000	190000	2200	--	1.5 (0.17)	3 (0.16)	0.67 (0.18)	0.16 (0.15)	1.9 (0.16)	0.57 (0.09)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	**524 (0.5)**	**664 (0.52)**	381 (0.41)	133 (0.78)	**507 (0.5)**	123 (0.44)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-032 AOI1_BH-14-032_0-2_051215 0.0 - 2.0 5/12/2015	AOI1_BH-14-033 AOI1_BH-14-033_0-2_051215 0.0 - 2.0 5/12/2015	AOI1_BH-14-033 AOI1_BH-14-033_2-4_051215 2.0 - 4.0 5/12/2015	AOI1_BH-14-034 AOI1_BH-14-034_0-2_051215 0.0 - 2.0 5/12/2015	AOI1_BH-14-034 AOI1_BH-14-034_2-4_051215 2.0 - 4.0 5/12/2015	AOI1_BH-14-035 AOI1_BH-14-035_0-2_051415 0.0 - 2.0 5/14/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0056)	NA	NA	NA	NA	0.39 (0.21)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	0.74 (0.21)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	ND (0.21)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0056)	NA	NA	NA	NA	0.15 J (0.21)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	ND (0.21)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0056)	NA	NA	NA	NA	0.36 (0.21)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	10.6 (0.21)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	0.5 (0.21)
Xylenes (total)	7900	9100	1000	990	ND (0.017)	NA	NA	NA	NA	0.6 J (0.64)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	0.6 (0.069)
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	ND (0.069)
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	ND (0.069)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	ND (0.069)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	ND (0.069)
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	ND (0.069)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	1.3 (0.069)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	3.8 (0.069)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	1.6 (0.069)
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	0.23 (0.069)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	0.55 (0.43)	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	4 (1.7)	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	0.2 J (0.26)	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	2.1 (0.43)	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	16.4 (0.86)	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	3.4 (0.86)	184 (0.34)	366 (0.37)	371 (0.37)	341 (0.37)	2 (0.68)
Mercury	510	190000	10	--	0.011 J (0.11)	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	1.6 J (1.7)	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	26.6 (0.86)	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-035 AOI1_BH-14-035_12-14_051515 12.0 - 14.0 5/15/2015	AOI1_BH-14-035 AOI1_BH-14-035_14-16_051515 14.0 - 16.0 5/15/2015	AOI1_BH-14-036 AOI1_BH-14-036_0-2_051415 0.0 - 2.0 5/14/2015	AOI1_BH-14-036 AOI1_BH-14-036_6-8_051415 6.0 - 8.0 5/14/2015	AOI1_BH-14-042 AOI1_BH-14-042_0-2_050715 0.0 - 2.0 5/7/2015	AOI1_BH-14-042 AOI1_BH-14-042_6-8_050715 6.0 - 8.0 5/7/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.074 (0.0042)	0.049 (0.0042)	**0.58 (0.27)**	0.16 J (0.24)	ND (0.0056)	ND (0.27)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.0065 (0.0042)	0.0041 J (0.0042)	0.29 (0.27)	0.51 (0.24)	0.043 (0.0056)	2.2 (0.27)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0042)	ND (0.0042)	ND (0.27)	ND (0.24)	ND (0.0056)	ND (0.27)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0042)	ND (0.0042)	0.17 J (0.27)	ND (0.24)	0.059 (0.0056)	0.29 (0.27)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0042)	ND (0.0042)	ND (0.27)	ND (0.24)	ND (0.0056)	ND (0.27)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.016 (0.0042)	0.013 (0.0042)	0.36 (0.27)	ND (0.24)	0.0091 (0.0056)	ND (0.27)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0019 J (0.0042)	0.0041 J (0.0042)	0.95 (0.27)	0.18 J (0.24)	14.1 (0.28)	0.97 (0.27)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0042)	ND (0.0042)	0.23 J (0.27)	ND (0.24)	0.23 (0.0056)	ND (0.27)
Xylenes (total)	7900	9100	1000	990	ND (0.013)	ND (0.013)	0.51 J (0.8)	ND (0.73)	0.33 (0.017)	ND (0.81)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.01 (0.0082)	0.0062 J (0.008)	0.36 (0.081)	0.062 (0.0082)	0.37 (0.16)	0.29 (0.17)
Benzo(a)anthracene	130	190000	340	--	0.012 (0.0082)	0.0059 J (0.008)	0.2 (0.081)	0.035 (0.0082)	0.09 J (0.16)	0.049 J (0.17)
Benzo(a)pyrene	91	190000	46	--	0.0092 (0.0082)	0.0041 J (0.008)	0.17 (0.081)	0.03 (0.0082)	0.023 J (0.16)	ND (0.17)
Benzo(b)fluoranthene	76	190000	170	--	0.014 (0.0082)	0.0059 J (0.008)	0.32 (0.081)	0.049 (0.0082)	0.055 J (0.16)	ND (0.17)
Benzo(g,h,i)perylene	190000	190000	180	--	0.0034 J (0.0082)	0.0019 J (0.008)	0.11 (0.081)	0.015 (0.0082)	ND (0.16)	ND (0.17)
Chrysene	760	190000	230	--	0.0088 (0.0082)	0.0046 J (0.008)	0.2 (0.081)	0.032 (0.0082)	0.19 (0.16)	0.1 J (0.17)
Fluorene	130000	190000	3800	--	0.07 (0.0082)	0.014 (0.008)	2.5 (0.081)	0.2 (0.0082)	1.4 (0.16)	1.2 (0.17)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.089 (0.0082)	0.023 (0.008)	4.9 (0.081)	0.28 (0.0082)	4.2 (0.16)	3.3 (0.17)
Phenanthrene	190000	190000	10000	--	0.072 (0.0082)	0.026 (0.008)	2 (0.081)	0.16 (0.0082)	3.5 (0.16)	1.9 (0.17)
Pyrene	96000	190000	2200	--	0.019 (0.0082)	0.0082 (0.008)	0.63 (0.081)	0.085 (0.0082)	0.29 (0.16)	0.15 J (0.17)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	29.9 J (0.32)	10.9 J (0.43)	218 (0.37)	62.2 (0.47)	13.4 (0.44)	3.4 (0.52)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

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Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1_BH-14-043 AOI1_BH-14-043_0-2_050815 0.0 - 2.0 5/8/2015	AOI1_BH-14-043 AOI1_BH-14-043_6-8_050815 6.0 - 8.0 5/8/2015	AOI1-BH-15-001 AOI1_BH-15-001_14-15_112415 14.0 - 15.0 11/24/2015	AOI1-BH-15-002 AOI1_BH-15-002_0-2_112415 0.0 - 2.0 11/24/2015	AOI1-BH-15-002 AOI1-BH-15-002_14-16_112415 14.0 - 16.0 11/24/2015	AOI1-BH-15-003 AOI1_BH-15-003_1-2_121015 1.0 - 2.0 12/10/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0058)	0.0065 (0.006)	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.005 J (0.0058)	0.16 (0.006)	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0058)	ND (0.006)	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0058)	0.015 (0.006)	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0058)	ND (0.006)	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0058)	0.0051 J (0.006)	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0058)	0.47 (0.006)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0058)	0.039 (0.006)	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	ND (0.017)	0.032 (0.018)	NA	NA	NA	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.058 J (0.16)	0.031 J (0.17)	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	ND (0.16)	ND (0.17)	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	ND (0.16)	ND (0.17)	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	0.035 J (0.16)	ND (0.17)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.16)	ND (0.17)	NA	NA	NA	NA
Chrysene	760	190000	230	--	0.17 (0.16)	ND (0.17)	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.82 (0.16)	0.36 (0.17)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.13 J (0.16)	0.92 (0.17)	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	0.4 (0.16)	0.63 (0.17)	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	0.088 J (0.16)	0.036 J (0.17)	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	9.7 (0.34)	19 (0.39)	9.1 (2.1)	**6280 (23)**	**1370 (6)**	**1550 (6.5)**
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI1-BH-21-01 AOI1-BH-21-01-0-0.25-20210407 0.0 - 0.3 4/7/2021	AOI2_B001 AOI2_B001_PFAS_0-1_20220620 0.0 - 1.0 6/20/2022	AOI2_B004 AOI2_B004_PFAS_0-1_20220620 0.0 - 1.0 6/20/2022	AOI2_B006 AOI2_B006_PFAS_0-1_20220620 0.0 - 1.0 6/20/2022	AOI2_B012 AOI2_B012_PFAS_0-1_20220620 0.0 - 1.0 6/20/2022	AOI-2_BH-13-52 AOI-2_BH-13-52_0-2' 0.0 - 2.0 3/14/2013
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	0.217 (0.1)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	0.0486 J (0.5)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	ND (0.1)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	NA	NA	NA	0.0837 J (0.1)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	ND (0.1)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	0.125 (0.1)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	0.0935 J (0.5)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	0.0308 J (0.5)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	0.31 (0.1)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	0.128 (0.039)
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	0.351 (0.039)
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	0.366 (0.039)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	0.32 (0.039)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	0.363 (0.039)
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	0.373 (0.039)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	0.114 (0.039)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	0.0382 J (0.039)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	0.58 (0.039)
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	0.511 (0.039)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	0.0028 (0.00061)	ND (0.00054)	ND (0.00052)	ND (0.00055)	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	ND (0.00061)	ND (0.00054)	ND (0.00052)	ND (0.00055)	NA
Perfluorononanoic acid	--	--	--	--	NA	0.0021 (0.00061)	ND (0.00054)	ND (0.00052)	ND (0.00055)	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	0.0037 (0.00061)	ND (0.00054)	ND (0.00052)	ND (0.00055)	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	0.002 (0.00061)	ND (0.00054)	ND (0.00052)	ND (0.00055)	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	430 (1.8)	NA	NA	NA	NA	**455 (2.5)**
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	AOI-2_BH-13-52 / AOI-2_BH-13-52_4-6' / 4.0 - 6.0 / 3/14/2013	AOI2_BH-13-80 / AOI2_BH-13-80_0-1_31113 / 0.0 - 1.0 / 3/11/2013	AOI2_BH-13-80 / AOI2_BH-13-80_2-3_31113 / 2.0 - 3.0 / 3/11/2013	PB 30-PP / PB 30-PP-0.5 / 0.0 - 0.5 / 1/20/2012	PB 30-E / PB 30-E-5.0 / 4.5 - 5.0 / 1/20/2012	PB 30-N / PB 30-N-5.0 / 4.5 - 5.0 / 1/20/2012
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.11)	**11.7 (0.12)**	**5.14 (0.13)**	0.014 (0.0006)	**3.6 (0.12)**	**0.51 (0.028)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	1.74 (0.54)	1.26 (0.62)	1.52 (0.63)	0.002 J (0.001)	6.8 (0.24)	0.72 (0.056)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.11)	ND (0.12)	ND (0.13)	ND (0.001)	ND (0.24)	ND (0.056)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.11)	1.59 (0.12)	2.3 (0.13)	ND (0.001)	4.4 (0.24)	1.9 (0.056)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.11)	ND (0.12)	ND (0.13)	0.0007 J (0.0006)	ND (0.12)	0.032 J (0.028)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.11)	4.18 (0.12)	1.86 (0.13)	0.007 (0.001)	0.59 J (0.24)	0.067 J (0.056)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.54)	2.29 (0.62)	2.64 (0.63)	0.005 J (0.001)	87 (0.59)	14 (0.056)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.0567 J (0.54)	ND (0.62)	1.86 (0.63)	ND (0.001)	25 (0.24)	2.5 (0.056)
Xylenes (total)	7900	9100	1000	990	0.707 (0.11)	3.05 (0.12)	4.17 (0.13)	0.013 (0.001)	47 (0.24)	2.8 (0.056)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.038)	ND (0.035)	0.728 (0.037)	0.18 (0.0086)	ND (0.016)	0.046 (0.00081)
Benzo(a)anthracene	130	190000	340	--	0.0158 J (0.038)	0.0742 (0.035)	1.3 (0.037)	0.63 (0.0043)	0.0046 (0.0004)	0.038 (0.0004)
Benzo(a)pyrene	91	190000	46	--	ND (0.038)	0.0644 (0.035)	0.74 (0.037)	0.74 (0.0043)	0.0029 (0.0004)	0.032 (0.0004)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.038)	0.131 (0.035)	0.877 (0.037)	0.63 (0.0034)	0.003 (0.00032)	0.027 (0.00032)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.038)	0.12 (0.035)	0.414 (0.037)	1.3 (0.026)	0.0046 J (0.0024)	0.056 (0.0024)
Chrysene	760	190000	230	--	0.0133 J (0.038)	0.172 (0.035)	1.27 (0.037)	0.88 (0.039)	0.018 (0.0036)	0.067 (0.0036)
Fluorene	130000	190000	3800	--	0.0586 (0.038)	0.215 (0.035)	7.97 (0.37)	0.11 J (0.043)	0.022 (0.004)	0.1 (0.004)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.038)	0.917 (0.035)	1.92 (0.037)	ND (0.001)	9 (0.24)	2.2 (0.056)
Phenanthrene	190000	190000	10000	--	0.077 (0.038)	0.351 (0.035)	12.7 (0.37)	0.75 (0.026)	0.039 (0.0024)	0.16 (0.0024)
Pyrene	96000	190000	2200	--	0.0278 J (0.038)	0.152 (0.035)	3.75 (0.37)	1.3 (0.043)	ND (0.096)	ND (0.11)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	9.6 (2.4)	119 (2.2)	156 (2.1)	**<u>1830 (1.41)</u>**	10.3 (0.259)	74.4 (0.257)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
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4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
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Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB 30-NE PB 30-NE-3.0 2.5 - 3.0 1/20/2012	PB 30-NW PB 30-NW-3.0 2.5 - 3.0 1/20/2012	PB 30-S PB 30-S-5.0 4.5 - 5.0 1/20/2012	PB 30-SE PB 30-SE-3.0 2.5 - 3.0 1/20/2012	PB 30-SW PB 30-SW-3.0 2.5 - 3.0 1/20/2012	PB 30-W PB 30-W-5.0 4.5 - 5.0 1/20/2012
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	**1.1 (0.079)**	0.2 J (0.089)	0.013 (0.0007)	0.047 J (0.033)	0.003 J (0.0005)	ND (0.0006)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	10 (0.16)	2.2 (0.18)	0.02 (0.001)	1.1 (0.066)	0.003 J (0.0009)	0.003 J (0.001)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.16)	ND (0.18)	ND (0.001)	ND (0.066)	ND (0.0009)	ND (0.001)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	2.5 (0.16)	4.1 (0.18)	0.007 J (0.001)	ND (0.066)	0.002 J (0.0009)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.079)	0.37 J (0.089)	0.001 J (0.0007)	ND (0.033)	0.0009 J (0.0005)	0.004 J (0.0006)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.25 J (0.16)	0.46 J (0.18)	0.01 (0.001)	ND (0.066)	0.002 J (0.0009)	ND (0.001)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	14 (0.16)	28 (0.18)	0.006 J (0.001)	0.14 J (0.066)	0.002 J (0.0009)	ND (0.001)
1,3,5-Trimethylbenzene	4700	5400	93	93	30 (0.16)	2.4 (0.18)	ND (0.001)	0.11 J (0.066)	0.001 J (0.0009)	ND (0.001)
Xylenes (total)	7900	9100	1000	990	2.3 (0.16)	13 (0.18)	0.028 (0.001)	0.26 J (0.066)	0.005 (0.0009)	ND (0.001)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.11 (0.00085)	0.05 (0.0081)	0.11 (0.0079)	ND (0.03)	0.059 (0.0079)	ND (0.00078)
Benzo(a)anthracene	130	190000	340	--	0.065 (0.00042)	0.15 (0.004)	0.13 (0.0039)	0.0035 (0.00041)	0.13 (0.0039)	0.0031 (0.00039)
Benzo(a)pyrene	91	190000	46	--	0.059 (0.00042)	0.23 (0.004)	0.14 (0.0039)	0.0026 (0.00041)	0.16 (0.0039)	0.0039 (0.00039)
Benzo(b)fluoranthene	76	190000	170	--	0.044 (0.00034)	0.17 (0.0032)	0.11 (0.0032)	0.0026 (0.00033)	0.13 (0.0031)	0.0028 (0.00031)
Benzo(g,h,i)perylene	190000	190000	180	--	0.1 (0.0025)	0.4 (0.024)	0.22 (0.024)	0.0054 J (0.0025)	0.28 (0.024)	0.0057 J (0.0024)
Chrysene	760	190000	230	--	0.14 (0.0038)	0.24 (0.036)	0.34 (0.036)	0.018 (0.0037)	0.26 (0.035)	0.0056 J (0.0035)
Fluorene	130000	190000	3800	--	0.45 (0.0042)	0.12 J (0.04)	0.12 J (0.039)	0.049 (0.0041)	0.071 J (0.039)	ND (0.0039)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.54 J (0.16)	1.5 (0.18)	0.006 J (0.001)	0.17 J (0.066)	ND (0.0009)	ND (0.001)
Phenanthrene	190000	190000	10000	--	0.49 (0.0025)	0.27 (0.024)	0.37 (0.024)	ND (0.031)	0.23 (0.024)	0.0029 J (0.0024)
Pyrene	96000	190000	2200	--	ND (0.6)	0.15 J (0.04)	ND (0.89)	ND (0.29)	0.11 J (0.039)	ND (0.0039)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	17.8 (0.277)	38.8 (0.259)	367 (0.265)	22 (0.263)	**3540 (1.3)**	23.1 (0.251)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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ND - Not Detected
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J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-101-1 PB-101-SS-1 0.0 - 0.5 2/12/2008	PB-101-2 PB-101-SS-2 0.0 - 0.5 2/12/2008	PB-101-3 PB-101-SS-3 0.0 - 0.5 2/12/2008	PB-101-3 PB-101-3-0.5 0.5 - 1.0 4/1/2008	PB-101-3 PB-101-3-1.0 1.0 - 1.5 4/1/2008	PB-101-3 PB-101-3-1.5 1.5 - 2.0 4/1/2008
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	8 (0.24)	67 (0.67)	**170 (4.6)**	**660 (17)**	29 (0.74)	28 (0.79)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	430 (2.4)	880 (6.7)	**2000 (4.6)**	**4400 (17)**	250 (0.74)	240 (0.79)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-101-4 PB-101-SS-4 0.0 - 0.5 2/12/2008	PB-101-4 PB-101-4-0.5 0.5 - 1.0 4/1/2008	PB-101-4 PB-101-4-1.0 1.0 - 1.5 4/1/2008	PB-101-4 PB-101-4-1.5 1.5 - 2.0 4/1/2008	PB-101-5 PB-101-SS-5 0.0 - 0.5 2/12/2008	PB-101-6 PB-101-SS-6 0.0 - 0.5 2/12/2008
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	**410 (5.6)**	24 (1.3)	59 (6.8)	64 (6.4)	**230 (1.5)**	**150 (5.5)**
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	**3600 (5.6)**	810 (6.4)	1000 (6.8)	540 (6.4)	**3600 (15)**	**3000 (5.5)**
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-101-7 PB-101-SS-7 0.0 - 0.5 2/12/2008	PB-101-8 PB-101-SS-8 0.0 - 0.5 2/12/2008	PB-101-9 PB-101-SS-9 0.0 - 0.5 4/1/2008	PB-101-10 PB-101-SS-10 0.0 - 0.5 4/1/2008	PB-101-11 PB-101-SS-11 0.0 - 0.5 4/1/2008	PB-101-12 PB-101-12-2.0 2.0 - 2.5 5/2/2008
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	**100 (5.7)**	0.78 (0.056)	**85 (6.9)**	**180 (6.9)**	**270 (6.6)**	**220 (2.6)**
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	**3300 (5.7)**	130 (0.56)	**1900 (6.9)**	**2100 (6.9)**	**2300 (6.6)**	**1300 (6.5)**
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-101-13 / PB-101-13-2.0 / 2.0 - 2.5 / 5/2/2008	PB-101-14 / PB-101-14-0.5 / 0.5 - 1.0 / 5/2/2008	PB-101-15 / PB-101-15-0.5 / 0.5 - 1.0 / 5/2/2008	PB-101-16 / PB-101-16-0.5 / 0.5 - 1.0 / 5/2/2008	PB-101-17 / PB-101-17-0.5 / 0.5 - 1.0 / 5/2/2008	PB-201-LINE-1 / PB-201-LINE-1 / 0.0 - 0.5 / 9/4/2007
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	ND (0.0058)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	ND (0.0058)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	**110 (1.2)**	**130 (2.1)**	**97 (2.3)**	ND (0.058)	**740 (22)**	ND (0.0058)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	ND (0.0058)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	1000 (6.2)	**1200 (5.3)**	750 (2.3)	ND (0.058)	**7100 (22)**	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	ND (0.37)
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	ND (0.37)
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	ND (0.37)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	0.54 (0.37)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	ND (0.37)
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	ND (0.37)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	ND (0.37)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	ND (0.37)
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	0.0034 J (0.0058)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	ND (0.37)
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	ND (0.37)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-201-LINE-2 PB-201-LINE-2 0.0 - 0.5 9/4/2007	PB-201-LINE-3 PB-201-LINE-3 0.0 - 0.5 9/4/2007	PB-201-LINE-4 PB-201-LINE-4 0.0 - 0.5 9/4/2007	PB-201-LINE-5 PB-201-LINE-5 0.0 - 0.5 9/4/2007	PB-201-PER1 PB-201-PER1 2.5 - 3.0 5/25/2007	PB-201-PER2 PB-201-PER2 2.5 - 3.0 5/25/2007
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.13 (0.0061)	0.087 (0.0063)	0.23 (0.0063)	0.031 (0.0068)	ND,D (0.27)	0.083 J,D (0.13)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0061)	ND (0.0063)	ND (0.0063)	ND (0.0068)	3.5 D (0.27)	1.8 D (0.13)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0061)	ND (0.0063)	ND (0.0063)	ND (0.0068)	ND,D (0.27)	ND,D (0.13)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.012 (0.0061)	0.0089 (0.0063)	0.01 (0.0063)	0.0058 J (0.0068)	0.17 J,D (0.27)	0.092 J,D (0.13)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.4)	ND (0.42)	ND (0.42)	0.64 (0.45)	ND (0.38)	ND (0.39)
Benzo(a)anthracene	130	190000	340	--	1.4 (0.4)	ND (0.42)	0.53 (0.42)	3.2 (0.45)	0.2 J (0.38)	ND (0.39)
Benzo(a)pyrene	91	190000	46	--	1.4 (0.4)	ND (0.42)	0.45 (0.42)	3.3 (0.45)	0.33 J (0.38)	ND (0.39)
Benzo(b)fluoranthene	76	190000	170	--	2.5 (0.4)	0.64 (0.42)	0.9 (0.42)	6.7 (0.45)	0.22 J (0.38)	ND (0.39)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.4)	ND (0.42)	ND (0.42)	0.95 (0.45)	0.38 J (0.38)	ND (0.39)
Chrysene	760	190000	230	--	1.6 (0.4)	ND (0.42)	0.68 (0.42)	3.6 (0.45)	0.33 J (0.38)	ND (0.39)
Fluorene	130000	190000	3800	--	ND (0.4)	ND (0.42)	ND (0.42)	ND (0.45)	0.95 (0.38)	1.5 (0.39)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	ND (0.4)	ND (0.42)	ND (0.42)	0.86 (0.45)	0.21 J (0.38)	ND (0.39)
Naphthalene	66	77	25	25	0.0042 J (0.0061)	0.0032 J (0.0063)	0.0029 J (0.0063)	0.0026 J (0.0068)	ND,D (0.27)	0.24 D (0.13)
Phenanthrene	190000	190000	10000	--	1.5 (0.4)	ND (0.42)	ND (0.42)	3.6 (0.45)	1.8 (0.38)	2.6 (0.39)
Pyrene	96000	190000	2200	--	2.7 (0.4)	0.71 (0.42)	1.1 (0.42)	7.1 (0.45)	0.37 J (0.38)	ND (0.39)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-201-PER3	PB-201-SUB1	PB27_02272015	PB27_02272015	PB27-1-20151029	PB27-1-20151029
Field Sample ID					**PB-201-PER3**	**PB-201-SUB1**	**PB27_0.5_02272015**	**PB27_2.0_02272015**	**PB27-1-20151029(1.5-2.0')**	**PB27-1-20151029(3.5-4.0')**
Collection Depth (ft bgs)					**2.5 - 3.0**	**4.5 - 5.0**	**0.5**	**2**	**1.5 - 2.0**	**3.5 - 4.0**
Sample Date					**5/25/2007**	**5/25/2007**	**2/27/2015**	**2/27/2015**	**10/29/2015**	**10/29/2015**
Comments										
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND,D (0.31)	ND,D (0.13)	**1.23 (0.056)**	**0.697 (0.06)**	**0.966 (0.054)**	**0.735 (0.061)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND,D (0.31)	3.2 D (0.13)	0.0945 J (0.56)	0.127 J (0.6)	0.306 (0.22)	0.0387 J (0.24)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND,D (0.31)	ND,D (0.13)	0.484 (0.11)	0.518 (0.12)	0.11 (0.11)	ND (0.12)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	1.3 (0.11)	1.56 (0.12)	0.0957 J (0.11)	0.41 (0.12)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND,D (0.31)	0.086 J,D (0.13)	1.1 (0.11)	1.74 (0.12)	0.0758 J (0.11)	ND (0.12)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	0.499 (0.22)	0.861 (0.24)	1.34 (0.22)	ND (0.24)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	0.246 (0.22)	0.47 (0.24)	0.875 (0.22)	ND (0.24)
Xylenes (total)	7900	9100	1000	990	NA	NA	1.39 (0.11)	2.14 (0.12)	0.739 (0.11)	0.0341 J (0.12)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.44)	ND (0.39)	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	0.56 (0.44)	ND (0.39)	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	1.2 (0.44)	ND (0.39)	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	0.78 (0.44)	ND (0.39)	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	2.1 (0.44)	ND (0.39)	NA	NA	NA	NA
Chrysene	760	190000	230	--	0.89 (0.44)	ND (0.39)	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.44)	ND (0.39)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	0.88 (0.44)	ND (0.39)	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND,D (0.31)	ND,D (0.13)	0.0863 J (0.56)	0.189 J (0.6)	0.199 J (0.54)	0.101 J (0.61)
Phenanthrene	190000	190000	10000	--	0.36 J (0.44)	1.3 (0.39)	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	0.7 (0.44)	ND (0.39)	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB27-2-20151029 / PB27-2-20151029(1.0-1.5') / 1.0 - 1.5 / 10/29/2015	PB27-2-20151029 / PB27-2-20151029(3.0-3.5') / 3.0 - 3.5 / 10/29/2015	PB27-3-20151029 / PB27-3-20151029(1.5-2.0') / 1.5 - 2.0 / 10/29/2015	PB27-3-20151029 / PB27-3-20151029(3.0-3.5') / 3.0 - 3.5 / 10/29/2015	PB27-4-20151029 / PB27-4-20151029(1.5-2.0') / 1.5 - 2.0 / 10/29/2015	PB27-4-20151029 / PB27-4-20151029(3.0-3.5') / 3.0 - 3.5 / 10/29/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.0403 J (0.059)	**0.562 (0.069)**	0.0784 (0.053)	**2.76 (0.069)**	0.0717 (0.056)	**2.42 (0.055)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	1.77 (0.24)	6.85 (0.28)	ND (0.21)	8.34 (0.28)	0.0591 J (0.23)	5.19 (0.22)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.138 (0.12)	0.307 (0.14)	ND (0.11)	1.54 (0.14)	0.0581 J (0.11)	40.2 (1.1)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.12)	ND (0.14)	ND (0.11)	0.08 J (0.14)	ND (0.11)	ND (0.11)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.12)	0.163 (0.14)	ND (0.11)	0.625 (0.14)	0.0387 J (0.11)	1.92 (0.11)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.128 J (0.24)	0.193 J (0.28)	ND (0.21)	2.9 (0.28)	0.0508 J (0.23)	125 (2.2)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.0562 J (0.24)	0.0513 J (0.28)	ND (0.21)	5.1 (0.28)	ND (0.23)	45.3 (2.2)
Xylenes (total)	7900	9100	1000	990	0.249 (0.12)	0.606 (0.14)	ND (0.11)	1.53 (0.14)	0.0912 J (0.11)	156 (1.1)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	2.35 (0.59)	2.47 (0.69)	ND (0.53)	1.17 (0.69)	0.0473 J (0.56)	12 (0.55)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB33-01 PB33-01 (1.0) 1 5/3/2019	PB33-01 PB33-01 (3.0) 3 5/3/2019	PB33-02 PB33-02 (1.0) 1 5/3/2019	PB33-02 PB33-02 (3.5) 3.5 5/3/2019	PB33-03 PB33-03 (1.0) 1 5/3/2019	PB33-03 PB33-03 (4.0) 4 5/3/2019
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.024 J (0.22)	0.027 J (0.24)	0.3 J (0.33)	**0.96 (0.24)**	ND (0.25)	0.0004 J (0.005)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.12 J (0.22)	0.76 (0.24)	0.049 J (0.33)	1.3 (0.24)	0.035 J (0.25)	0.003 J (0.005)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.046 J (0.22)	0.057 J (0.24)	0.089 J (0.33)	2.4 (0.24)	ND (0.25)	ND (0.005)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.22)	ND (0.24)	0.035 J (0.33)	0.16 J (0.24)	ND (0.25)	ND (0.005)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.032 J (0.22)	0.015 J (0.24)	0.15 J (0.33)	0.056 J (0.24)	ND (0.25)	ND (0.005)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.16 J (0.22)	0.045 J (0.24)	0.084 J (0.33)	0.11 J (0.24)	ND (0.25)	ND (0.005)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.05 J (0.22)	0.12 J (0.24)	0.048 J (0.33)	0.45 (0.24)	ND (0.25)	ND (0.005)
Xylenes (total)	7900	9100	1000	990	0.096 J (0.22)	0.046 J (0.24)	0.62 (0.33)	0.43 (0.24)	ND (0.25)	ND (0.005)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.15 J (0.22)	0.091 J (0.24)	0.048 J (0.33)	0.17 J (0.24)	0.037 J (0.25)	ND (0.005)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB33-04 PB33-04 (1.0) 1 5/3/2019	PB33-04 PB33-04 (2.5) 2.5 5/3/2019	PB36-PP PB36-PP-0.5 0.0 - 0.5 1/18/2012	PB36-E PB36-E-5.0 4.5 - 5.0 1/18/2012	PB36-N PB36-N-5.0 4.5 - 5.0 1/18/2012	PB36-NE PB36-NE-3.0 2.5 - 3.0 1/18/2012
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.006)	ND (0.006)	0.05 (0.0006)	ND (0.0005)	**2.2 (0.027)**	0.057 J (0.031)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.006)	ND (0.006)	0.029 (0.001)	ND (0.001)	0.86 (0.053)	0.86 (0.062)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	ND (0.001)	ND (0.001)	ND (0.053)	ND (0.062)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.006)	ND (0.006)	0.2 (0.001)	ND (0.001)	4 (0.053)	0.14 J (0.062)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.006)	ND (0.006)	ND (0.0006)	0.008 (0.0005)	0.1 J (0.027)	ND (0.031)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.006)	ND (0.006)	0.022 (0.001)	ND (0.001)	0.092 J (0.053)	0.11 J (0.062)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.006)	ND (0.006)	0.21 J (0.065)	ND (0.001)	0.11 J (0.053)	1.7 (0.062)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.006)	ND (0.006)	0.12 (0.001)	ND (0.001)	0.15 J (0.053)	1.1 (0.062)
Xylenes (total)	7900	9100	1000	990	ND (0.006)	ND (0.006)	0.085 (0.001)	ND (0.001)	5.8 (0.053)	0.29 J (0.062)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	ND (0.0008)	ND (0.00081)	0.15 (0.00084)	ND (0.066)
Benzo(a)anthracene	130	190000	340	--	NA	NA	0.0037 (0.0004)	ND (0.00041)	ND (0.031)	0.011 (0.00041)
Benzo(a)pyrene	91	190000	46	--	NA	NA	0.0052 (0.0004)	0.00065 J (0.00041)	0.0027 (0.00042)	0.01 (0.00041)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	0.0084 (0.00032)	0.00057 J (0.00033)	ND (0.0064)	0.0091 (0.00033)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	0.03 (0.0024)	ND (0.0024)	0.0031 J (0.0025)	0.019 (0.0025)
Chrysene	760	190000	230	--	NA	NA	0.011 (0.0036)	ND (0.0037)	0.27 (0.0038)	0.02 (0.0037)
Fluorene	130000	190000	3800	--	NA	NA	ND (0.004)	ND (0.0041)	0.14 (0.0042)	0.096 (0.0041)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.006)	ND (0.006)	0.01 (0.001)	ND (0.001)	0.098 J (0.053)	0.096 J (0.062)
Phenanthrene	190000	190000	10000	--	NA	NA	0.0078 (0.0024)	ND (0.0024)	0.6 (0.0025)	ND (0.066)
Pyrene	96000	190000	2200	--	NA	NA	ND (0.016)	ND (0.0041)	ND (0.0042)	ND (0.47)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	NA	152 (0.257)	14.7 (0.26)	29.8 (0.282)	37.3 (0.265)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB36-NW PB36-NW-3.0 2.5 - 3.0 1/18/2012	PB36-S PB36-S-5.0 4.5 - 5.0 1/18/2012	PB36-SE PB36-SE-3.0 2.5 - 3.0 1/18/2012	PB36-SW PB36-SW-3.0 2.5 - 3.0 1/18/2012	PB36-W PB36-W-5.0 4.5 - 5.0 1/18/2012	PB-44-LINE-1 PB-44-LINE-1 0.5 9/4/2007
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	**1.6 (0.12)**	ND (0.031)	ND (0.03)	ND (0.063)	0.057 J (0.032)	ND (0.006)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	19 (0.24)	ND (0.062)	ND (0.06)	1.5 (0.13)	0.067 J (0.064)	ND (0.006)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	ND (0.064)	ND (0.006)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	1.1 J (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	0.17 J (0.064)	ND (0.006)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.12)	ND (0.031)	ND (0.03)	ND (0.063)	0.42 (0.032)	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	ND (0.064)	0.0037 J (0.006)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.41 J (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	2 (0.064)	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	0.42 J (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	0.79 (0.064)	NA
Xylenes (total)	7900	9100	1000	990	0.94 J (0.24)	ND (0.062)	ND (0.06)	ND (0.13)	0.54 (0.064)	0.0063 (0.006)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.2)	ND (0.027)	ND (0.04)	ND (0.063)	ND (0.00082)	NA
Benzo(a)anthracene	130	190000	340	--	0.024 (0.0004)	ND (0.0034)	0.0026 (0.00041)	ND (0.0096)	0.0014 J (0.00041)	NA
Benzo(a)pyrene	91	190000	46	--	0.0067 (0.0004)	0.00071 J (0.00041)	0.0021 (0.00041)	0.002 (0.00042)	0.0013 J (0.00041)	NA
Benzo(b)fluoranthene	76	190000	170	--	0.007 (0.00032)	ND (0.00092)	0.0021 (0.00033)	0.0036 (0.00034)	0.0014 (0.00033)	NA
Benzo(g,h,i)perylene	190000	190000	180	--	0.011 (0.0024)	ND (0.0024)	0.0049 J (0.0025)	0.0035 J (0.0025)	ND (0.0025)	NA
Chrysene	760	190000	230	--	0.18 (0.0036)	0.027 (0.0037)	0.011 (0.0037)	0.071 (0.0038)	ND (0.0037)	NA
Fluorene	130000	190000	3800	--	0.26 (0.004)	0.033 (0.0041)	0.076 (0.0041)	0.19 (0.0042)	ND (0.0041)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.55 J (0.24)	ND (0.062)	0.062 J (0.06)	ND (0.13)	0.38 (0.064)	0.0058 J (0.006)
Phenanthrene	190000	190000	10000	--	0.65 (0.0024)	ND (0.025)	0.03 (0.0025)	0.19 (0.0025)	0.0053 J (0.0025)	NA
Pyrene	96000	190000	2200	--	ND (0.42)	ND (0.064)	ND (0.32)	ND (0.49)	0.0044 J (0.0041)	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	13.5 (0.261)	15.4 (0.268)	28.4 (0.273)	90.4 (0.274)	11.4 (0.276)	**480 (0.6)**
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
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Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-44-LINE-2 PB-44-LINE-2 0.5 9/4/2007	PB-44-LINE-3 PB-44-LINE-3 0.5 9/4/2007	PB-44-LINE-4 PB-44-LINE-4 0.5 9/4/2007	PB-44-LINE-5 PB-44-LINE-5 0.5 9/4/2007	PB-44-LINE-6 PB-44-LINE-6 0.5 9/4/2007	PB-44-PER-1 PB-44-PER-1 3.0 - 3.5 5/29/2007
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0065)	0.0059 J (0.0062)	0.0049 J (0.0062)	ND (0.0057)	0.014 (0.0059)	ND,D (0.13)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0065)	ND (0.0062)	ND (0.0062)	ND (0.0057)	ND (0.0059)	2.6 D (0.13)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0065)	ND (0.0062)	ND (0.0062)	ND (0.0057)	ND (0.0059)	ND,D (0.13)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0065)	0.0053 J (0.0062)	ND (0.0062)	ND (0.0057)	0.0083 (0.0059)	10 D (0.13)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0065)	0.0064 (0.0062)	0.0027 J (0.0062)	ND (0.0057)	ND (0.0059)	ND,D (0.13)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	0.0028 J (0.0065)	0.01 (0.0062)	0.0031 J (0.0062)	ND (0.0057)	0.041 (0.0059)	16 D (0.13)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0029 J (0.0065)	0.0086 (0.0062)	0.0041 J (0.0062)	0.004 J (0.0057)	0.0083 (0.0059)	5.1 D (0.13)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	320 (0.65)	340 (0.62)	240 (0.62)	310 (0.57)	430 (0.59)	77 (0.58)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
B - Analyte found in sample and associated blank.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-44-PER-2 PB-44-PER-2 3.0 - 3.5 5/29/2007	PB-44-PER-3 PB-44-PER-3 3.0 - 3.5 5/29/2007	PB-44-PER-4 PB-44-PER-4 3.0 - 3.5 5/29/2007	PB-44-PER-5 PB-44-PER-5 3.0 - 3.5 5/29/2007	PB-44-PER-6 PB-44-PER-6 3.0 - 3.5 5/29/2007	PB-44-SUB-1 PB-44-SUB-1 5.0 - 5.5 5/29/2007
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND,D (0.12)	ND,D (0.3)	ND,D (0.28)	ND,D (0.13)	ND,D (0.13)	ND,D (0.12)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.068 J,D (0.12)	ND,D (0.3)	0.2 J,D (0.28)	0.29 D (0.13)	0.46 D (0.13)	ND,D (0.12)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND,D (0.12)	ND,D (0.3)	ND,D (0.28)	ND,D (0.13)	ND,D (0.13)	ND,D (0.12)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND,D (0.12)	0.37 D (0.3)	0.36 D (0.28)	0.08 J,D (0.13)	ND,D (0.13)	ND,D (0.12)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND,D (0.12)	0.39 D (0.3)	0.23 J,D (0.28)	ND,D (0.13)	ND,D (0.13)	ND,D (0.12)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	ND,D (0.12)	3.2 D (0.3)	1.7 D (0.28)	0.072 J,D (0.13)	ND,D (0.13)	ND,D (0.12)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.099 J,D (0.12)	0.78 D (0.3)	0.66 D (0.28)	0.15 D (0.13)	ND,D (0.13)	ND,D (0.12)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	14 (0.64)	430 (0.59)	**1100 (0.6)**	51 (0.62)	130 (0.61)	10 (0.53)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-44-SUB-2 / PB-44-SUB-2 / 5.0 - 5.5 / 5/29/2007	PB-44-SUB-3 / PB-44-SUB-3 / 5.0 - 5.5 / 5/29/2007	PH83-2 / PH83-2 (1.0-1.5) / 1.0 - 1.5 / 11/4/2013	PH83-4 / PH83-4 (1.5-2.0) / 1.5 - 2.0 / 11/5/2013	PH83-5 / PH83-5 (1.5-2.0) / 1.5 - 2.0 / 11/5/2013	PH83-BG1 / PH83-BG1 (0.5-1.0) / 0.5 - 1.0 / 11/4/2013
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND,D (0.16)	ND,D (0.29)	0.031 J (0.11)	0.477 (0.11)	ND (0.00096)	0.106 J (0.13)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND,D (0.16)	ND,D (0.29)	0.0686 J (0.57)	2.51 (0.57)	ND (0.0048)	1.59 (0.64)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND,D (0.16)	ND,D (0.29)	ND (0.11)	ND (0.11)	ND (0.00096)	ND (0.13)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.091 J,D (0.16)	ND,D (0.29)	0.246 (0.11)	2.55 (0.11)	ND (0.00096)	0.163 (0.13)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	ND (0.11)	ND (0.11)	ND (0.00096)	ND (0.13)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND,D (0.16)	ND,D (0.29)	0.233 (0.11)	0.0835 J (0.11)	ND (0.00096)	0.126 J (0.13)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	0.226 J (0.57)	0.0955 J (0.57)	ND (0.0048)	0.223 J (0.64)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	0.0574 J (0.57)	0.577 (0.57)	ND (0.0048)	0.0829 J (0.64)
Xylenes (total)	7900	9100	1000	990	0.095 J,D (0.16)	0.96 D (0.29)	0.678 (0.11)	0.966 (0.11)	ND (0.00096)	0.31 (0.13)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND,D (0.16)	0.15 J,D (0.29)	ND (0.57)	0.246 J (0.57)	ND (0.0048)	0.391 J (0.64)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	26 (0.53)	**690 (0.64)**	25.2 (0.95)	13.2 (0.96)	99.5 (0.95)	170 (0.93)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PH83-BG2	PH83-BG3	S-198	S-205	S-330	S-350
Field Sample ID					PH83-BG2 (0.5-1.0)	PH83-BG3 (0.5-1.0)	BH-S198-030805-1.5-2	BH-S205-031005-1.5-2	S-330 (1.5-2)	S-350_0-2'
Collection Depth (ft bgs)					0.5 - 1.0	0.5 - 1.0	1.5 - 2.0	1.5 - 2.0	1.5 - 2.0	0.0 - 2.0
Sample Date					11/4/2013	11/4/2013	3/8/2005	3/10/2005	5/9/2011	3/7/2013
Comments										
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	0.036 (0.008)	NA
Benzene	280	330	0.5	0.13	0.00053 J (0.0011)	ND (0.00088)	ND (0.16)	ND (0.003)	0.002 J (0.0006)	ND (0.00055)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	0.002 J (0.001)	NA
Cumene	10000	10000	2500	2500	ND (0.0055)	ND (0.0044)	ND (0.16)	ND (0.003)	ND (0.001)	ND (0.0028)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	ND (0.001)	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	ND (0.001)	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0011)	ND (0.00088)	ND (0.16)	ND (0.003)	ND (0.001)	ND (0.00055)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	ND (0.001)	NA
Ethyl Benzene	880	1000	70	46	ND (0.0011)	ND (0.00088)	ND (0.16)	ND (0.003)	ND (0.001)	ND (0.00055)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0011)	ND (0.00088)	ND (0.16)	ND (0.003)	ND (0.0006)	ND (0.00055)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	0.009 (0.001)	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	0.00044 J (0.0011)	0.00018 J (0.00088)	ND (0.16)	ND (0.003)	ND (0.001)	ND (0.00055)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	ND (0.001)	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.00045 J (0.0055)	ND (0.0044)	NA	NA	NA	ND (0.0028)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0055)	ND (0.0044)	NA	NA	NA	ND (0.0028)
Xylenes (total)	7900	9100	1000	990	0.00063 J (0.0011)	0.00031 J (0.00088)	ND (0.16)	ND (0.003)	ND (0.001)	ND (0.00055)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	ND (0.39)	ND (0.4)	0.037 (0.0078)	0.0442 (0.035)
Benzo(a)anthracene	130	190000	340	--	NA	NA	ND (0.39)	ND (0.4)	0.17 (0.0039)	0.196 (0.035)
Benzo(a)pyrene	91	190000	46	--	NA	NA	ND (0.39)	ND (0.4)	0.21 (0.0039)	0.194 (0.035)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	ND (0.39)	ND (0.4)	0.17 (0.0031)	0.195 (0.035)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	ND (0.39)	ND (0.4)	0.31 (0.023)	0.181 (0.035)
Chrysene	760	190000	230	--	NA	NA	ND (0.39)	ND (0.4)	0.27 (0.035)	0.203 (0.035)
Fluorene	130000	190000	3800	--	NA	NA	ND (0.39)	ND (0.4)	ND (0.039)	ND (0.035)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0055)	ND (0.0044)	ND (0.39)	ND (0.4)	NA	ND (0.035)
Phenanthrene	190000	190000	10000	--	NA	NA	ND (0.39)	ND (0.4)	0.2 (0.023)	0.121 (0.035)
Pyrene	96000	190000	2200	--	NA	NA	ND (0.39)	ND (0.4)	0.36 (0.039)	0.317 (0.035)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	**6720 (9.6)**	60.3 (0.85)	176 (2.27)	8.46 (2.38)	188 (0.694)	223 (2)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	**Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)**	**Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)**	**Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs**	**Non-Residential Soil Vapor Intrusion Screening Values**	**S-351**	**S-389D**	**S-390D**	**S-391D**	**S-402**	**S-403**
Field Sample ID					**S-351_0-2'**	**S-389_0-2'_120213**	**S-390_0-2'_120213**	**S-391_0-2'_120313**	**AOI-1_S-402_0-2_111814**	**AOI-1_S-403_0-2_111814**
Collection Depth (ft bgs)					**0.0 - 2.0**	**0.0 - 2.0**	**0.0 - 2.0**	**0.0 - 2.0**	**0.0 - 2.0**	**0.0 - 2.0**
Sample Date					**3/7/2013**	**12/2/2013**	**12/2/2013**	**12/3/2013**	**11/18/2014**	**11/18/2014**
Comments										
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.001 (0.00065)	0.0026 J (0.0051)	ND (0.0061)	**10.8 (2.39)**	**1.3 (0.24)**	0.015 (0.0052)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.0037 (0.0033)	ND (0.0051)	ND (0.0061)	4.15 (2.39)	1.1 (0.24)	ND (0.0052)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00065)	ND (0.0051)	ND (0.0061)	ND (2.39)	ND (0.24)	ND (0.0052)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.00065)	ND (0.0051)	ND (0.0061)	7.75 (2.39)	2.5 (0.24)	ND (0.0052)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.00065)	ND (0.0051)	ND (0.0061)	ND (2.39)	**2.3 (0.24)**	0.0076 (0.0052)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.00065)	ND (0.0051)	ND (0.0061)	1.29 J (2.39)	ND (0.24)	ND (0.0052)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0033)	ND (0.0051)	ND (0.0061)	5.67 (2.39)	7.8 (0.24)	ND (0.0052)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0033)	ND (0.0051)	ND (0.0061)	4.78 J (2.39)	2.7 (0.24)	ND (0.0052)
Xylenes (total)	7900	9100	1000	990	ND (0.00065)	ND (0.0154)	ND (0.0184)	5.55 J (7.17)	5.5 (0.73)	ND (0.016)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.0576 (0.036)	0.406 (0.16)	0.362 J+ (0.156)	0.165 (0.156)	0.13 (0.037)	0.3 (0.15)
Benzo(a)anthracene	130	190000	340	--	0.195 (0.036)	1.7 (0.16)	1.06 J+ (0.156)	0.243 (0.156)	0.39 (0.037)	1.1 (0.15)
Benzo(a)pyrene	91	190000	46	--	0.217 (0.036)	2.33 (0.16)	1.02 J+ (0.156)	0.459 (0.156)	0.39 (0.037)	1.2 (0.15)
Benzo(b)fluoranthene	76	190000	170	--	0.242 (0.036)	2.32 (0.16)	1.56 J+ (0.156)	0.744 (0.156)	0.57 (0.037)	2 (0.15)
Benzo(g,h,i)perylene	190000	190000	180	--	0.179 (0.036)	1.11 (0.16)	0.317 J+ (0.156)	0.133 J (0.156)	0.23 (0.037)	0.42 (0.15)
Chrysene	760	190000	230	--	0.252 (0.036)	2.21 (0.16)	1.18 J+ (0.156)	0.328 (0.156)	0.4 (0.037)	1.4 (0.15)
Fluorene	130000	190000	3800	--	ND (0.036)	0.247 (0.16)	0.0979 J+ (0.156)	0.156 (0.156)	0.16 (0.037)	0.12 J (0.15)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0425 (0.036)	0.584 (0.16)	0.476 J+ (0.156)	8.75 (0.156)	0.56 (0.037)	0.42 (0.15)
Phenanthrene	190000	190000	10000	--	0.209 (0.036)	1.94 (0.16)	1.25 J+ (0.156)	0.523 (0.156)	0.51 (0.037)	1.3 (0.15)
Pyrene	96000	190000	2200	--	0.354 (0.036)	3.65 (0.16)	1.29 J+ (0.156)	0.378 (0.156)	0.64 (0.037)	2.1 (0.15)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	222 (2)	**2590 (0.41)**	122 (0.47)	174 (0.38)	178 (0.43)	**579 (0.43)**
Mercury	510	190000	10	--	NA	3 (1.2)	0.27 (0.12)	0.081 J (0.11)	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-404 AOI-1_S-404_0-2_111814 0.0 - 2.0 11/18/2014	S-405 AOI-1_S-405_0-2'_112414 0.0 - 2.0 11/24/2014	S-417 AOI-1_S-417_0-2_111914 0.0 - 2.0 11/19/2014	PES_PB42_001 PES_PB42_001_3-3.5' 3.0 - 3.5 8/24/2015	PES_PB42_002 PES_PB42_002_4-4.5' 4.0 - 4.5 8/24/2015	PH26ST_12152015_1_7 ERO_001G-20151215-(PHR026ST)-7 2 12/15/2015
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.054 (0.0082)	0.031 (0.0063)	0.07 (0.0045)	ND (0.07)	0.0374 J (0.087)	0.197 (0.046)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0082)	ND (0.0063)	0.035 (0.0045)	1.15 (0.28)	1.33 (0.35)	2.99 (0.18)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0082)	ND (0.0063)	ND (0.0045)	NA	NA	ND (0.092)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.0079 J (0.0082)	0.014 (0.0063)	0.12 (0.0045)	0.0616 J (0.14)	0.066 J (0.17)	2.84 (0.092)
Methyl tert-butyl ether	8500	9800	2	1.4	0.0042 J (0.0082)	0.0083 (0.0063)	0.017 (0.0045)	ND (0.14)	ND (0.17)	ND (0.092)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0082)	0.0072 (0.0063)	ND (0.0045)	ND (0.14)	ND (0.17)	1.92 (0.092)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0082)	0.023 (0.0063)	0.012 (0.0045)	0.294 (0.28)	0.406 (0.35)	33 (0.92)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0082)	0.0079 (0.0063)	0.0049 (0.0045)	0.0748 J (0.28)	0.149 J (0.35)	17.1 (0.18)
Xylenes (total)	7900	9100	1000	990	0.011 J (0.025)	0.032 (0.019)	0.12 (0.014)	NA	NA	47.6 (0.46)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.18 (0.16)	0.065 (0.039)	0.034 (0.0077)	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	0.75 (0.16)	0.16 (0.039)	0.039 (0.0077)	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	1.4 (0.16)	0.2 (0.039)	0.032 (0.0077)	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	2.7 (0.16)	0.32 (0.039)	0.049 (0.0077)	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	0.4 (0.16)	0.16 (0.039)	0.019 (0.0077)	NA	NA	NA
Chrysene	760	190000	230	--	0.99 (0.16)	0.29 (0.039)	0.047 (0.0077)	NA	NA	NA
Fluorene	130000	190000	3800	--	0.076 J (0.16)	0.054 (0.039)	0.049 (0.0077)	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.21 (0.16)	0.76 (0.039)	0.22 (0.0077)	0.608 J (0.7)	ND (0.87)	**27.8 (2.3)**
Phenanthrene	190000	190000	10000	--	0.73 (0.16)	0.3 (0.039)	0.16 (0.0077)	NA	NA	NA
Pyrene	96000	190000	2200	--	1.1 (0.16)	0.37 (0.039)	0.11 (0.0077)	NA	NA	NA
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	228 (0.5)	402 (0.5)	46.7 (0.42)	NA	NA	NA
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PH26ST_12152015_1_8 ERO_002G-20151215-(PHR026ST)-8 2 12/15/2015	PH83-1 PH83-1 (2.5-3.0) 2.5 - 3.0 11/4/2013	PH83-3 PH83-3 (2.5-3.0) 2.5 - 3.0 11/4/2013	PH83-BG2 PH83-BG2 (3.5-4.0) 3.5 - 4.0 11/4/2013	S-206 BH-S206-032205-2-2.5 2.0 - 2.5 3/22/2005	S-207 BH-S207-030805-3-3.5 3.0 - 3.5 3/8/2005
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.00057)	0.0277 J (0.11)	ND (0.11)	ND (0.0011)	**4.2 (0.33)**	ND (0.003)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0023)	3.24 (0.56)	1.89 (0.53)	ND (0.0053)	24 (3.3)	ND (0.003)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0011)	ND (0.11)	ND (0.11)	ND (0.0011)	ND (0.33)	ND (0.003)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0011)	0.505 (0.11)	0.538 (0.11)	ND (0.0011)	1.7 (0.33)	ND (0.003)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0011)	ND (0.11)	ND (0.11)	ND (0.0011)	ND (0.33)	ND (0.003)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0011)	0.146 (0.11)	0.257 (0.11)	ND (0.0011)	1.8 (0.33)	ND (0.003)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0023)	6.68 (0.56)	8.77 (0.53)	ND (0.0053)	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0023)	2.66 (0.56)	3.35 (0.53)	ND (0.0053)	NA	NA
Xylenes (total)	7900	9100	1000	990	ND (0.0011)	2.66 (0.11)	3.89 (0.11)	ND (0.0011)	3.5 (0.33)	ND (0.003)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Chrysene	760	190000	230	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	22 (8.5)	ND (0.42)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0057)	0.99 (0.56)	1.45 (0.53)	ND (0.0053)	ND (8.5)	ND (0.42)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	46 (8.5)	ND (0.42)
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	ND (8.5)	ND (0.42)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	NA	10.7 (0.96)	10.3 (0.99)	**1400 (9.3)**	184 (2.48)	41.6 (2.39)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
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4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
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Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-330	S-330	S-330	S-330	S-330	S-330
Field Sample ID					S-330 (6-6.5)	S-330 (10-10.5)	S-330 (15-15.5)	S-330 (20-20.5)	S-330 (25-25.5)	S-330 (27-27.5)
Collection Depth (ft bgs)					6.0 - 6.5	10.0 - 10.5	15.0 - 15.5	20.0 - 20.5	25.0 - 25.5	27.0 - 27.5
Sample Date					5/9/2011	5/16/2011	5/16/2011	5/16/2011	5/16/2011	5/16/2011
Comments										
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	0.061 (0.008)	0.009 J (0.008)	0.009 J (0.007)	ND (0.38)	0.017 J (0.007)	ND (0.39)
Benzene	280	330	0.5	0.13	ND (0.0006)	ND (0.0006)	0.007 (0.0005)	ND (0.027)	0.003 J (0.0005)	0.082 J (0.028)
Carbon Disulfide	10000	10000	620	530	0.001 J (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	ND (0.056)
Cumene	10000	10000	2500	2500	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	1.3 (0.056)
Cyclohexane	10000	10000	6900	6900	ND (0.001)	0.002 J (0.001)	0.001 J (0.001)	ND (0.054)	0.017 (0.001)	2.6 (0.056)
1,1-Dichloroethane	1400	1600	16	3.9	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	ND (0.056)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	ND (0.056)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	0.002 J (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	ND (0.056)
Ethyl Benzene	880	1000	70	46	ND (0.001)	ND (0.001)	0.009 (0.001)	ND (0.054)	0.006 (0.001)	ND (0.056)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0006)	ND (0.0006)	ND (0.0005)	ND (0.027)	ND (0.0005)	ND (0.028)
Methylcyclohexane	--	--	--	--	0.19 (0.001)	0.006 (0.001)	0.007 (0.001)	ND (0.054)	0.021 (0.001)	16 (0.56)
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.001)	ND (0.001)	0.15 (0.001)	ND (0.054)	0.061 (0.001)	ND (0.056)
Trichloroethene	160	180	0.5	0.17	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.054)	ND (0.001)	ND (0.056)
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	ND (0.001)	ND (0.001)	0.055 (0.001)	ND (0.054)	0.033 (0.001)	ND (0.056)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.0015 J (0.00083)	0.0016 J (0.00078)	ND (0.00078)	0.0046 (0.00076)	0.0033 (0.00077)	ND (0.094)
Benzo(a)anthracene	130	190000	340	--	0.0046 (0.00041)	0.0057 (0.00039)	ND (0.00039)	0.014 (0.00038)	0.015 (0.00039)	0.019 (0.00036)
Benzo(a)pyrene	91	190000	46	--	0.0043 (0.00041)	0.0073 (0.00039)	0.0005 J (0.00039)	0.018 (0.00038)	0.02 (0.00039)	0.012 (0.00036)
Benzo(b)fluoranthene	76	190000	170	--	0.003 (0.00033)	0.0083 (0.00031)	0.00063 J (0.00031)	0.021 (0.00031)	0.022 (0.00031)	0.0083 (0.00029)
Benzo(g,h,i)perylene	190000	190000	180	--	0.0061 J (0.0025)	0.011 (0.0023)	ND (0.0023)	0.028 (0.0023)	0.03 (0.0023)	0.011 (0.0022)
Chrysene	760	190000	230	--	0.042 (0.0037)	0.016 (0.0035)	ND (0.0035)	0.044 (0.0034)	0.036 (0.0035)	0.057 (0.0032)
Fluorene	130000	190000	3800	--	ND (0.0041)	ND (0.0039)	ND (0.0039)	ND (0.0038)	0.0046 J (0.0039)	0.14 (0.0036)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	ND (0.0025)	0.02 (0.0023)	0.0027 J (0.0023)	0.046 (0.0023)	0.045 (0.0023)	0.42 (0.0022)
Pyrene	96000	190000	2200	--	ND (0.024)	0.02 (0.0039)	ND (0.0039)	0.049 (0.0038)	0.05 (0.0039)	ND (0.27)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	6.54 (0.753)	8.15 (0.688)	11.1 (0.685)	5.25 (0.673)	5.4 (0.67)	2.41 (0.654)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

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Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-331 S-331 (10-10.5) 10.0 - 10.5 5/16/2011	S-331 S-331 (15-15.5) 15.0 - 15.5 5/16/2011	S-331 S-331 (20-20.5) 20.0 - 20.5 5/17/2011	S-331 S-331 (25-25.5) 25.0 - 25.5 5/17/2011	S-332 S-332 (3-3.5) 3.0 - 3.5 5/9/2011	S-332 S-332 (6-6.5) 6.0 - 6.5 5/9/2011
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	0.016 J (0.008)	0.011 J (0.007)	0.012 J (0.007)	0.011 J (0.007)	0.027 (0.008)	0.008 J (0.008)
Benzene	280	330	0.5	0.13	ND (0.0006)	ND (0.0005)	ND (0.0005)	0.001 J (0.0005)	ND (0.0006)	ND (0.0005)
Carbon Disulfide	10000	10000	620	530	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Cumene	10000	10000	2500	2500	ND (0.001)	ND (0.001)	ND (0.001)	0.001 J (0.001)	ND (0.001)	ND (0.001)
Cyclohexane	10000	10000	6900	6900	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,1-Dichloroethane	1400	1600	16	3.9	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Ethyl Benzene	880	1000	70	46	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0006)	ND (0.0005)	ND (0.0005)	0.0008 J (0.0005)	ND (0.0006)	ND (0.0005)
Methylcyclohexane	--	--	--	--	0.001 J (0.001)	0.001 J (0.001)	0.003 J (0.001)	0.003 J (0.001)	ND (0.001)	ND (0.001)
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	160	180	0.5	0.17	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.004 J (0.001)	ND (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.78 (0.0078)	0.013 (0.00078)	0.97 (0.0078)	0.93 (0.0079)	ND (0.00082)	ND (0.00081)
Benzo(a)anthracene	130	190000	340	--	0.26 (0.0039)	0.0048 (0.00039)	0.31 (0.0039)	0.36 (0.0039)	0.0031 (0.00041)	0.0033 (0.0004)
Benzo(a)pyrene	91	190000	46	--	0.15 (0.00039)	0.0033 (0.00039)	0.17 (0.0039)	0.19 (0.0039)	0.0056 (0.00041)	0.0097 (0.0004)
Benzo(b)fluoranthene	76	190000	170	--	0.13 (0.0031)	0.0025 (0.00031)	0.16 (0.0031)	0.18 (0.0032)	0.0042 (0.00033)	0.0049 (0.00032)
Benzo(g,h,i)perylene	190000	190000	180	--	0.15 (0.0023)	0.0065 J (0.0023)	0.17 (0.0023)	0.19 (0.0024)	0.0097 J (0.0024)	0.038 (0.0024)
Chrysene	760	190000	230	--	0.34 (0.0035)	0.0058 J (0.0035)	0.41 (0.0035)	0.46 (0.0036)	ND (0.0057)	0.0073 (0.0036)
Fluorene	130000	190000	3800	--	1.1 (0.0039)	0.014 J (0.0039)	1.6 (0.039)	1.8 (0.039)	ND (0.0041)	ND (0.004)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	3 (0.023)	0.049 (0.0023)	3.9 (0.023)	4.4 (0.024)	0.0034 J (0.0024)	0.0035 J (0.0024)
Pyrene	96000	190000	2200	--	0.99 (0.0039)	0.019 (0.0039)	1.2 (0.0039)	1.4 (0.0039)	ND (0.0041)	ND (0.004)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	11.8 (0.695)	10.6 (0.671)	9.12 (0.699)	11 (0.679)	17.7 (0.732)	9.38 (0.711)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-332 / S-332 (12-12.5) / 12.0 - 12.5 / 5/18/2011	S-332 / S-332 (15-15.5) / 15.0 - 15.5 / 5/18/2011	S-332 / S-332 (20-20.5) / 20.0 - 20.5 / 5/18/2011	S-332 / S-332 (25-25.5) / 25.0 - 25.5 / 5/19/2011	S-332 / S-332 (26.5-27) / 26.5 - 27.0 / 5/19/2011	S-350 / S-350_8-10' / 8.0 - 10.0 / 3/7/2013
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	ND (0.4)	0.044 (0.009)	0.026 (0.008)	0.055 (0.008)	ND (1.7)	NA
Benzene	280	330	0.5	0.13	0.036 J (0.028)	0.092 (0.0007)	0.062 (0.0006)	0.013 (0.0005)	**0.94 J (0.12)**	0.0008 (0.00053)
Carbon Disulfide	10000	10000	620	530	ND (0.057)	0.002 J (0.001)	ND (0.001)	0.002 J (0.001)	ND (0.24)	NA
Cumene	10000	10000	2500	2500	0.093 J (0.057)	ND (0.001)	0.006 (0.001)	0.007 (0.001)	4.9 (0.24)	ND (0.0026)
Cyclohexane	10000	10000	6900	6900	0.5 (0.057)	0.013 (0.001)	0.026 (0.001)	0.032 (0.001)	20 (0.24)	NA
1,1-Dichloroethane	1400	1600	16	3.9	ND (0.057)	0.001 J (0.001)	ND (0.001)	ND (0.001)	ND (0.24)	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.057)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.24)	ND (0.00053)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	ND (0.057)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.24)	NA
Ethyl Benzene	880	1000	70	46	0.1 J (0.057)	ND (0.001)	0.003 J (0.001)	0.002 J (0.001)	0.65 J (0.24)	ND (0.00053)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.028)	ND (0.0007)	ND (0.0006)	ND (0.0005)	ND (0.12)	ND (0.00053)
Methylcyclohexane	--	--	--	--	2 (0.057)	0.001 J (0.001)	0.064 (0.001)	0.1 (0.001)	120 (2.4)	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.057)	0.003 J (0.001)	ND (0.001)	ND (0.001)	ND (0.24)	ND (0.00053)
Trichloroethene	160	180	0.5	0.17	ND (0.057)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.24)	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	ND (0.0026)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	ND (0.0026)
Xylenes (total)	7900	9100	1000	990	0.19 J (0.057)	ND (0.001)	0.005 J (0.001)	0.003 J (0.001)	0.7 J (0.24)	ND (0.00053)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.0035 (0.00074)	0.0015 J (0.00087)	0.001 J (0.0008)	0.001 J (0.00076)	0.15 (0.00078)	ND (0.044)
Benzo(a)anthracene	130	190000	340	--	0.0023 (0.00037)	0.002 (0.00043)	0.00083 J (0.0004)	0.00058 J (0.00038)	0.022 (0.00039)	ND (0.044)
Benzo(a)pyrene	91	190000	46	--	0.0021 (0.00037)	0.0078 (0.00043)	ND (0.0035)	0.0019 (0.00038)	0.012 (0.00039)	ND (0.044)
Benzo(b)fluoranthene	76	190000	170	--	0.0018 (0.0003)	ND (0.013)	ND (0.004)	ND (0.0008)	0.0099 (0.00031)	ND (0.044)
Benzo(g,h,i)perylene	190000	190000	180	--	0.003 J (0.0022)	ND (0.0026)	ND (0.0024)	ND (0.0023)	0.011 (0.0023)	ND (0.044)
Chrysene	760	190000	230	--	0.0055 J (0.0033)	0.014 (0.0039)	0.0046 J (0.0036)	0.0037 J (0.0034)	0.1 (0.0035)	ND (0.044)
Fluorene	130000	190000	3800	--	ND (0.0037)	ND (0.0043)	ND (0.004)	ND (0.0038)	0.7 (0.0039)	ND (0.044)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	ND (0.044)
Phenanthrene	190000	190000	10000	--	0.0085 (0.0022)	0.0053 J (0.0026)	0.004 J (0.0024)	0.0043 J (0.0023)	0.59 (0.0023)	ND (0.044)
Pyrene	96000	190000	2200	--	0.0056 J (0.0037)	ND (0.018)	ND (0.012)	0.0048 J (0.0038)	ND (0.38)	ND (0.044)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	3.01 (0.667)	11.5 (0.763)	8.39 (0.716)	9.02 (0.686)	7.46 (0.692)	10.8 (2)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-350 S-350 @ 14'_04172013 13.5 - 14.0 4/17/2013	S-350 S-350 @ 24'_04172013 23.5 - 24.0 4/17/2013	S-351 S-351_8-10' 8.0 - 10.0 3/7/2013	S-351 S-351 @ 16'_04162013 15.5 - 16.0 4/16/2013	S-351 S-351 @ 30'_04162013 29.5 - 30.0 4/16/2013	S-389D S-389-22-24-12113 22.0 - 24.0 12/11/2013
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.00096)	ND (0.00097)	ND (0.051)	ND (0.11)	ND (0.066)	0.323 (0.225)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0048)	ND (0.0049)	0.431 (0.25)	0.092 J (0.55)	1.31 (0.33)	4.25 (0.225)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00096)	ND (0.00097)	ND (0.051)	ND (0.11)	ND (0.066)	ND (0.225)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.00096)	ND (0.00097)	0.114 (0.051)	ND (0.11)	ND (0.066)	7.13 (0.225)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.00096)	ND (0.00097)	ND (0.051)	ND (0.11)	ND (0.066)	ND (0.225)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.00096)	ND (0.00097)	ND (0.051)	0.0187 J (0.11)	ND (0.066)	0.388 (0.225)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0048)	ND (0.0049)	0.688 (0.25)	0.123 J (0.55)	ND (0.33)	52.1 (4.5)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0048)	ND (0.0049)	ND (0.25)	ND (0.55)	0.0179 J (0.33)	12.1 (0.225)
Xylenes (total)	7900	9100	1000	990	ND (0.00096)	ND (0.00097)	ND (0.051)	0.0484 J (0.11)	ND (0.066)	8.37 (0.676)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	0.0834 J (0.11)	0.467 (0.152)
Benzo(a)anthracene	130	190000	340	--	NA	NA	ND (0.038)	ND (0.11)	ND (0.11)	0.437 (0.152)
Benzo(a)pyrene	91	190000	46	--	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	ND (0.11)	0.368 (0.152)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	ND (0.11)	0.452 (0.152)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	ND (0.11)	0.186 (0.152)
Chrysene	760	190000	230	--	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	ND (0.11)	0.548 (0.152)
Fluorene	130000	190000	3800	--	NA	NA	ND (0.038)	ND (0.11)	0.0757 J (0.11)	0.408 (0.152)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.11)	ND (0.11)	ND (0.038)	ND (0.11)	ND (0.11)	2.86 (0.152)
Phenanthrene	190000	190000	10000	--	ND (0.11)	ND (0.11)	ND (0.038)	0.063 J (0.11)	0.271 (0.11)	1.17 (0.152)
Pyrene	96000	190000	2200	--	ND (0.11)	ND (0.11)	ND (0.038)	0.0343 J (0.11)	0.0972 J (0.11)	0.927 (0.152)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	7 (1)	4 (0.98)	9.4 (1.9)	2.2 (0.99)	3.6 (0.99)	**494 (0.43)**
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-390D S-390D_12-12.5_121813 12.0 - 12.5 12/18/2013	S-390D S-390D_28-29_121913 28.0 - 29.0 12/19/2013	S-391D S-391D_11-12_011514 11.0 - 12.0 1/15/2014	S-391D S-391D_24-25_011514 24.0 - 25.0 1/15/2014	S-402 AOI-1_S-402_26-28_120814 26.0 - 28.0 12/8/2014	S-402 AOI-1_S-402_8-10_120814 8.0 - 10.0 12/8/2014
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.0049)	ND (0.0046)	ND (0.257)	ND (2.65)	**56.8 (2.6)**	**4.9 (0.26)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.0151 (0.0049)	0.112 (0.0046)	1.76 (0.257)	18.7 (2.65)	13.5 (2.6)	0.52 (0.26)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0049)	ND (0.0046)	ND (0.257)	ND (2.65)	ND (2.6)	ND (0.26)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0049)	ND (0.0046)	0.377 (0.257)	18.5 (2.65)	52.3 (2.6)	6.1 (0.26)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0049)	ND (0.0046)	ND (0.257)	ND (2.65)	**5.3 (2.6)**	**67.5 (2.6)**
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.0049)	ND (0.0046)	ND (0.257)	ND (2.65)	2.5 J (2.6)	17.6 (0.26)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0049)	ND (0.0046)	0.385 (0.257)	157 (2.65)	149 (2.6)	11.6 (0.26)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0049)	ND (0.0046)	1.1 (0.257)	51 (2.65)	47.8 (2.6)	3.9 (0.26)
Xylenes (total)	7900	9100	1000	990	ND (0.0148)	ND (0.0138)	2.22 (0.771)	8.5 (7.94)	135 (7.7)	36.2 (0.79)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.214 (0.0076)	0.162 (0.0071)	0.025 (0.0088)	0.728 (0.0403)	0.38 (0.0082)	0.11 (0.042)
Benzo(a)anthracene	130	190000	340	--	0.0162 (0.0076)	ND (0.0071)	ND (0.0088)	0.0755 (0.0403)	0.036 (0.0082)	0.072 (0.042)
Benzo(a)pyrene	91	190000	46	--	ND (0.0076)	ND (0.0071)	ND (0.0088)	ND (0.0403)	0.022 (0.0082)	0.049 (0.042)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.0076)	ND (0.0071)	0.0214 (0.0088)	0.119 (0.0403)	0.026 (0.0082)	0.073 (0.042)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.0076)	ND (0.0071)	ND (0.0088)	ND (0.0403)	0.011 (0.0082)	0.028 J (0.042)
Chrysene	760	190000	230	--	0.0241 (0.0076)	ND (0.0071)	ND (0.0088)	0.097 (0.0403)	0.059 (0.0082)	0.067 (0.042)
Fluorene	130000	190000	3800	--	0.454 (0.0076)	0.609 (0.0071)	0.0485 (0.0088)	3.62 (0.0403)	0.75 (0.0082)	0.22 (0.042)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.372 (0.0076)	0.332 (0.0071)	0.0527 (0.0088)	**64.9 (0.403)**	8.3 (0.082)	**31.5 (0.42)**
Phenanthrene	190000	190000	10000	--	0.546 (0.0076)	0.74 (0.0071)	0.0759 (0.0088)	5.21 (0.0403)	2 (0.082)	0.39 (0.042)
Pyrene	96000	190000	2200	--	0.164 (0.0076)	0.0425 (0.0071)	0.0109 (0.0088)	0.222 (0.0403)	0.078 (0.0082)	0.19 (0.042)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	4.3 (0.39)	4.2 (0.4)	7.4 (0.61)	13.3 (0.55)	6.6 (0.56)	9.8 (0.45)
Mercury	510	190000	10	--	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.12)	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-403 AOI-1_S-403_26-28_121014 26.0 - 28.0 12/10/2014	S-403 AOI-1_S-403_8-10_121014 8.0 - 10.0 12/10/2014	S-404 AOI-1_S-404_10-12_120514 10.0 - 12.0 12/5/2014	S-404 AOI-1_S-404_24-26_120514 24.0 - 26.0 12/5/2014	S-405 AOI-1_S-405_12-14_120914 12.0 - 14.0 12/9/2014	S-405 AOI-1_S-405_24-26_120914 24.0 - 26.0 12/9/2014
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.22)	0.22 (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	0.22 (0.2)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	1.1 (0.22)	ND (0.2)	ND (0.47)	6.9 (0.27)	ND (0.0049)	0.96 (0.2)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	ND (0.2)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	2.1 (0.2)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	ND (0.2)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	ND (0.2)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	6.7 (0.2)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.22)	ND (0.2)	ND (0.47)	ND (0.27)	ND (0.0049)	3 (0.2)
Xylenes (total)	7900	9100	1000	990	ND (0.65)	0.6 J (0.6)	ND (1.4)	ND (0.8)	ND (0.015)	1.8 (0.61)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.036 (0.0075)	0.042 (0.0078)	8.8 (2.6)	0.0041 J (0.0091)	ND (0.0087)	0.034 (0.0079)
Benzo(a)anthracene	130	190000	340	--	0.0086 (0.0075)	0.013 (0.0078)	5.9 (2.6)	0.0034 J (0.0091)	ND (0.0087)	0.0097 (0.0079)
Benzo(a)pyrene	91	190000	46	--	0.0044 J (0.0075)	0.0085 (0.0078)	4 (2.6)	ND (0.0091)	0.0016 J (0.0087)	0.0053 J (0.0079)
Benzo(b)fluoranthene	76	190000	170	--	0.0077 (0.0075)	0.016 (0.0078)	6.1 (2.6)	0.0044 J (0.0091)	0.0028 J (0.0087)	0.011 (0.0079)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.0075)	0.0042 J (0.0078)	1.3 J (2.6)	ND (0.0091)	ND (0.0087)	ND (0.0079)
Chrysene	760	190000	230	--	0.013 (0.0075)	0.014 (0.0078)	11.6 (2.6)	0.0073 J (0.0091)	ND (0.0087)	0.016 (0.0079)
Fluorene	130000	190000	3800	--	0.21 (0.0075)	0.15 (0.0078)	ND (2.6)	0.03 (0.0091)	ND (0.0087)	0.33 (0.0079)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.22 (0.0075)	0.11 (0.0078)	ND (2.6)	0.038 (0.0091)	ND (0.0087)	3.6 (0.039)
Phenanthrene	190000	190000	10000	--	0.3 (0.0075)	0.25 (0.0078)	1.7 J (2.6)	0.04 (0.0091)	0.0042 J (0.0087)	0.44 (0.0079)
Pyrene	96000	190000	2200	--	0.034 (0.0075)	0.044 (0.0078)	24.8 (2.6)	0.01 (0.0091)	ND (0.0087)	0.032 (0.0079)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	6.5 (0.39)	11.1 (0.5)	13.9 (0.74)	10.1 (0.52)	15.1 (0.48)	7.9 (0.41)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-417 AOI-1_S-417_12-14_021915 12.0 - 14.0 2/19/2015	S-452_CD BT-02B-S-10-20201201 10 12/1/2020	S-453_CD BT-11A-S-8-20201202 8 12/2/2020	S-453_CD BT-11A-S-32-20201203 32 12/3/2020	S-454_CD BT-11B-S-8-20201203 8 12/3/2020	S-454_CD BT-11B-S-50-20201208 50 12/8/2020
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	**3.9 (0.22)**	0.0042 H (0.0042)	0.29 J (0.3)	**0.66 H (0.45)**	ND (0.33)	**4.5 H (0.28)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	2.7 (0.22)	ND,H (0.0042)	0.64 (0.3)	0.01 (0.0053)	4.2 (0.33)	0.023 (0.0044)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.22)	ND,H (0.0042)	ND (0.3)	0.0049 J (0.0053)	ND (0.33)	0.0024 J (0.0044)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	21.7 (2.2)	ND,H (0.0042)	0.029 J (0.3)	0.0075 (0.0053)	0.055 J (0.33)	1.3 H (0.28)
Methyl tert-butyl ether	8500	9800	2	1.4	**2.1 (0.22)**	0.0024 J,H (0.0042)	ND (0.3)	0.24 (0.0053)	ND (0.33)	0.11 (0.0044)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	NA	0.35 H (0.085)	ND (6)	61 H (9.1)	ND (6.7)	160 H (57)
Toluene	10000	10000	100	44	34.6 (2.2)	0.00068 J,H (0.0042)	ND (0.3)	ND (0.0053)	ND (0.33)	0.027 (0.0044)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	60.3 (2.2)	ND,H (0.0042)	ND (0.3)	0.0022 J (0.0053)	0.036 J (0.33)	0.059 (0.0044)
1,3,5-Trimethylbenzene	4700	5400	93	93	21.5 (2.2)	ND,H (0.0042)	ND (0.3)	0.00098 J (0.0053)	0.035 J (0.33)	0.018 (0.0044)
Xylenes (total)	7900	9100	1000	990	120 (6.6)	ND,H (0.0085)	ND (0.6)	0.0016 J (0.011)	0.14 J (0.67)	0.52 (0.0088)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	0.083 (0.0077)	ND (0.019)	ND (0.021)	ND (0.021)	0.044 (0.02)	0.0043 J (0.02)
Benzo(a)anthracene	130	190000	340	--	0.059 (0.0077)	ND (0.019)	0.013 J (0.021)	ND (0.021)	0.012 J (0.02)	ND (0.02)
Benzo(a)pyrene	91	190000	46	--	0.038 (0.0077)	ND (0.019)	0.011 J (0.021)	ND (0.021)	0.0082 J (0.02)	ND (0.02)
Benzo(b)fluoranthene	76	190000	170	--	0.048 (0.0077)	ND (0.019)	0.01 J (0.021)	ND (0.021)	0.0074 J (0.02)	0.0058 J (0.02)
Benzo(g,h,i)perylene	190000	190000	180	--	0.02 (0.0077)	ND (0.019)	ND (0.021)	ND (0.021)	0.0046 J (0.02)	ND (0.02)
Chrysene	760	190000	230	--	0.057 (0.0077)	ND (0.019)	0.02 J (0.021)	ND (0.021)	0.0089 J (0.02)	0.0054 J (0.02)
Fluorene	130000	190000	3800	--	0.13 (0.0077)	ND (0.019)	1.8 (0.021)	ND (0.021)	0.66 (0.02)	0.0054 J (0.02)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	8 (0.077)	ND (0.019)	ND (0.021)	ND (0.021)	ND (0.02)	0.45 (0.02)
Phenanthrene	190000	190000	10000	--	0.31 (0.0077)	ND (0.019)	3.9 (0.021)	0.0056 J (0.021)	0.35 (0.02)	0.017 J (0.02)
Pyrene	96000	190000	2200	--	0.15 (0.0077)	ND (0.019)	0.055 (0.021)	ND (0.021)	0.031 (0.02)	0.0082 J (0.02)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	8 (0.41)	8.4 (1.6)	9.8 (1.6)	22 (1.7)	11 (1.4)	14 (1.4)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-454_CD BT-11B-S-78-20201208 78 12/8/2020	S-455_CD BT-05-S-9-20201210 9 12/10/2020	S-457_CD BT-09-S-22-20201216 22 12/16/2020	S-457_CD BT-09-S-8-20201228 8 12/28/2020	S-457_CD BT-09-S-47-20201229 47 12/29/2020	S-459_CD BT-13-S-22-20210104 22 1/4/2021
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.0024 J (0.0048)	**1.2 (0.31)**	0.23 J (0.33)	ND (0.28)	**6.6 (0.33)**	**1 (0.31)**
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	0.00078 J (0.0048)	11 (0.31)	0.94 (0.33)	0.27 J (0.28)	0.028 J (0.33)	0.092 J (0.31)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0048)	ND (0.31)	ND (0.33)	ND (0.28)	ND (0.33)	ND (0.31)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.0028 J (0.0048)	6.6 (0.31)	0.56 (0.33)	ND (0.28)	ND (0.33)	0.4 (0.31)
Methyl tert-butyl ether	8500	9800	2	1.4	0.00091 J (0.0048)	ND (0.31)	ND (0.33)	ND (0.28)	**2.9 (0.33)**	ND (0.31)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	0.094 J (0.097)	ND (6.1)	ND (6.5)	ND (5.6)	61 (6.6)	ND (6.2)
Toluene	10000	10000	100	44	ND (0.0048)	0.61 (0.31)	0.094 J (0.33)	ND (0.28)	ND (0.33)	ND (0.31)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0037 J (0.0048)	0.15 J (0.31)	6.9 (0.33)	ND (0.28)	ND (0.33)	1.1 (0.31)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.00089 J (0.0048)	5.3 (0.31)	2.4 (0.33)	ND (0.28)	ND (0.33)	0.4 (0.31)
Xylenes (total)	7900	9100	1000	990	0.0034 J (0.0097)	6.4 (0.61)	0.45 J (0.65)	ND (0.56)	ND (0.66)	0.48 J (0.62)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.02)	ND (0.02)	0.026 (0.019)	0.014 J (0.019)	0.028 (0.02)	0.031 (0.023)
Benzo(a)anthracene	130	190000	340	--	ND (0.02)	0.0087 J (0.02)	0.032 (0.019)	ND (0.019)	0.024 (0.02)	ND (0.023)
Benzo(a)pyrene	91	190000	46	--	ND (0.02)	ND (0.02)	0.011 J (0.019)	0.0045 J (0.019)	0.017 J (0.02)	ND (0.023)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.02)	0.0097 J (0.02)	0.016 J (0.019)	0.0056 J (0.019)	0.028 (0.02)	ND (0.023)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.02)	ND (0.02)	ND (0.019)	ND (0.019)	0.013 J (0.02)	ND (0.023)
Chrysene	760	190000	230	--	ND (0.02)	0.011 J (0.02)	0.028 (0.019)	0.0059 J (0.019)	0.028 (0.02)	0.0092 J (0.023)
Fluorene	130000	190000	3800	--	ND (0.02)	0.027 (0.02)	0.11 (0.019)	0.11 (0.019)	0.039 (0.02)	0.21 (0.023)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.01 J (0.02)	2.6 (0.02)	1.2 (0.019)	ND (0.019)	0.37 (0.02)	5.8 (0.12)
Phenanthrene	190000	190000	10000	--	0.0091 J (0.02)	0.058 (0.02)	0.067 (0.019)	0.1 (0.019)	0.15 (0.02)	0.26 (0.023)
Pyrene	96000	190000	2200	--	ND (0.02)	0.022 (0.02)	0.063 (0.019)	0.01 J (0.019)	0.063 (0.02)	0.049 (0.023)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	2.7 (1.5)	9.9 (1.8)	13 (1.2)	7.7 (1.7)	14 (1.3)	13 (1.7)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-459_CD BT-13-S-5-20210104 5 1/4/2021	S-459_CD BT-13-S-60-20210106 60 1/6/2021	S-467_CD BT-22B-S-14-20210217 14 2/17/2021	S-467_CD BT-22B-S-31-20210222 31 2/22/2021	S-467_CD BT-22B-S-40-20210222 40 2/22/2021	S-468_CD BT-01-S-15-20210212 15 2/12/2021
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	ND (0.28)	ND (0.0056)	**37 (3.6)**	0.14 J (0.26)	0.25 J (0.44)	ND (0.3)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	1.2 (0.28)	ND (0.0056)	29 (3.6)	3 (0.26)	0.069 (0.0058)	0.32 (0.3)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.28)	0.001 J (0.0056)	ND (3.6)	ND (0.26)	ND (0.0058)	ND (0.3)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.28)	ND (0.0056)	38 (3.6)	0.84 (0.26)	0.07 (0.0058)	0.053 J (0.3)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.28)	ND (0.0056)	ND (3.6)	ND (0.26)	0.62 (0.44)	ND (0.3)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	ND (5.7)	0.039 J (0.11)	ND (72)	ND (5.1)	61 TL (8.9)	ND (6)
Toluene	10000	10000	100	44	ND (0.28)	ND (0.0056)	0.55 J (3.6)	0.064 J (0.26)	0.0088 (0.0058)	0.047 J (0.3)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.28)	0.00092 J (0.0056)	**660 (36)**	0.47 (0.26)	0.063 (0.0058)	ND (0.3)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.28)	ND (0.0056)	**95 (3.6)**	3.2 (0.26)	0.013 (0.0058)	ND (0.3)
Xylenes (total)	7900	9100	1000	990	ND (0.57)	ND (0.011)	49 (7.2)	0.57 (0.51)	0.1 (0.012)	ND (0.6)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.019)	ND (0.019)	0.017 J (0.019)	6.4 (0.19)	0.0091 J (0.022)	0.0092 J (0.02)
Benzo(a)anthracene	130	190000	340	--	ND (0.019)	ND (0.019)	0.0052 J (0.019)	2.7 (0.019)	ND (0.022)	0.0067 J (0.02)
Benzo(a)pyrene	91	190000	46	--	ND (0.019)	ND (0.019)	ND (0.019)	2.2 (0.019)	ND (0.022)	ND (0.02)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.019)	ND (0.019)	0.004 J (0.019)	2.1 (0.019)	ND (0.022)	ND (0.02)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.019)	ND (0.019)	ND (0.019)	0.82 (0.019)	ND (0.022)	ND (0.02)
Chrysene	760	190000	230	--	0.044 (0.019)	ND (0.019)	0.0055 J (0.019)	2.9 (0.019)	ND (0.022)	ND (0.02)
Fluorene	130000	190000	3800	--	ND (0.019)	0.0071 J (0.019)	0.09 (0.019)	8 (0.19)	0.011 J (0.022)	ND (0.02)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.019)	0.014 J (0.019)	1.2 (0.019)	22 (0.19)	3.8 (0.022)	ND (0.02)
Phenanthrene	190000	190000	10000	--	ND (0.019)	0.011 J (0.019)	0.12 (0.019)	26 (0.19)	0.025 (0.022)	0.036 (0.02)
Pyrene	96000	190000	2200	--	0.13 (0.019)	0.0063 J (0.019)	0.013 J (0.019)	8.7 (0.19)	0.014 J (0.022)	0.018 J (0.02)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	7.3 (1.5)	1.2 (1.2)	5.8 (1.4)	5.2 (1.2)	9.4 (1.4)	5 (1.6)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D1
Historical Soil Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-GW MSCs	Non-Residential Soil Vapor Intrusion Screening Values	S-468_CD BT-01-S-44-45-20210216 44.0 - 45.0 2/16/2021	S-470_CD BT-08B-S-12-20210223 12 2/23/2021	S-470_CD BT-08B-S-28-20210225 28 2/25/2021	S-470_CD BT-08B-S-48-20210226 48 2/26/2021	S-470_CD BT-08B-S-71-20210308 71 3/8/2021	S-472_CD BT-22A-S-16-20210302 16 3/2/2021
Volatile Organic Compounds										
Acetone	10000	10000	8800	4700	NA	NA	NA	NA	NA	NA
Benzene	280	330	0.5	0.13	0.00061 J (0.0052)	0.035 J (0.31)	0.06 J (0.29)	0.0053 (0.0044)	ND (0.006)	0.0012 J (0.0058)
Carbon Disulfide	10000	10000	620	530	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	ND (0.0052)	4.6 (0.31)	1.3 (0.29)	0.00035 J (0.0044)	ND (0.006)	ND (0.0058)
Cyclohexane	10000	10000	6900	6900	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	1400	1600	16	3.9	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0052)	ND (0.31)	ND (0.29)	ND (0.0044)	ND (0.006)	ND (0.0058)
1,2-Dichloropropane	0.6	0.69	0.5	0.11	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.00046 J (0.0052)	0.13 J (0.31)	0.045 J (0.29)	0.0006 J (0.0044)	ND (0.006)	ND (0.0058)
Methyl tert-butyl ether	8500	9800	2	1.4	0.048 (0.0052)	ND (0.31)	0.09 J (0.29)	0.05 (0.0044)	ND (0.006)	ND (0.0058)
Methylcyclohexane	--	--	--	--	NA	NA	NA	NA	NA	NA
tert Butyl alcohol		--	--	--	1.3 (0.1)	ND (6.1)	1.5 J (5.7)	1.2 (0.088)	ND (0.12)	ND (0.12)
Toluene	10000	10000	100	44	0.00083 J (0.0052)	0.076 J (0.31)	0.065 J (0.29)	0.0014 J (0.0044)	ND (0.006)	ND (0.0058)
Trichloroethene	160	180	0.5	0.17	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0052)	0.05 J (0.31)	ND (0.29)	ND (0.0044)	ND (0.006)	ND (0.0058)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0052)	0.086 J (0.31)	0.049 J (0.29)	ND (0.0044)	ND (0.006)	ND (0.0058)
Xylenes (total)	7900	9100	1000	990	ND (0.01)	0.27 J (0.61)	0.11 J (0.57)	0.0015 J (0.0088)	ND (0.012)	ND (0.012)
Semivolatile Organic Compounds										
Anthracene	190000	190000	350	--	ND (0.02)	0.47 (0.02)	0.11 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Benzo(a)anthracene	130	190000	340	--	0.004 J (0.02)	0.081 (0.02)	0.036 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Benzo(a)pyrene	91	190000	46	--	ND (0.02)	0.06 (0.02)	0.027 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.02)	0.068 (0.02)	0.029 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.02)	0.028 (0.02)	0.014 J (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Chrysene	760	190000	230	--	ND (0.02)	0.087 (0.02)	0.04 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Fluorene	130000	190000	3800	--	ND (0.02)	1.4 (0.02)	0.26 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.008 J (0.02)	ND (0.02)	0.087 (0.019)	ND,B (0.02)	ND (0.021)	ND (0.018)
Phenanthrene	190000	190000	10000	--	0.0095 J (0.02)	2.3 (0.02)	0.63 (0.019)	0.006 J (0.02)	ND (0.021)	ND (0.018)
Pyrene	96000	190000	2200	--	0.0073 J (0.02)	0.33 (0.02)	0.12 (0.019)	ND (0.02)	ND (0.021)	ND (0.018)
Per- and Polyfluoroalkyl Substances										
Perfluoroheptanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	64	190000	--	--	NA	NA	NA	NA	NA	NA
Metals										
Arsenic	61	190000	29	--	NA	NA	NA	NA	NA	NA
Barium	190000	190000	8200	--	NA	NA	NA	NA	NA	NA
Cadmium	1600	190000	38	--	NA	NA	NA	NA	NA	NA
Chromium (total)	180	140000	190	--	NA	NA	NA	NA	NA	NA
Copper	100000	190000	43000	--	NA	NA	NA	NA	NA	NA
Lead	1000	190000	450	--	7.5 (1.6)	3 (1.5)	8.7 (1.4)	12 (1.5)	3.2 (1.4)	9.8 (1.2)
Mercury	510	190000	10	--	NA	NA	NA	NA	NA	NA
Nickel	64000	190000	650	--	NA	NA	NA	NA	NA	NA
Zinc	190000	190000	12000	--	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D and TL are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft) or the Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft).
5 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
6 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	CPT-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5	CSX-DW-5
Field Sample ID	Groundwater	Groundwater	CPT-5_20180815	CSX-DW-5_04122010	CSX-DW-5_06232010	CSX-DW-5_09202010	CSX-DW-5_12162010	CSX-DW-5_03102011	CSX-DW-5(07-12-12)	CSX-DW-5 (12-05-2012)	CSX-DW-5(09-03-2013)	CSX-DW-5 (12-04-2013)
Sample Date	Used Aquifer	Vapor Intrusion	8/15/2018	4/12/2010	6/23/2010	9/20/2010	12/16/2010	3/10/2011	7/12/2012	12/5/2012	9/3/2013	12/4/2013
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	ND (0.01)	ND (0.01)	0.003 XQ (0.01)	0.0066 XQ (0.01)	0.011 XQ (0.01)	NA	NA	NA	NA
Benzene	0.005	0.35	0.122 (0.05)	ND (0.0004)	ND (0.0004)	ND (0.0004)	0.0024 (0.002)	ND (0.0004)	ND (0.002)	ND (0.001)	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	0.00037 XQ (0.001)	ND (0.001)	0.00021 XQ (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Cumene	3.5	24	2.56 (0.05)	ND (0.001)	ND (0.001)	ND (0.001)	0.00035 XQ (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	NA	0.00015 XQ (0.001)	0.00013 XQ (0.001)	0.00012 XQ (0.001)	0.00014 XQ (0.001)	0.00017 XQ (0.001)	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.05)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.00036 XQ (0.0005)	ND (0.0005)	ND (0.002)	0.00023 J (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	0.00021 XQ (0.001)	0.00019 XQ (0.001)	0.00017 XQ (0.001)	0.00018 XQ (0.001)	0.00019 XQ (0.001)	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.299 (0.05)	ND (0.001)	ND (0.001)	ND (0.001)	0.00011 XQ (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.05)	0.11 (0.005)	0.12 (0.005)	0.11 (0.005)	0.14 J (0.005)	0.15 J (0.005)	0.051 (0.002)	0.044 (0.002)	0.0536 (0.0005)	0.0421 (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	0.00026 XQ (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.00045 XQ (0.001)	ND (0.001)	NA	NA	NA	NA
Styrene	0.1	220	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	0.0177 J (0.01)
Toluene	1	430	ND (0.05)	0.001 (0.001)	0.011 (0.001)	0.0017 (0.001)	0.013 (0.001)	0.057 (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	0.00019 XQ (0.001)	0.0002 XQ (0.001)	0.00022 XQ (0.001)	0.0002 XQ (0.001)	0.00019 XQ (0.001)	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	0.624 (0.05)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.15)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.006)	ND (0.003)	ND (0.001)	ND (0.00019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.146 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	0.0448 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	0.0251 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.0318 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	0.0262 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	0.0346 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.238 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.672 (0.01)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	0.391 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.185 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	0.0061 (0.001)	0.0036 (0.001)	0.0056 (0.002)	0.0065 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0826 (0.002)	NA	NA	NA	NA	NA	0.00081 J (0.001)	0.0013 (0.001)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-DW-5 CSX-DW-5(02192014) 2/19/2014	CSX-DW-5 CSX-DW-5(05132014) 5/13/2014	CSX-DW-5 CSX-DW-5(08192014) 8/19/2014	CSX-DW-5 CSX-DW-5(12022014) 12/2/2014	CSX-DW-5 CSX-DW-5(02192015) 2/19/2015	CSX-DW-5 CSX-DW-5(05142015) 5/14/2015	CSX-DW-5 CSX-DW-5(08112015) 8/11/2015	CSX-DW-5 CSX-DW-5_05-15-2017 5/15/2017	CSX-DW-5 CSX-DW-5_20220412 4/12/2022	CSX-IW-5 CSX-IW-5_04122010 4/12/2010
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
Benzene	0.005	0.35	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.001)	0.0093 (0.0004)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00042 XQ (0.001)
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0019 (0.001)
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0018 (0.001)
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0005)
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0003)
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)
Cumene	3.5	24	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.005)	0.0022 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.000008)	ND (0.0000085)	ND (0.0000097)	ND (0.000028)	ND (0.001)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.0005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.0353 (0.0005)	0.0446 (0.0005)	0.0433 (0.0005)	0.053 (0.0005)	0.0419 (0.0005)	0.0457 (0.0005)	0.0542 (0.0005)	0.0205	0.018	0.041 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.002)
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00032 XQ (0.001)
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)
tert Butyl alcohol	--	--	0.0235 J (0.01)	0.0196 J (0.01)	0.0319 (0.01)	0.0179 (0.01)	0.0225 (0.01)	0.022 (0.01)	0.0171 (0.01)	0.0053 J	0.012 J	NA
Toluene	1	430	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)	0.0049 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00053 XQ (0.001)
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	0.000086 XQ (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)
Xylenes (total)	10	12	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	ND (0.00017)	ND (0.0005)	ND (0.001)	ND (0.002)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	ND,J (0.001)	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.005)	ND (0.001)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.006 (0.002)	0.007 (0.002)	0.0053 (0.002)	0.004 (0.002)	0.0054 (0.002)	0.0052 (0.002)	0.0049 (0.002)	ND (0.002)	0.0014 J	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	0.0021 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0025 J (0.002)	ND (0.002)	ND (0.002)	ND (0.00052)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-IW-5 CSX-IW-5_06232010 6/23/2010	CSX-IW-5 CSX-IW-5_09152010 9/15/2010	CSX-IW-5 CSX-IW-5_12162010 12/16/2010	CSX-IW-5 CSX-IW-5_03092011 3/9/2011	CSX-IW-5 CSX-IW-5(07-12-12) 7/12/2012	CSX-IW-5 CSX-IW-5 (12-05-2012) 12/5/2012	CSX-IW-5 CSX-IN-5(09-03-2013) 9/3/2013	CSX-IW-5 CSX-IW-5 (12-04-2013) 12/4/2013	CSX-IW-5 CSX-IW-5(02192014) 2/19/2014	CSX-IW-5 CSX-IW-5(05132014) 5/13/2014
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	ND (0.01)	0.014 (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.012 (0.0004)	0.0024 (0.0004)	0.012 (0.0004)	0.011 (0.0004)	0.0053 (0.001)	0.0041 (0.001)	0.0054 (0.0005)	0.0044 (0.0005)	0.0051 (0.0005)	0.0037 (0.00035)
2-Butanone	4	49000	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	0.00019 XQ (0.001)	ND (0.001)	ND (0.001)	0.0007 XQ (0.001)	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	0.00073 XQ (0.001)	ND (0.001)	0.0005 XQ (0.001)	0.00088 XQ (0.001)	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	0.0011 (0.001)	ND (0.001)	0.0011 (0.001)	0.0013 (0.001)	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.001 (0.001)	ND (0.001)	0.0011 (0.001)	0.0012 (0.001)	0.00068 J (0.001)	0.00084 J (0.001)	0.001 J (0.0005)	0.00092 J (0.0005)	0.0011 J (0.0005)	0.00051 J (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.00012 XQ (0.001)	0.00011 XQ (0.001)	0.00023 XQ (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00025)
Methyl tert-butyl ether	0.02	96	0.031 (0.005)	0.0091 (0.005)	0.032 (0.005)	0.031 (0.005)	0.022 (0.001)	0.023 (0.001)	0.0201 (0.0005)	0.0206 (0.0005)	0.0203 (0.0005)	0.0191 (0.0005)
4-Methyl-2-pentanone	7.8	13000	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	ND (0.002)	0.0003 XQ (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	0.00015 XQ (0.001)	ND (0.001)	ND (0.001)	0.00017 XQ (0.001)	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	ND (0.001)	0.000079 XQ (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	0.012 (0.001)	0.024 (0.001)	0.0031 (0.001)	0.00058 XQ (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
Trichloroethene	0.005	0.11	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	0.000088 XQ (0.001)	0.000082 XQ (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.001)	ND (0.001)	0.00025 XQ (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.002)	0.00045 J (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.001)	ND (0.00019)	ND (0.00019)	ND (0.00019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.00021 J (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	0.021 (0.001)	0.023 (0.001)	0.0204 (0.002)	0.0201 (0.002)	0.0227 (0.002)	0.0184 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	ND (0.001)	0.00039 J (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-IW-5	CSX-MW1
Field Sample ID	Groundwater	Groundwater	CSX-IW-5(08192014)	CSX-IW-5(12022014)	CSX-IW-5(02192015)	CSX-IW-5(05142015)	CSX-IW-5(08112015)	CSX-IW-5_05-15-2017	CSX-IW-5_20191205	CSX-IW-5_20191205_FD	CSX-IW-5_20220412	CSX-MW-1(07-12-12)
Sample Date	Used Aquifer	Vapor Intrusion	8/19/2014	12/2/2014	2/19/2015	5/14/2015	8/11/2015	5/15/2017	12/5/2019	12/5/2019	4/12/2022	7/12/2012
Comments	(TDS <2500)	Screening Values								FD		
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0028 (0.00035)	0.0026 (0.00035)	0.0031 (0.00035)	0.0035 (0.0005)	0.0036 (0.0005)	0.00085	0.00052	0.00066	0.00086 J	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.00067 J (0.0005)	0.00074 J (0.0005)	0.00076 J (0.0005)	0.00086 J (0.0005)	0.00073 J (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.00075)	0.00056 J	ND (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000078)	ND (0.0000085)	ND (0.00001)	ND (0.00001)	ND (0.00001)	ND (0.000028)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.00075)	ND (0.00075)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.00075)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.0179 (0.0005)	0.0168 (0.0005)	0.0165 (0.0005)	0.0195 (0.0005)	0.0158 (0.0005)	0.0141	0.008	0.0091	0.0047	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.0075)	ND (0.0075)	ND (0.05)	NA
Toluene	1	430	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.00075)	ND (0.00075)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0015)	ND (0.0015)	ND (0.005)	0.00025 J (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.0015)	ND (0.005)	ND (0.001)
Xylenes (total)	10	12	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	ND (0.00017)	ND (0.0005)	ND (0.00075)	ND (0.00075)	ND (0.001)	ND (0.003)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	ND (0.0025)	ND (0.0025)	ND,J (0.001)	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.005)	0.00017 J (0.001)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0172 (0.002)	0.0241 (0.002)	0.0199 (0.002)	0.024 (0.002)	0.0246 (0.002)	0.028	0.0468	0.0447	0.084	0.00045 J (0.001)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.00052)	ND (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW1 CSX-MW-1 (12-06-2012) 12/6/2012	CSX-MW1 CSX-MW1(09-04-2013) 9/4/2013	CSX-MW1 CSX-MW-1 (12-04-2013) 12/4/2013	CSX-MW1 CSX-MW1(02192014) 2/19/2014	CSX-MW1 CSX-MW1(05132014) 5/13/2014	CSX-MW1 CSX-MW1(08192014) 8/19/2014	CSX-MW1 CSX-MW1(12022014) 12/2/2014	CSX-MW1 CSX-MW1(02202015) 2/20/2015	CSX-MW1 CSX-MW1(05142015) 5/14/2015	CSX-MW1 CSX-MW1(08112015) 8/11/2015
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000079)	ND (0.0000084)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.003)	ND (0.001)	ND (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	ND (0.00017)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	ND (0.0005)	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	2.64 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00016 J (0.001)	ND (0.002)	0.0031 (0.002)	0.0023 J (0.002)	0.0026 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	3.56 (0.002)	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW1 CSX-MW1_05-15-2017 5/15/2017	CSX-MW1 CSX-MW1_20180620 6/20/2018	CSX-MW1 CSX-MW1_20191204 12/4/2019	CSX-MW1 CSX-MW1_20220412 4/12/2022	CSX-MW3A CSX-MW-3A (07-13-2012) 7/13/2012	CSX-MW3A CSXMW-3A (12-05-2012) 12/5/2012	CSX-MW3A CSX-MW-3A(09-03-2013) 9/3/2013	CSX-MW3A CSX-MW-3 (12-04-2013) 12/4/2013	CSX-MW3A CSXMW-3A(02202014) 2/20/2014	CSX-MW3A CSXMW-3A(05142014) 5/14/2014
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.00025)	ND (0.00025)	ND (0.00045)	ND (0.001)	<u>0.0084 (0.001)</u>	<u>0.022 (0.001)</u>	<u>0.0124 (0.0005)</u>	<u>0.0058 (0.0005)</u>	<u>0.0119 (0.0005)</u>	ND (0.00035)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.005)	0.0023 (0.001)	0.022 (0.001)	0.0161 (0.0005)	0.02 (0.0005)	0.0534 (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.0000097)	NA	ND (0.00001)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	0.0012 (0.001)	0.001 (0.0005)	0.00096 J (0.0005)	0.0024 (0.0005)	ND (0.00025)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.005)	ND (0.0075)	ND (0.0075)	ND (0.05)	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	0.0011 (0.001)	0.0014 (0.001)	0.0011 (0.001)	0.0014 (0.001)	ND (0.0005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.0015)	ND (0.005)	ND (0.001)	0.00012 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0015)	ND (0.005)	ND (0.001)	0.0004 J (0.001)	ND (0.0005)	ND (0.0005)	0.0011 J (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.003)	0.0071 (0.003)	0.0074 (0.001)	0.0065 (0.00019)	0.0224 (0.00019)	ND (0.00019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	ND (0.0025)	ND (0.0025)	ND,J (0.001)	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.005)	ND (0.001)	0.00017 J (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	0.00059 J	NA	ND (0.002)	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.00062 J	NA	ND (0.0005)	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	<u>3.9</u>	NA	<u>2.8</u>	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	0.0005 J	ND (0.002)	ND (0.0021)	0.0018 (0.001)	0.0024 (0.001)	0.0036 (0.002)	0.003 (0.002)	0.005 (0.002)	0.005 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.002)	ND (0.002)	0.000076 J	0.00094 J (0.001)	0.0013 (0.001)	ND (0.002)	0.0021 J (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	<u>2.61</u>	NA	<u>2.5</u>	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW3A CSXMW-3A(08202014) 8/20/2014	CSX-MW3A CSXMW-3A(12022014) 12/2/2014	CSX-MW3A CSXMW-3A(02202015) 2/20/2015	CSX-MW3A CSXMW-3A(05152015) 5/15/2015	CSX-MW3A CSXMW-3A(08122015) 8/12/2015	CSX-MW3A CSXMW-3A_05-15-2017 5/15/2017	CSX-MW4 CSX-MW-4 (07-13-2012) 7/13/2012	CSX-MW4 CSX-MW4(12-04-2012) 12/4/2012	CSX-MW4 CSX-MW-4(09-03-2013) 9/3/2013	CSX-MW4 CSX-MW-4 (12-04-2013) 12/4/2013
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.00035)	0.00042 J (0.00035)	0.00098 (0.00035)	ND (0.0005)	ND (0.0005)	0.00086	0.0035 (0.001)	0.0036 (0.001)	0.0071 (0.0005)	0.0027 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.0005)	0.0016 (0.0005)	0.0013 (0.0005)	0.00086 J (0.0005)	ND (0.0005)	0.0087	0.01 (0.001)	0.033 (0.001)	0.0088 (0.0005)	0.0225 (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000077)	ND (0.000008)	ND (0.0000098)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.00056 J (0.001)	0.0016 (0.001)	ND (0.0005)	0.0011 (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0013	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0067 J	NA	NA	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)	0.0016 (0.001)	0.0034 (0.001)	0.0014 (0.001)	0.0023 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.00019 J (0.001)	0.00016 J (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	0.00054 J (0.001)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	0.00036 J (0.00017)	0.0025	0.0022 J (0.003)	0.0051 (0.003)	0.0022 (0.001)	0.003 (0.00019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	0.0002 J (0.001)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.003 (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	0.0022 J (0.002)	0.003	0.013 (0.001)	0.0054 (0.001)	0.0067 (0.002)	0.0036 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0005 J (0.001)	0.00092 J (0.001)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW4 CSX-MW4(02192014) 2/19/2014	CSX-MW4 CSX-MW4(05132014) 5/13/2014	CSX-MW4 CSX-MW4(08202014) 8/20/2014	CSX-MW4 CSX-MW4(12022014) 12/2/2014	CSX-MW4 CSX-MW4(02202015) 2/20/2015	CSX-MW4 CSX-MW4(05152015) 5/15/2015	CSX-MW4 CSX-MW4(08112015) 8/11/2015	CSX-MW4 CSX-MW4_05-15-2017 5/15/2017	CSX-MW4 CSX-MW4_20191204 12/4/2019	CSX-MW4 CSX-MW4 4/12/2022
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0056 (0.0005)	0.0019 (0.00035)	0.00049 J (0.00035)	0.0018 (0.00035)	0.0023 (0.00035)	0.0019 (0.0005)	0.0036 (0.0005)	0.0212	0.0081	0.031
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0371 (0.0005)	0.0132 (0.0005)	0.0014 (0.0005)	0.02 (0.0005)	0.0235 (0.0005)	0.0216 (0.0005)	0.007 (0.0005)	0.0553	0.0419	0.081
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000079)	ND (0.0000083)	ND (0.00001)	ND (0.00001)	ND (0.000028)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.00075)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0018 (0.0005)	0.00065 (0.00025)	ND (0.0005)	0.00092 J (0.0005)	0.00096 J (0.0005)	0.00091 J (0.0005)	ND (0.0005)	0.0027	0.0021	0.0033
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.0075)	ND (0.05)
Toluene	1	430	0.0039 (0.001)	0.001 (0.0005)	ND (0.0005)	0.0021 (0.0005)	0.0021 (0.0005)	0.0014 (0.001)	ND (0.001)	0.0074	0.0083	0.027
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0015)	ND (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)	0.00052 J
Xylenes (total)	10	12	0.0046 (0.00019)	0.0015 (0.00019)	ND (0.0005)	0.0027 (0.0005)	0.0027 (0.0005)	0.002 (0.00017)	0.0016 (0.00017)	0.0058	0.0056	0.01
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0025)	ND,J (0.001)
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.005)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0038 (0.002)	0.0026 J (0.002)	0.0035 (0.002)	0.0047 (0.002)	0.0044 (0.002)	0.0036 (0.002)	0.0035 (0.002)	0.0022 J	0.0049	0.0022
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0016
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW5 CSX-MW5_04122010 4/12/2010	CSX-MW5 CSX-MW5_06232010 6/23/2010	CSX-MW5 CSX-MW5_09162010 9/16/2010	CSX-MW5 CSX-MW5_12162010 12/16/2010	CSX-MW5 CSX-MW5_03092011 3/9/2011	CSX-MW5 CSX-MW-5(07-12-12) 7/12/2012	CSX-MW5 CSX-MW-5 (12-05-2012) 12/5/2012	CSX-MW5 CSX-MW-5(09-03-2013) 9/3/2013	CSX-MW5 CSX-MW-5 (12-04-2013) 12/4/2013	CSX-MW5 CSX-MW5(02192014) 2/19/2014
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	ND (0.01)	ND (0.01)	ND (0.1)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.29 J (0.0004)	0.54 XQ (0.0004)	2 J (0.004)	1.3 J (0.002)	1.1 (0.02)	0.77 XQ (0.04)	0.73 XQ (0.05)	0.698 (0.0025)	0.295 (0.005)	0.381 (0.0013)
2-Butanone	4	49000	ND (0.01)	ND (0.01)	ND (0.1)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	0.0025 (0.001)	0.0018 (0.001)	0.0047 XQ (0.01)	0.0042 XQ (0.005)	0.017 (0.005)	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	0.0025 (0.001)	0.0026 (0.001)	0.008 XQ (0.01)	0.0029 XQ (0.005)	0.017 XQ (0.05)	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	0.00019 XQ (0.001)	0.00028 XQ (0.001)	0.001 XQ (0.01)	0.0007 XQ (0.005)	0.0024 XQ (0.005)	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.0025)	ND (0.0025)	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	ND (0.0003)	ND (0.0003)	ND (0.003)	ND (0.0015)	ND (0.0015)	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0078 (0.001)	0.015 XQ (0.04)	0.065 XQ (0.1)	0.043 (0.005)	0.08 (0.05)	0.042 XQ (0.04)	0.056 XQ (0.01)	0.0263 (0.0005)	0.0365 (0.0005)	0.0434 (0.0013)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	ND (0.001)	0.001 (0.001)	0.0046 XQ (0.01)	0.0032 XQ (0.005)	0.016 XQ (0.05)	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.0025)	ND (0.0025)	ND (0.04)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.0025)
cis-1,2-Dichloroethene	0.07	--	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0032 (0.001)	0.015 XQ (0.04)	0.04 XQ (0.1)	0.034 (0.005)	0.039 XQ (0.05)	0.023 XQ (0.04)	0.02 XQ (0.01)	0.0067 (0.0005)	0.0088 (0.0005)	0.0101 (0.0013)
Methyl tert-butyl ether	0.02	96	ND (0.005)	ND (0.005)	ND (0.05)	ND (0.025)	ND (0.025)	ND (0.04)	ND (0.01)	ND (0.0005)	ND (0.0005)	ND (0.0013)
4-Methyl-2-pentanone	7.8	13000	ND (0.01)	ND (0.01)	ND (0.1)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	ND (0.002)	ND (0.002)	ND (0.02)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	0.011 (0.001)	0.02 (0.001)	0.069 XQ (0.1)	0.042 (0.005)	0.065 (0.05)	NA	NA	NA	NA	NA
Styrene	0.1	220	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.025)
Toluene	1	430	0.0069 (0.001)	0.01 XQ (0.04)	0.014 XQ (0.1)	0.0097 (0.005)	0.021 XQ (0.05)	0.0072 XQ (0.04)	0.0064 XQ (0.01)	0.0028 (0.001)	0.0025 (0.001)	0.0026 (0.0025)
Trichloroethene	0.005	0.11	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0002 XQ (0.001)	0.0004 XQ (0.001)	0.0016 XQ (0.01)	ND (0.005)	0.01 XQ (0.05)	ND (0.04)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.0025)
1,3,5-Trimethylbenzene	0.53	4.5	0.0026 (0.001)	0.0036 XQ (0.04)	0.018 XQ (0.1)	0.015 XQ (0.005)	0.031 XQ (0.05)	0.009 XQ (0.04)	0.013 XQ (0.01)	0.0048 (0.0005)	0.0082 (0.0005)	0.0092 (0.0013)
Xylenes (total)	10	12	0.00406 J (0.002)	0.01997 J (0.08)	0.059 J (0.2)	0.0638 J (0.05)	0.089 J (0.1)	0.051 XQ (0.12)	0.06 XQ (0.03)	0.0219 (0.001)	0.03 (0.00019)	0.0363 (0.00048)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.001)	0.00079 XQ (0.001)	ND (0.01)	ND (0.005)	0.036 XQ (0.05)	ND (0.04)	0.0018 XQ (0.01)	ND (0.002)	ND (0.002)	ND (0.005)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	0.014 (0.001)	0.014 (0.001)	0.0124 (0.002)	0.0092 (0.002)	0.0115 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	0.0084 (0.001)	0.0073 (0.001)	0.0053 (0.002)	0.0049 (0.002)	0.0053 (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW5	CSX-MW9
Field Sample ID	Groundwater	Groundwater	CSX-MW5(05132014)	CSX-MW5(08192014)	CSX-MW5(12022014)	CSX-MW5(02192015)	CSX-MW5(08112015)	CSX-MW5_05-15-2017	CSX-MW5_20191204	CSX-MW5_20220412	CSX-MW5_20220412FD	CSXMW-9_04132010
Sample Date	Used Aquifer	Vapor Intrusion	5/13/2014	8/19/2014	12/2/2014	2/19/2015	8/11/2015	5/15/2017	12/4/2019	4/12/2022	4/12/2022	4/13/2010
Comments	(TDS <2500)	Screening Values									FD	
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)
Benzene	0.005	0.35	0.39 (0.0035)	0.616 (0.0018)	0.45 (0.00088)	0.468 (0.00088)	0.705 (0.0025)	0.15	0.178	0.071	0.066	3.7 (0.04)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 (0.01)
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.015 (0.01)
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0033 XQ (0.01)
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.005)
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.003)
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
Cumene	3.5	24	0.0076 (0.0005)	0.0276 (0.0025)	0.0611 (0.0013)	0.057 (0.0013)	0.0496 (0.0025)	0.0685	0.0502	0.071	0.069	0.1 (0.1)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0065 XQ (0.01)
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000084)	ND (0.0000099)	ND (0.00001)	ND (0.000028)	ND (0.000029)	ND (0.01)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.005)	ND (0.0025)	ND (0.0025)	ND (0.005)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0099 XQ (0.1)
Ethyl Benzene	0.7	0.86	0.0011 (0.00025)	0.0073 (0.0025)	0.015 (0.0013)	0.0119 (0.0013)	0.0102 (0.0025)	0.007	0.0045	0.0044	0.0041	0.027 (0.01)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.0025)	ND (0.0013)	ND (0.0013)	ND (0.0025)	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.05)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.16 XQ (0.2)
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.12 (0.1)
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
tert Butyl alcohol	--	--	ND (0.01)	ND (0.05)	ND (0.025)	ND (0.025)	ND (0.05)	ND (0.005)	ND (0.0075)	ND (0.05)	ND (0.05)	NA
Toluene	1	430	0.00064 J (0.0005)	ND (0.0025)	0.0032 (0.0013)	0.003 (0.0013)	ND (0.005)	0.0015	0.00099 J	0.001	0.00097 J	0.026 XQ (0.1)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.005)	ND (0.0025)	ND (0.0025)	ND (0.005)	ND (0.001)	ND (0.0015)	ND (0.005)	ND (0.005)	0.0014 XQ (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.00095 J (0.0005)	0.0039 J (0.0025)	0.0113 (0.0013)	0.0105 (0.0013)	0.0067 J (0.0025)	0.0092	0.003	0.0037 J	0.0041 J	0.015 XQ (0.1)
Xylenes (total)	10	12	0.0024 (0.00019)	0.0222 (0.0025)	0.0498 (0.0013)	0.0411 (0.0013)	0.0348 (0.00083)	0.0353	0.0175	0.014	0.014	0.042 J (0.2)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	ND (0.0025)	ND,J (0.001)	ND,J (0.001)	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.01)	ND (0.002)	ND (0.003)	ND (0.005)	ND (0.005)	ND (0.01)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0096 (0.002)	0.013 (0.002)	0.0152 (0.002)	0.0142 (0.002)	0.017 (0.002)	0.0134	0.0132	0.018	0.018	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	0.0048 (0.002)	0.0076 (0.002)	0.0075 (0.002)	0.0084 (0.002)	0.0082	0.0072	0.0082	0.0083	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9	CSX-MW9
Field Sample ID	Groundwater	Groundwater	CSXMW-9_06232010	CSXMW-9_09162010	CSXMW-9_09162010DUP	CSXMW-9_12162010	CSXMW-9_03092011	CSX-MW-9(07-12-12)	CSXMW-9 (12-05-2012)	CSX-MW-9(09-03-2013)	CSX-MW-9 (12-04-2013)	CSXMW-9(02202014)
Sample Date	Used Aquifer	Vapor Intrusion	6/23/2010	9/16/2010	9/16/2010	12/16/2010	3/9/2011	7/12/2012	12/5/2012	9/3/2013	12/4/2013	2/20/2014
Comments	(TDS <2500)	Screening Values			FD							
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	ND (0.1)	ND (0.1)	ND (0.1)	0.59 XQ (1)	ND (0.1)	NA	NA	NA	NA	NA
Benzene	0.005	0.35	2.7 (0.04)	2.9 (0.04)	2.8 (0.04)	3 (0.04)	2.4 (0.04)	1.3 XQ (0.05)	1.4 XQ (0.075)	1.22 (0.005)	1.26 (0.01)	1.11 (0.005)
2-Butanone	4	49000	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	0.0047 XQ (0.01)	0.017 XQ (0.1)	0.02 XQ (0.1)	0.0081 XQ (0.01)	0.04 XQ (0.1)	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	0.0049 XQ (0.01)	0.016 (0.01)	0.019 XQ (0.1)	0.0043 XQ (0.01)	0.0068 XQ (0.01)	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	0.0015 XQ (0.01)	0.0038 XQ (0.01)	0.0035 XQ (0.01)	0.0021 XQ (0.01)	0.026 XQ (0.1)	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
Cumene	3.5	24	0.052 (0.01)	0.11 (0.1)	0.11 (0.01)	0.077 XQ (0.1)	0.11 (0.1)	0.079 XQ (0.05)	0.059 XQ (0.01)	0.0666 (0.0013)	0.125 (0.0005)	0.0927 (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	0.0024 XQ (0.01)	0.0078 XQ (0.01)	0.012 XQ (0.1)	0.0033 XQ (0.01)	0.025 XQ (0.1)	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.05)	ND (0.01)	ND (0.0025)	ND (0.001)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.019 (0.01)	0.029 (0.01)	0.031 XQ (0.1)	0.026 XQ (0.1)	0.031 XQ (0.1)	0.028 XQ (0.05)	0.019 XQ (0.01)	0.016 (0.0013)	0.0378 (0.0005)	0.0227 (0.005)
Methyl tert-butyl ether	0.02	96	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.01)	ND (0.0013)	0.00095 J (0.0005)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	0.13 XQ (0.2)	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	0.05 (0.01)	0.12 (0.01)	0.12 (0.1)	0.084 XQ (0.1)	0.083 XQ (0.1)	NA	NA	NA	NA	NA
Styrene	0.1	220	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	0.0351 J (0.025)	0.0115 J (0.01)	ND (0.1)
Toluene	1	430	0.023 (0.01)	0.022 (0.01)	0.022 (0.01)	0.015 XQ (0.1)	0.011 (0.01)	0.0082 XQ (0.05)	0.0056 XQ (0.01)	0.0053 (0.0025)	0.0076 (0.001)	ND (0.01)
Trichloroethene	0.005	0.11	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.01)	0.0016 XQ (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.05)	ND (0.01)	ND (0.0025)	ND (0.001)	ND (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.0065 XQ (0.01)	0.013 (0.01)	0.013 (0.01)	0.011 XQ (0.01)	0.04 XQ (0.1)	ND (0.05)	0.006 XQ (0.01)	0.0055 (0.0013)	0.011 (0.0005)	0.0069 J (0.005)
Xylenes (total)	10	12	0.0301 J (0.02)	0.0526 J (0.02)	0.0524 J (0.02)	0.0419 J (0.02)	0.0693 J (0.2)	0.057 XQ (0.15)	0.041 XQ (0.03)	0.042 (0.0025)	0.0896 (0.00019)	0.059 (0.0019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0068 XQ (0.01)	ND (0.05)	0.0045 XQ (0.01)	ND (0.005)	ND (0.002)	ND (0.02)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	0.012 (0.001)	0.012 (0.001)	0.0151 (0.002)	0.0121 (0.002)	0.0137 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	0.014 (0.001)	0.013 (0.001)	0.0168 (0.002)	0.0154 (0.002)	0.015 (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Terraphase Engineering Inc.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	CSX-MW9 CSXMW-9(05132014) 5/13/2014	CSX-MW9 CSXMW-9(08192014) 8/19/2014	CSX-MW9 CSXMW-9(12022014) 12/2/2014	CSX-MW9 CSXMW-9(02192015) 2/19/2015	CSX-MW9 CSXMW-9(05142015) 5/14/2015	CSX-MW9 CSXMW-9(08112015) 8/11/2015	CSX-MW9 CSXMW-9_05-15-2017 5/15/2017	DSCP-MW-1 DSCP-MW-1_06252010 6/25/2010	DSCP-MW-1 DSCP-MW-1_09242010 9/24/2010	DSCP-MW-1 DSCP-MW-1_12172010 12/17/2010
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	ND,XQ (0.2)
Benzene	0.005	0.35	1.25 (0.018)	1.49 (0.007)	1.88 (0.0035)	1.76 (0.0035)	1.54 (0.005)	1.58 (0.005)	0.773	ND (0.0004)	ND (0.0004)	ND (0.008)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.2)
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	0.0075 XQ (0.01)	0.0092 (0.001)	0.0097 XQ (0.02)
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	0.013 (0.01)	0.013 (0.004)	0.0088 XQ (0.02)
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	0.0019 XQ (0.01)	0.0019 (0.001)	0.0023 XQ (0.02)
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.0005)	ND (0.01)
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	ND (0.0003)	ND (0.0003)	ND (0.006)
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.001)	ND (0.02)
Cumene	3.5	24	0.0629 (0.0025)	0.138 (0.0025)	0.12 (0.005)	0.0956 (0.005)	0.0999 (0.005)	0.088 (0.005)	0.0729	0.074 (0.01)	0.07 J (0.001)	0.094 (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	0.0098 XQ (0.01)	0.0095 (0.001)	0.011 XQ (0.02)
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000078)	ND (0.0000083)	ND (0.0000099)	ND (0.001)	ND (0.001)	ND (0.02)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.001)	ND (0.02)
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.005)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.0025)	ND (0.0005)	ND (0.0005)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.001)	ND (0.02)
Ethyl Benzene	0.7	0.86	0.018 (0.0013)	0.0282 (0.0025)	0.0287 (0.005)	0.0183 (0.005)	0.0215 (0.005)	0.0185 (0.005)	0.0078	0.0099 (0.001)	0.0083 (0.001)	0.012 XQ (0.02)
Methyl tert-butyl ether	0.02	96	ND (0.0025)	ND (0.0025)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.0025)	ND (0.005)	ND (0.005)	ND (0.1)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.2)
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	ND (0.002)	ND (0.002)	ND,XQ (0.04)
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	0.089 (0.01)	0.081 J (0.001)	0.11 (0.02)
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.001)	ND (0.02)
tert Butyl alcohol	--	--	ND (0.05)	ND (0.05)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.025)	NA	NA	NA
Toluene	1	430	0.0047 J (0.0025)	0.0061 (0.0025)	0.0062 J (0.005)	0.0051 J (0.005)	ND (0.01)	ND (0.01)	0.0035 J	0.0025 (0.001)	0.0023 XQ (0.004)	0.0021 XQ (0.02)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	ND (0.001)	ND (0.02)
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.005)	ND (0.02)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	0.0344	ND (0.001)	0.00096 XQ (0.004)	ND (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	0.0057 J (0.0025)	0.0097 J (0.0025)	0.01 J (0.005)	0.0072 J (0.005)	0.0078 J (0.005)	0.0063 J (0.005)	0.0039 J	ND (0.001)	0.039 (0.001)	0.049 XQ (0.02)
Xylenes (total)	10	12	0.0477 (0.00097)	0.0897 (0.0025)	0.0877 (0.005)	0.0656 (0.005)	0.0721 (0.0017)	0.0628 (0.0017)	0.041	0.044 J (0.002)	0.0327 J (0.004)	0.0442 J (0.04)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.02)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0129 (0.002)	0.0132 (0.002)	0.0135 (0.002)	0.015 (0.002)	0.0162 (0.002)	0.0153 (0.002)	0.0178	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0143 (0.002)	0.0145 (0.002)	0.0162 (0.002)	0.0145 (0.002)	0.0137 (0.002)	0.015 (0.002)	0.0128	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1	DSCP-MW-1
Field Sample ID	Groundwater	Groundwater	DSCP-MW-1_03152011	DSCP-MW-1 (07-13-12)	DSCP-MW-1(12-07-2012)	DSCP-MW-1(09-04-2013)	DSCP-MW-1 (12-05-2013)	DSCP-MW-1(02182014)	DSCP-MW-1(05152014)	DSCP-MW-1(08212014)	DSCP-MW-1(12032014)	DSCP-MW-1(02232015)
Sample Date	Used Aquifer	Vapor Intrusion	3/15/2011	7/13/2012	12/7/2012	9/4/2013	12/5/2013	2/18/2014	5/15/2014	8/21/2014	12/3/2014	2/23/2015
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.004)	ND (0.01)	ND (0.003)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00035)	0.00043 J (0.00035)	ND (0.00035)	ND (0.00035)
2-Butanone	4	49000	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	0.0048 XQ (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	0.0057 XQ (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	0.0037 XQ (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	ND (0.005)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	ND (0.003)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.066 (0.01)	0.049 XQ (0.01)	0.07 (0.003)	0.0392 (0.0005)	0.0816 (0.0005)	0.0251 (0.0005)	0.0754 (0.0005)	0.0914 (0.0005)	0.0728 (0.0005)	0.0838 (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	0.0086 XQ (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.01)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)
1,1-Dichloroethane	0.16	1.6	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.01)	ND (0.003)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0073 XQ (0.01)	0.005 XQ (0.01)	0.011 (0.003)	0.0073 (0.0005)	0.0094 (0.0005)	0.0023 (0.0005)	0.0094 (0.00025)	0.009 (0.0005)	0.0136 (0.0005)	0.023 (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.05)	ND (0.01)	0.00082 J (0.003)	ND (0.0005)	0.00054 J (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	ND (0.02)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	0.073 (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	0.0015 XQ (0.01)	ND (0.01)	0.0017 J (0.003)	0.001 (0.001)	0.0014 (0.001)	ND (0.001)	0.0018 (0.0005)	0.0014 (0.0005)	0.0019 (0.0005)	0.003 (0.0005)
Trichloroethene	0.005	0.11	ND (0.01)	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.01)	ND (0.01)	0.00043 J (0.003)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	0.04 (0.01)	0.0026 XQ (0.01)	0.0031 (0.003)	0.0017 J (0.0005)	0.0034 (0.0005)	0.0015 J (0.0005)	0.0027 (0.0005)	0.0036 (0.0005)	0.0025 (0.0005)	0.0035 (0.0005)
Xylenes (total)	10	12	0.0403 J (0.02)	0.023 XQ (0.03)	0.036 (0.009)	0.0227 (0.001)	0.0394 (0.00019)	0.0103 (0.00019)	0.0413 (0.00019)	0.0363 (0.0005)	0.0355 (0.0005)	0.0461 (0.0005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.01)	ND (0.01)	0.00056 J (0.003)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	0.0052 (0.001)	0.0036 (0.001)	0.0041 (0.002)	0.0036 (0.002)	0.0024 J (0.002)	0.0034 (0.002)	0.0039 (0.002)	0.0041 (0.002)	0.0046 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.004 (0.001)	0.0045 (0.001)	0.006 (0.002)	0.006 (0.002)	0.0029 J (0.002)	0.0046 (0.002)	0.0048 (0.002)	0.0061 (0.002)	0.0077 (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	DSCP-MW-1	DSCP-MW-1	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19	DSCP-MW-19
Field Sample ID	Used Aquifer	Vapor Intrusion	DSCP-MW-1_20191205	DSCP-MW-1_20220418	STEEN-MW-19 (07-13-2012)	DSCP-MW-19 (12-06-2012)	DSCP-MW-19 (09-05-2013)	DSCP-MW-19 (12-05-2013)	DSCP-MW-19(02182014)	DSCP-MW-19(05142014)	DSCP-MW-19(08212014)	DSCP-MW-19(12032014)
Sample Date	(TDS <2500)	Screening Values	12/5/2019	4/18/2022	7/13/2012	12/6/2012	9/5/2013	12/5/2013	2/18/2014	5/14/2014	8/21/2014	12/3/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.00045)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0869	0.09	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00001)	ND (0.000028)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.01	0.0092	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.00075)	ND (0.001)	0.00036 J (0.001)	0.00026 J (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.0075)	ND (0.05)	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	0.0024	0.001	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.0015)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	0.0027	0.0027 J	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	0.0466	0.029	ND (0.003)	ND (0.003)	ND (0.001)	ND (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	ND (0.0025)	ND,J (0.001)	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.003)	ND (0.005)	0.000095 J (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	<u>0.0213</u>	0.0072	0.007 (0.001)	0.0049 (0.001)	0.0046 (0.002)	0.0056 (0.002)	0.0062 (0.002)	0.0044 (0.002)	0.0053 (0.002)	0.006 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0035	0.003	0.00015 J (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	DSCP-MW-19	DSCP-MW-19	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20	DSCP-MW-20
Field Sample ID	Used Aquifer	Vapor Intrusion	DSCP-MW-19_20191205	DSCP-MW-19	DSCP-MW-20_04142010	DSCP-MW-20_06242010	DSCP-MW-20_09152010	DSCP-MW-20_12172010	DSCP-MW-20_03142011	DSCP-MW-20 (07-13-2012)	DSCP-MW-20 (12-06-2012)	DSCP-MW-20(09-04-2013)
Sample Date	(TDS <2500)	Screening Values	12/5/2019	4/14/2022	4/14/2010	6/24/2010	9/15/2010	12/17/2010	3/14/2011	7/13/2012	12/6/2012	9/4/2013
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA
Benzene	0.005	0.35	ND (0.00045)	ND (0.001)	ND (0.0004)	ND (0.0004)	ND (0.0004)	0.00018 XQ (0.0004)	ND (0.0004)	ND (0.001)	ND (0.001)	ND (0.0005)
2-Butanone	4	49000	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	ND (0.0003)	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.00015 XQ (0.001)	ND (0.001)	NA	NA	NA
Cumene	3.5	24	ND (0.00075)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00001)	ND (0.000028)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00002)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.00075)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.00075)	ND (0.001)	0.0003 XQ (0.005)	0.00034 XQ (0.005)	0.0011 XQ (0.005)	0.0021 XQ (0.005)	0.00065 XQ (0.005)	0.00034 J (0.001)	0.00041 J (0.001)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	0.00083 XQ (0.002)	ND (0.002)	0.00022 XQ (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
Styrene	0.1	220	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.0075)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	ND (0.01)
Toluene	1	430	ND (0.00075)	ND (0.001)	0.0002 XQ (0.001)	0.000083 XQ (0.001)	ND (0.001)	0.00016 XQ (0.001)	0.0023 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.0015)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0015)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
Xylenes (total)	10	12	ND (0.00075)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	0.002 J	ND,J (0.001)	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.003)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	0.0039	NA	NA	NA	NA	NA	0.00067 J (0.001)	ND (0.001)	ND (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	0.00028 J	NA	NA	NA	NA	NA	0.00075 J (0.001)	ND (0.001)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	DSCP-MW-20 DSCP-MW-20 (12-05-2013) 12/5/2013	DSCP-MW-20 DSCP-MW-20(02182014) 2/18/2014	DSCP-MW-20 DSCP-MW-20(05142014) 5/14/2014	DSCP-MW-20 DSCP-MW-20(08202014) 8/20/2014	DSCP-MW-20 DSCP-MW-20(12032014) 12/3/2014	DSCP-MW-20 DSCP-MW-20(02232015) 2/23/2015	DSCP-MW-20 DSCP-MW-20(05142015) 5/14/2015	DSCP-MW-20 DSCP-MW-20(08122015) 8/12/2015	DSCP-MW-20 DSCP-MW-20_05-12-2017 5/12/2017	DSCP-MW-20 DSCP-MW-20_20191216 12/16/2019
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.00045)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000079)	ND (0.0000083)	ND (0.0000098)	ND (0.0000099)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.00075)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.0075)
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.00075)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0015)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)
Xylenes (total)	10	12	0.0003 J (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	ND (0.00017)	ND (0.0005)	ND (0.00075)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0025)
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.002)
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0029 J
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	2.02
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.002 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.002 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.72

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	DSCP-MW-20 DSCP-MW-20_20220414 4/14/2022	DSCP-MW-20D DSCP-MW-20D_04142010 4/14/2010	DSCP-MW-20D DSCP-MW-20D_06242010 6/24/2010	DSCP-MW-20D DSCP-MW-20D_09152010 9/15/2010	DSCP-MW-20D DSCP-MW-20D_12172010 12/17/2010	DSCP-MW-20D DSCP-MW-20D_03142011 3/14/2011	DSCP-MW-20D DSCP-MW-20D (07-13-2012) 7/13/2012	DSCP-MW-20D DSCP-MW-20D (12-06-2012) 12/6/2012	DSCP-MW-20D DSCP-MW-20D(09-04-2013) 9/4/2013	DSCP-MW-20D DSCP-MW-20D (12-05-2013) 12/5/2013
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.0004)	ND (0.0004)	ND (0.0004)	0.00033 XQ (0.0004)	ND (0.0004)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	ND (0.0003)	0.00009 XQ (0.0003)	ND (0.0003)	0.00015 XQ (0.0003)	ND (0.0003)	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Cumene	3.5	24	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)
1,1-Dichloroethane	0.16	1.6	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	0.00018 XQ (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.001)	0.0034 XQ (0.005)	0.0047 XQ (0.005)	0.0047 XQ (0.005)	0.0029 XQ (0.005)	0.0037 XQ (0.005)	0.0045 (0.001)	ND (0.001)	0.0029 (0.0005)	0.0043 (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	0.00079 XQ (0.002)	ND (0.002)	0.00022 XQ (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Styrene	0.1	220	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.001)	0.00025 XQ (0.001)	0.00033 XQ (0.001)	ND (0.001)	0.0001 XQ (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	0.00042 XQ (0.001)	0.00044 XQ (0.001)	0.00062 XQ (0.001)	0.00031 XQ (0.001)	0.00039 XQ (0.001)	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)	ND (0.003)	ND (0.001)	ND (0.00019)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	ND,J (0.001)	NA	NA	NA	NA	NA	NA	NA	ND (0.0005)	NA
Naphthalene	0.1	1.3	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	6.27 (0.004)	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.0021)	NA	NA	NA	NA	NA	ND (0.001)	0.0028 (0.001)	ND (0.002)	ND (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.000097 J	NA	NA	NA	NA	NA	ND (0.001)	0.0091 (0.001)	ND (0.002)	0.0148 (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	6.87 (0.01)	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D	DSCP-MW-20D
Field Sample ID	Used Aquifer	Vapor Intrusion	DSCP-MW-20D(02182014)	DSCP-MW-20D(05142014)	DSCP-MW-20D(08202014)	DSCP-MW-20D(12032014)	DSCP-MW-20D(02232015)	DSCP-MW-20D(05142015)	DSCP-MW-20D(08122015)	DSCP-MW-20D_05-12-2017	DSCP-MW-20D_20180619	DSCP-MW-20D_20191216
Sample Date	(TDS <2500)	Screening Values	2/18/2014	5/14/2014	8/20/2014	12/3/2014	2/23/2015	5/14/2015	8/12/2015	5/12/2017	6/19/2018	12/16/2019
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.00035)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.00025)	ND (0.00045)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)	ND (0.0000081)	ND (0.0000078)	ND (0.000008)	ND (0.0000099)	ND (0.00001)	ND (0.0000099)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.00075)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Methyl tert-butyl ether	0.02	96	0.0055 (0.0005)	0.0043 (0.0005)	0.0048 (0.0005)	0.005 (0.0005)	0.0051 (0.0005)	0.0062 (0.0005)	0.005 (0.0005)	0.0056	0.0048	0.0059
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.0075)	ND (0.0075)
Toluene	1	430	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0015)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0015)
Xylenes (total)	10	12	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00017)	ND (0.00017)	ND (0.0005)	ND (0.0005)	ND (0.00075)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0025)	ND (0.0025)
Naphthalene	0.1	1.3	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.003)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	0.002 J	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	0.0079	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	6.65	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0023 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0016 J	0.0015 J
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0053 (0.002)	ND (0.002)	0.0037 (0.002)	0.0046 (0.002)	0.0081 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	6.41	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	DSCP-MW-20D DSCP-MW-20D_20220414 4/14/2022	DSCP-MW-20D DSCP-MW-20D_20220414FD 4/14/2022 FD	DSCP-MW-44A DSCP-MW-44A(07-13-2012) 7/13/2012	DSCP-MW-44A DSCP-MW-44A(12-07-2012) 12/7/2012	DSCP-MW-44A DSCP-MW-44A(09-04-2013) 9/4/2013	DSCP-MW-44A DSCP-MW-44A (12-05-2013) 12/5/2013	DSCP-MW-44A DSCP-MW-44A(02182014) 2/18/2014	DSCP-MW-44A DSCP-MW-44A(05152014) 5/15/2014	DSCP-MW-44A DSCP-MW-44A(08212014) 8/21/2014	DSCP-MW-44A DSCP-MW-44A(12032014) 12/3/2014
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.005)	NA	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	NA	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	0.0063	NA	ND (0.001)	0.00073 J (0.001)	ND (0.0005)	0.00075 J (0.0005)	0.00062 J (0.0005)	ND (0.0005)	ND (0.0005)	0.00065 J (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.05)	NA	NA	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.005)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.005)	NA	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.001)	NA	ND (0.003)	ND (0.003)	ND (0.001)	ND (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	ND,J (0.001)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.005)	NA	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	0.0017 J	0.0016 J	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0012	0.0011	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	5.6	6	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0016 J	0.0014 J	0.0013 (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0118 (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00012 J	ND (0.00052)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	0.0024 J (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	5.7	6.8	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	DSCP-MW-44A	DSCP-MW-44A	DSCP-MW-44A	DSCP-MW-45A	DSCP-MW-45A	DSCP-MW-45A	DSCP-MW-45A	DSCP-MW-45A	DSCP-MW-45A	DSCP-MW-45A
Field Sample ID			DSCP-MW-44A(08122015)	DSCP-MW-44A_20191205	DSCP-MW-44A	DSCP-MW-45A (12-06-2012)	DSCP-MW-45A(09-04-2013)	DSCP-MW-45A (12-05-2013)	DSCP-MW-45A(02182014)	DSCP-MW-45A(05142014)	DSCP-MW-45A(08202014)	DSCP-MW-45A(12022014)
Sample Date			8/12/2015	12/5/2019	4/15/2022	12/6/2012	9/4/2013	12/5/2013	2/18/2014	5/14/2014	8/20/2014	12/2/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	ND (0.00045)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00035)	ND (0.00035)	ND (0.00035)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.0005)	ND (0.00075)	ND (0.005)	0.0004 J (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000008)	ND (0.00001)	ND (0.000028)	ND (0.00002)	ND (0.00002)	ND (0.000011)	ND (0.000011)	ND (0.000011)	ND (0.0000081)	ND (0.0000081)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.00025)	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	ND (0.00075)	ND (0.001)	0.00022 J (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.01)	ND (0.0075)	ND (0.05)	NA	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Toluene	1	430	ND (0.001)	ND (0.00075)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.0015)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0005)	ND (0.0015)	ND (0.005)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	ND (0.00017)	ND (0.00075)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.0005)	ND (0.0005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	ND (0.0025)	ND,J (0.001)	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.002)	ND (0.003)	ND (0.005)	0.00011 J (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	ND (0.002)	0.00075 J	0.0023 (0.001)	0.0023 J (0.002)	0.0021 J (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	0.0021 J (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.002)	ND (0.00052)	ND (0.001)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Sample Date / Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	DSCP-MW-45A / DSCP-MW-45A_20191205 / 12/5/2019	DSCP-MW-45A / DSCP-MW-45A / 4/14/2022	MW-28 / MW-28_1242460 / 4/14/2011	MW-28 / MW-28_1250813 / 6/8/2011	MW-28 / MW28_071212 / 7/12/2012	MW-28 / MW-28~JB67921 / 5/28/2014	MW-28 / MW-28-20141219 / 12/19/2014	MW-31 / MW31-042605 / 4/26/2005	MW-31 / MW-31_1250813 / 6/8/2011	MW-31 / MW31_071212 / 7/12/2012
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	0.14	0.32	NA	NA	NA	NA	0.08	NA
Benzene	0.005	0.35	ND (0.00045)	ND (0.001)	1.5	0.59	0.25 (0.01)	1.6 (0.01)	2.96 (0.013)	2.6 (0.25)	0.15	0.26 (0.01)
2-Butanone	4	49000	NA	NA	0.059	ND (0.006)	NA	NA	NA	NA	0.01 J	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	ND (0.004)	ND (0.002)	NA	NA	NA	NA	ND (0.0008)	NA
Chloroform	0.08	0.18	NA	NA	ND (0.004)	ND (0.002)	NA	NA	NA	NA	ND (0.0008)	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.00075)	ND (0.005)	0.051	0.045	0.011 J (0.02)	0.0149 (0.001)	0.017 J (0.025)	ND (0.25)	0.002 J	0.035 (0.02)
Cyclohexane	53	53	NA	NA	0.44	0.36	NA	NA	NA	NA	0.095	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00001)	ND (0.000028)	ND (0.005)	ND (0.002)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.001)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	ND (0.005)	ND (0.002)	NA	NA	NA	NA	ND (0.001)	NA
1,2-Dichloroethane	0.005	0.51	ND (0.00075)	ND (0.001)	ND (0.005)	ND (0.002)	ND (0.01)	ND (0.001)	ND (0.025)	ND (0.25)	ND (0.001)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	ND (0.004)	ND (0.002)	NA	NA	NA	NA	ND (0.0008)	NA
Ethyl Benzene	0.7	0.86	ND (0.00075)	ND (0.001)	0.99	0.59	0.16 (0.01)	0.136 (0.001)	0.158 (0.025)	0.29 (0.25)	0.002 J	0.055 (0.01)
Methyl tert-butyl ether	0.02	96	ND (0.00075)	ND (0.001)	0.11	0.3	0.19 (0.01)	0.465 (0.02)	0.377 (0.025)	ND (0.25)	0.0006 J	ND (0.01)
4-Methyl-2-pentanone	7.8	13000	NA	NA	ND (0.015)	0.038	NA	NA	NA	NA	0.012	NA
Methylcyclohexane	--	--	NA	NA	0.18	0.17	NA	NA	NA	NA	0.078	NA
Methylene Chloride	0.005	95	NA	NA	ND (0.01)	ND (0.004)	NA	NA	NA	NA	ND (0.002)	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	ND (0.0075)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.00075)	ND (0.001)	2.1	0.93	0.3 (0.01)	0.111 (0.001)	0.125 (0.025)	0.51 (0.25)	0.002 J	0.007 J (0.01)
Trichloroethene	0.005	0.11	NA	NA	ND (0.005)	ND (0.002)	NA	NA	NA	NA	ND (0.001)	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.0015)	ND (0.005)	NA	1.3	0.43 (0.02)	0.435 (0.04)	0.449 (0.05)	NA	0.003 J	0.051 (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0015)	ND (0.005)	NA	0.38	0.13 (0.02)	0.15 (0.002)	0.162 (0.05)	NA	0.004 J	0.028 (0.02)
Xylenes (total)	10	12	ND (0.00075)	ND (0.001)	6.3	3.7	1.3 (0.01)	0.888 (0.02)	1 (0.025)	1 (0.25)	0.004 J	0.19 (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	0.003 J (0.005)	0.000418 (0.0001)	0.000275 (0.0001)	NA	NA	0.079 J (0.1)
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	0.005 J (0.005)	0.000511 (0.0001)	0.000529 (0.0001)	NA	NA	0.15 (0.1)
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	0.006 (0.005)	0.000452 (0.0001)	0.000451 (0.0001)	NA	NA	0.25 (0.1)
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	0.016 (0.005)	0.00155 (0.0001)	0.00136 (0.0001)	NA	NA	0.57 (0.1)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	0.007 (0.005)	0.00062 (0.0001)	0.000607 (0.0001)	NA	NA	0.26 (0.1)
Chrysene	0.0019	--	NA	NA	NA	0.094	0.015 (0.005)	0.00149 (0.0001)	0.00148 (0.0001)	ND (0.1)	0.25	0.33 (0.1)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	0.04	0.006 (0.005)	0.00211 (0.0001)	0.00139 (0.0001)	ND (0.1)	0.067	0.4 (0.1)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	0.0057	0.0035 J	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.003)	ND (0.005)	NA	0.76	0.15 (0.005)	0.0523 (0.001)	0.0453 (0.001)	ND (0.1)	ND (0.2)	0.33 (0.1)
Phenanthrene	1.1	--	NA	NA	NA	0.15	0.019 (0.005)	0.00354 (0.0001)	0.0026 (0.0001)	ND (0.1)	0.13	0.42 (0.1)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	0.11	0.02 (0.005)	0.00206 (0.0001)	0.00209 (0.0001)	ND (0.1)	ND (0.69)	0.53 (0.1)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.002)	ND (0.0021)	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.002)	ND (0.00052)	NA	0.0567	0.0115 (0.001)	0.0069 (0.003)	ND (0.003)	NA	0.00014 J	0.001 J (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	MW-31 MW-31~JB67921 5/28/2014	MW-31 MW-31-20141217 12/17/2014	MW-31 MW-31_20180725 7/25/2018	MW-38 MW38-042605 4/26/2005	MW-38 MS38_071212 7/12/2012	MW-38 MW-38 5/28/2014	MW-38 MW-38-20141211 12/11/2014	MW-38 MW-38-20180726 7/26/2018	MW-38 MW-38_20190702 7/2/2019	MW-38 MW-38_20191106 11/6/2019
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	1.04 (0.01)	0.964 (0.005)	0.428 (0.01)	0.11 (0.005)	0.041 (0.001)	0.0574 (0.0005)	0.0042 (0.0005)	ND (0.001)	0.003 (0.001)	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0102 (0.001)	0.0051 (0.0025)	0.221 (0.01)	ND (0.005)	ND (0.002)	0.0017 (0.001)	0.00051 J (0.001)	ND (0.001)	ND (0.005)	ND (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.000029)	ND (0.000028)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.0025)	ND (0.01)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0343 (0.001)	0.0096 (0.0025)	0.0622 (0.01)	ND (0.005)	ND (0.001)	0.0021 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.144 (0.001)	0.0016 J (0.0025)	ND (0.01)	0.011 (0.005)	0.033 (0.001)	0.185 (0.001)	0.0378 (0.001)	0.00118 (0.001)	0.002 (0.001)	0.002 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	0.05 (0.025)	0.1 (0.025)
Toluene	1	430	0.0603 (0.001)	0.0061 (0.0025)	0.0372 (0.01)	ND (0.005)	ND (0.001)	0.0023 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.031 (0.002)	0.0122 (0.005)	0.366 (0.01)	NA	ND (0.002)	0.00096 J (0.002)	ND (0.002)	ND (0.001)	ND (0.005)	ND (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	0.0113 (0.002)	0.0056 (0.005)	0.485 (0.01)	NA	ND (0.002)	0.00042 J (0.002)	ND (0.002)	ND (0.001)	ND (0.005)	ND (0.005)
Xylenes (total)	10	12	0.105 (0.001)	0.0432 (0.0025)	0.0962 (0.03)	ND (0.005)	ND (0.001)	0.0024 (0.001)	ND (0.001)	ND (0.003)	ND (0.005)	ND (0.003)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.000568 (0.0001)	0.00371 (0.0005)	0.00675 (0.00211)	NA	0.0009 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Benzo(a)anthracene	0.0039	--	0.00131 (0.0001)	0.0135 (0.0005)	0.00323 (0.00211)	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Benzo(a)pyrene	0.0002	--	0.0019 (0.0001)	0.0183 (0.0005)	0.00351 (0.00211)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	0.0045 (0.0001)	0.0255 (0.005)	0.00605 (0.00211)	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	0.00189 (0.0001)	0.0181 (0.0005)	0.00343 (0.00211)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Chrysene	0.0019	--	0.0032 (0.0001)	0.0243 (0.005)	0.00275 (0.00211)	ND (0.01)	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00254 (0.0001)	ND (0.0005)	0.0476 (0.00211)	0.024 (0.01)	0.0005 (0.0005)	0.000947 (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.0005)	0.0254 (0.0105)	ND (0.01)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00025)	ND (0.0005)	ND (0.0005)
Phenanthrene	1.1	--	0.00318 (0.0001)	0.0237 (0.0005)	0.0484 (0.00211)	ND (0.01)	0.0004 J (0.0005)	0.000544 (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0005)	ND (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00465 (0.0001)	0.0344 (0.005)	0.0128 (0.00211)	ND (0.01)	0.002 (0.0005)	0.00127 (0.0001)	0.000734 (0.0001)	0.000316 (0.00005)	0.0004 J (0.0005)	0.0003 J (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	ND (0.01)	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0014 J (0.003)	ND (0.003)	ND (0.002)	NA	0.00011 J (0.001)	0.0019 J (0.003)	ND (0.003)	ND (0.002)	ND (0.003)	0.000083 J (0.0005)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	MW-38	MW-38	MW-38	MW-38	MW-39	MW-39	MW-39	MW-39	MW-39	MW-40
Field Sample ID	Groundwater	Groundwater	DUP-4_20191106	MW-38_20210422_410-37142-1	MW-38_20211026	MW-38_20220329_42234	MW39-042605	MS39_071212	MW-39	MW-39-20141208	MW-39-20180726	MW40-042605
Sample Date	Used Aquifer	Vapor Intrusion	11/6/2019	4/22/2021	10/26/2021	3/29/2022	4/26/2005	7/12/2012	5/28/2014	12/8/2014	7/26/2018	4/26/2005
Comments	(TDS <2500)	Screening Values	FD									
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.005)	0.00062 J (0.001)	ND (0.001)	ND (0.0005)	0.008 (0.005)	ND (0.001)	0.00027 J (0.0005)	0.00036 J (0.0005)	ND (0.001)	0.37 (0.025)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.025)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.002)	0.0014 (0.001)	0.00095 J (0.001)	ND (0.001)	0.042 (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.000029)	ND (0.000028)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.025)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.025)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.15 (0.025)
Methyl tert-butyl ether	0.02	96	0.002 J (0.005)	0.002 (0.001)	0.15 (0.001)	0.0728 (0.001)	0.018 (0.005)	0.002 (0.001)	0.0191 (0.001)	0.0265 (0.001)	0.00679 (0.001)	ND (0.025)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.098 J (0.13)	0.013 J (0.05)	0.82 (0.05)	0.459 (0.01)	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.025)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.025)	ND (0.005)	ND (0.005)	ND (0.002)	NA	ND (0.002)	0.00028 J (0.002)	ND (0.002)	ND (0.001)	NA
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.025)	ND (0.005)	ND (0.005)	ND (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	NA
Xylenes (total)	10	12	ND (0.015)	ND (0.006)	ND (0.006)	ND (0.001)	0.008 (0.005)	ND (0.001)	ND (0.001)	0.00025 J (0.001)	ND (0.003)	0.3 (0.025)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	0.0000752 J (0.00008)	NA	0.011 (0.005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	NA
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00004)	NA	ND (0.005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	NA
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00004)	NA	0.001 J (0.005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00004)	NA	ND (0.005)	0.000165 (0.0001)	ND (0.0001)	ND (0.00005)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00008)	NA	ND (0.005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	NA
Chrysene	0.0019	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00008)	ND (0.01)	0.001 J (0.005)	0.00014 (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.096)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	ND (0.00008)	0.051 (0.01)	0.004 J (0.005)	0.00191 (0.0001)	0.00311 (0.0001)	0.000161 (0.00005)	0.11 (0.096)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0005)	0.00096 (0.00051)	ND (0.00053)	0.00013 (0.00008)	ND (0.01)	ND (0.005)	0.000182 (0.0001)	ND (0.0001)	ND (0.00025)	0.15 (0.096)
Phenanthrene	1.1	--	ND (0.0005)	ND (0.00051)	ND (0.00053)	0.0000645 J (0.00008)	0.024 (0.01)	0.002 J (0.005)	0.000815 (0.0001)	0.00101 (0.0001)	ND (0.00005)	0.15 (0.096)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0004 J (0.0005)	0.00037 J (0.00051)	0.00032 J (0.00053)	0.000125 (0.00008)	ND (0.01)	0.009 (0.005)	0.00104 (0.0001)	0.000448 (0.0001)	0.000223 (0.00005)	ND (0.096)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	ND (0.01)	NA	NA	NA	NA	ND (0.01)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00008 J (0.0005)	ND (0.00052)	ND (0.00052)	ND (0.001)	NA	0.00046 J (0.001)	ND (0.003)	0.0014 J (0.003)	ND (0.002)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	MW-40	MW-41	MW-41	MW-43	MW-43	MW-43	MW-43	MW-43	MW-43	MW-43
Field Sample ID	Groundwater	Groundwater	MW-40-20180802	MW-41	MW-41-20141211	MW43-050205	MW-43~12/5/2006	MW-43~12/19/2007	MW-43_1242460	MW-43_1250813	MW43_071912	MW-43~JB68176
Sample Date	Used Aquifer	Vapor Intrusion	8/2/2018	5/28/2014	12/11/2014	5/2/2005	12/5/2006	12/19/2007	4/14/2011	6/7/2011	7/19/2012	5/30/2014
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	ND (0.06)	ND (0.12)	NA	NA
Benzene	0.005	0.35	0.00176 SL (0.001)	0.0477 (0.0005)	0.169 (0.0005)	5.4 (0.13)	2.3	2.6	0.8	2.5	0.97 (0.005)	1.11 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	ND (0.03)	ND (0.06)	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.016)	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.016)	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.00975 SL (0.001)	0.0033 (0.001)	0.0061 (0.001)	ND (0.13)	0.14	0.15	0.12	0.15	0.13 (0.01)	0.185 (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	0.6	0.46	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND,SL (0.00001)	ND (0.00002)	ND (0.00002)	0.000041 (0.000029)	ND (0.0000097)	ND (0.0000096)	ND (0.01)	ND (0.02)	ND (0.000029)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.02)	NA	NA
1,2-Dichloroethane	0.005	0.51	ND,SL (0.001)	ND (0.001)	ND (0.001)	ND (0.13)	ND (0.005)	ND (0.025)	0.021 J	ND (0.02)	ND (0.005)	ND (0.02)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.016)	NA	NA
Ethyl Benzene	0.7	0.86	ND,SL (0.001)	0.0037 (0.001)	0.0053 (0.001)	1 (0.13)	1.3	2.4	0.56	3.1	1.5 (0.05)	3.2 (0.02)
Methyl tert-butyl ether	0.02	96	0.00164 SL (0.001)	0.0048 (0.001)	0.0151 (0.001)	ND (0.13)	0.013 J	NA	0.007 J	0.029 J	0.006 (0.005)	0.0053 J (0.02)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	ND (0.03)	ND (0.06)	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	0.35	0.23	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	ND (0.02)	ND (0.04)	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.0916 SL (0.005)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND,SL (0.001)	0.00065 J (0.001)	0.0016 (0.001)	ND (0.13)	0.063	0.088	0.034 J	0.21	0.047 (0.005)	0.0759 (0.02)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.02)	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND,SL (0.001)	0.0143 (0.002)	0.0125 (0.002)	NA	NA	NA	NA	0.75	0.39 (0.01)	0.802 (0.04)
1,3,5-Trimethylbenzene	0.53	4.5	ND,SL (0.001)	0.0219 (0.002)	0.0271 (0.002)	NA	NA	NA	NA	0.25	0.1 (0.01)	0.2 (0.04)
Xylenes (total)	10	12	ND,SL (0.003)	0.007 (0.001)	0.0072 (0.001)	0.49 (0.13)	0.74	1.3	0.32	2.1	0.9 (0.005)	1.71 (0.02)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND,SL (0.0005)	0.00125 (0.0001)	0.00303 (0.0001)	NA	NA	NA	NA	NA	0.01 (0.0005)	0.0102 (0.01)
Benzo(a)anthracene	0.0039	--	ND,SL (0.0005)	0.00143 (0.0001)	0.00421 (0.0001)	NA	NA	NA	NA	NA	0.0006 (0.0005)	0.000622 (0.0001)
Benzo(a)pyrene	0.0002	--	ND,SL (0.0005)	0.0017 (0.0001)	0.00675 (0.001)	NA	NA	NA	NA	NA	0.0004 J (0.0005)	0.000597 (0.0001)
Benzo(b)fluoranthene	0.0012	--	ND,SL (0.0005)	0.00389 (0.0001)	0.0107 (0.001)	NA	NA	NA	NA	NA	0.0006 (0.0005)	0.000992 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	ND,SL (0.0005)	0.00181 (0.0001)	0.00709 (0.001)	NA	NA	NA	NA	NA	0.0003 J (0.0005)	0.00066 (0.0001)
Chrysene	0.0019	--	ND,SL (0.0005)	0.00327 (0.0001)	0.0116 (0.001)	ND (0.099)	0.088	0.008	NA	0.0011 J	0.0008 (0.0005)	0.000895 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0104 SL (0.0005)	0.00399 (0.0001)	0.00803 (0.001)	ND (0.099)	0.17	0.065	NA	0.052	0.051 (0.0005)	0.0501 (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.00628 SL (0.0025)	0.00533 (0.001)	0.00303 (0.0001)	7.4 (4.9)	7.5	9.7	NA	7.1	5.1 (0.047)	7.07 (0.1)
Phenanthrene	1.1	--	0.0118 SL (0.0005)	0.00572 (0.001)	0.0194 (0.001)	0.17 (0.099)	0.32	0.079	NA	0.047	0.054 (0.0005)	0.056 (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000998 SL (0.0005)	0.00478 (0.0001)	0.0149 (0.001)	ND (0.099)	0.19	0.024	NA	0.0043	0.004 (0.0005)	0.00351 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	ND (0.001)	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND,SL (0.002)	0.011 (0.003)	0.0024 J (0.003)	NA	0.00016 J	ND (0.000047)	NA	ND (0.00008)	ND (0.001)	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	MW-43	MW-43	PZ-400	PZ-400	PZ-401	PZ-402	PZ-402	PZ-402	RW-400	RW-400
Field Sample ID			MW-43-20141218	MW-43_20180727	PZ-400_071212	PZ-400-20141208	PZ-401_20220915	PZ-402	PZ402-042005	PZ-402_20220915	RW400_071212	RW-400~JB67921
Sample Date			12/18/2014	7/27/2018	7/12/2012	12/8/2014	9/15/2022	10/13/2004	4/20/2005	9/15/2022	7/12/2012	5/28/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.681 (0.005)	0.165 (0.001)	0.005 (0.005)	0.0027 (0.0005)	0.151 (0.0025)	21	25 (1)	0.615 (0.0025)	0.001 (0.001)	0.0309 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.1 (0.001)	0.0462 (0.001)	0.014 (0.01)	0.0199 (0.001)	0.0232 (0.005)	ND (0.078)	ND (0.2)	0.0494 (0.005)	0.005 (0.002)	0.0164 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00001)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.000029)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.005)	0.29	ND (0.2)	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0632 (0.001)	0.191 (0.001)	0.008 (0.005)	0.00084 J (0.001)	0.0155 (0.005)	0.81	2.2 (0.2)	0.0632 (0.005)	ND (0.001)	0.00044 J (0.001)
Methyl tert-butyl ether	0.02	96	0.0052 (0.001)	0.00136 (0.001)	0.009 (0.005)	0.0271 (0.001)	0.743 (0.005)	2.8	2.3 (0.2)	0.682 (0.005)	0.012 (0.001)	0.0799 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	0.0787 (0.005)	NA	NA	30 (0.5)	NA	NA	46.3 (1)	NA	NA
Toluene	1	430	0.0225 (0.001)	0.0108 (0.001)	ND (0.005)	0.0011 (0.001)	0.0432 (0.005)	0.23	0.3 (0.2)	0.141 (0.005)	ND (0.001)	0.00037 J (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0144 (0.002)	0.0516 (0.001)	0.025 (0.01)	0.002 (0.002)	0.0134 (0.01)	NA	NA	0.036 (0.01)	0.0006 J (0.002)	0.00021 J (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	0.0067 (0.002)	0.0146 (0.001)	0.027 (0.01)	0.0065 (0.002)	0.0148 (0.01)	NA	NA	0.0671 (0.01)	0.001 J (0.002)	0.00022 J (0.002)
Xylenes (total)	10	12	0.0737 (0.001)	0.122 (0.003)	0.007 (0.005)	0.0025 (0.001)	0.0736 (0.005)	1.5	3.7 (0.2)	0.178 (0.005)	ND (0.001)	0.00063 J (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0022 (0.0001)	0.00228 (0.00005)	0.009 (0.005)	0.00111 (0.0001)	ND (0.00008)	NA	NA	0.000305 (0.000087)	0.0001 J (0.0005)	0.00158 (0.0001)
Benzo(a)anthracene	0.0039	--	0.000701 (0.0001)	0.000471 (0.00005)	0.003 J (0.005)	0.000748 (0.0001)	0.0000576 (0.00004)	NA	NA	0.0000879 (0.000043)	0.0002 J (0.0005)	0.000118 (0.0001)
Benzo(a)pyrene	0.0002	--	0.000555 (0.0001)	0.00064 (0.00005)	0.001 J (0.005)	0.000238 (0.0001)	0.000042 (0.00004)	NA	NA	0.0000532 (0.000043)	0.0002 J (0.0005)	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.00096 (0.0001)	0.00122 (0.00005)	0.002 J (0.005)	0.000336 (0.0001)	0.000065 (0.00004)	NA	NA	0.0000679 (0.000043)	0.0002 J (0.0005)	ND (0.0001)
Benzo(g,h,i)perylene	0.00026	--	0.000482 (0.0001)	0.000607 (0.00005)	0.001 J (0.005)	0.000159 (0.0001)	ND (0.00008)	NA	NA	ND (0.000087)	0.0002 J (0.0005)	ND (0.0001)
Chrysene	0.0019	--	0.000964 (0.0001)	0.000941 (0.00005)	0.004 J (0.005)	0.000644 (0.0001)	0.0000519 J (0.00008)	0.0043	ND (0.098)	0.0000828 J (0.000087)	0.0003 J (0.0005)	0.000141 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0159 (0.001)	0.0114 (0.00005)	0.021 (0.005)	0.00239 (0.0001)	0.00157 (0.00008)	ND (0.01)	ND (0.098)	0.00119 (0.000087)	0.0003 J (0.0005)	0.00336 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.124 (0.002)	0.847 (0.005)	0.013 (0.005)	ND (0.0001)	ND (0.025)	0.31	0.98 (0.098)	0.0452 (0.025)	ND (0.0005)	ND (0.0001)
Phenanthrene	1.1	--	0.0159 (0.001)	0.0129 (0.00005)	0.031 (0.005)	0.00123 (0.0001)	0.00126 (0.00008)	0.084	0.12 (0.098)	0.00197 (0.000087)	0.0001 J (0.0005)	0.000389 (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00191 (0.0001)	0.00203 (0.00005)	0.015 (0.005)	0.00202 (0.0001)	0.000234 (0.00008)	0.011	ND (0.098)	0.000277 (0.000087)	0.003 (0.0005)	0.00151 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	0.26 H (0.05)	NA	NA	0.41 H (0.05)	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	0.012 (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	0.67 (0.015)	NA	NA	0.565 (0.015)	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.003)	ND (0.002)	0.0025 (0.001)	0.013 (0.003)	0.0077 (0.003)	0.017	NA	0.0139 (0.003)	0.0035 (0.001)	0.0014 J (0.003)
Manganese	0.3	--	NA	NA	NA	NA	0.551 (0.015)	NA	NA	0.452 (0.015)	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	RW-400	RW-402	RW-402	RW-403	RW-403	RW-403	RW-404	RW-404	RW-404	RW-406
Field Sample ID	Groundwater	Groundwater	RW-400-20141211	RW-402_072312	RW-402-20141210	RW-403_072312	RW-403~JB67921	RW-403-20141212	RW-404_071912	RW-404~JB67747	RW-404-20141212	RW-406_20220915
Sample Date	Used Aquifer	Vapor Intrusion	12/11/2014	7/23/2012	12/10/2014	7/23/2012	5/27/2014	12/12/2014	7/19/2012	5/23/2014	12/12/2014	9/15/2022
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0127 (0.0005)	ND (0.001)	ND (0.0005)	0.13 (0.005)	0.0061 (0.0013)	0.0518 (0.0005)	0.01 (0.001)	0.0071 (0.0025)	0.0087 (0.0005)	7.37 (0.1)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0152 (0.001)	ND (0.002)	ND (0.001)	0.044 (0.01)	0.0871 (0.0025)	0.0797 (0.001)	0.096 (0.002)	0.0847 (0.005)	0.106 (0.001)	0.0357 (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00003)	ND (0.00002)	ND (0.00003)	ND (0.00002)	ND (0.000022)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.0025)	ND (0.001)	ND (0.001)	ND,J (0.005)	ND (0.001)	ND (0.02)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.00051 J (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	0.0012 J (0.0025)	0.003 (0.001)	0.002 (0.001)	ND (0.005)	0.0019 (0.001)	0.778 (0.02)
Methyl tert-butyl ether	0.02	96	0.0162 (0.001)	ND (0.001)	ND (0.001)	0.43 (0.005)	0.437 (0.0025)	1.36 (0.02)	0.045 (0.001)	0.0929 (0.005)	0.148 (0.001)	0.72 (0.02)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.76 (0.2)
Toluene	1	430	0.00057 J (0.001)	ND (0.001)	ND (0.001)	0.007 (0.005)	0.0015 J (0.0025)	0.0112 (0.001)	0.004 (0.001)	0.0027 J (0.005)	0.0039 (0.001)	3.22 (0.02)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.00026 J (0.002)	ND (0.002)	ND (0.002)	ND (0.01)	ND (0.005)	0.00061 J (0.002)	ND (0.002)	ND (0.01)	0.00023 J (0.002)	0.278 (0.04)
1,3,5-Trimethylbenzene	0.53	4.5	0.00082 J (0.002)	ND (0.002)	ND (0.002)	ND (0.01)	ND (0.005)	0.00024 J (0.002)	ND (0.002)	ND (0.01)	0.00061 J (0.002)	0.138 (0.04)
Xylenes (total)	10	12	0.0017 (0.001)	ND (0.001)	ND (0.001)	0.003 J (0.005)	0.0034 (0.0025)	0.0082 (0.001)	0.005 (0.001)	0.0019 J (0.005)	0.0026 (0.001)	3.38 (0.02)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00128 (0.0001)	0.0001 J (0.0005)	ND (0.0001)	0.008 (0.0005)	ND (0.0001)	0.000205 (0.0001)	0.0007 (0.0005)	0.000246 (0.0001)	0.000274 (0.0001)	ND (0.00008)
Benzo(a)anthracene	0.0039	--	ND (0.0001)	0.0004 J (0.0005)	ND (0.0001)	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.0002 J (0.0005)	ND (0.0001)	0.000117 (0.0001)	ND (0.00004)
Benzo(a)pyrene	0.0002	--	ND (0.0001)	0.0005 J (0.0005)	ND (0.0001)	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.0002 J (0.0005)	ND (0.0001)	0.000206 (0.0001)	ND (0.00004)
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	0.0007 (0.0005)	ND (0.0001)	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.0002 J (0.0005)	ND (0.0001)	0.000183 (0.0001)	ND (0.00004)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	0.0005 (0.0005)	ND (0.0001)	0.001 (0.0005)	ND (0.0001)	ND (0.0001)	0.0001 J (0.0005)	ND (0.0001)	0.00025 (0.0001)	ND (0.00008)
Chrysene	0.0019	--	0.000119 (0.0001)	0.0006 (0.0005)	ND (0.0001)	0.003 (0.0005)	ND (0.0001)	ND (0.0001)	0.0003 J (0.0005)	ND (0.0001)	0.000207 (0.0001)	ND (0.00008)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00342 (0.0001)	0.0002 J (0.0005)	ND (0.0001)	0.03 (0.0005)	0.00348 (0.0001)	0.00315 (0.0001)	0.004 (0.0005)	0.00198 (0.0001)	0.00213 (0.0001)	0.000781 (0.00008)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	0.137 (0.1)
Phenanthrene	1.1	--	0.000686 (0.0001)	0.0005 (0.0005)	ND (0.0001)	0.04 (0.0005)	0.00302 (0.0001)	0.00261 (0.0001)	0.004 (0.0005)	0.00155 (0.0001)	0.00178 (0.0001)	0.000766 (0.00008)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00115 (0.0001)	0.0009 (0.0005)	ND (0.0001)	0.008 (0.0005)	0.00023 (0.0001)	ND (0.0001)	0.0008 (0.0005)	0.000343 (0.0001)	0.000687 (0.0001)	0.0000737 J (0.00008)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.47 H (0.05)
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.6 (0.015)
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0017 J (0.003)	0.0054 (0.001)	0.0014 J (0.003)	0.0027 (0.001)	0.0078 (0.003)	0.003 (0.003)	0.0033 (0.001)	0.0019 J (0.003)	0.0032 (0.003)	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	1.7 (0.015)

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-100	S-101	S-101	S-101	S-101	S-101	S-101	S-101	S-101	S-101
Field Sample ID	Groundwater	Groundwater	S-100_022309	S-101~10/12/2004	S101-042205	S-101_110608	S-101_022309	S-101_062909	S-101_090909	S-101_112009	101_030910	S-101_050610
Sample Date	Used Aquifer	Vapor Intrusion	2/23/2009	10/12/2004	4/22/2005	11/6/2008	2/23/2009	6/29/2009	9/9/2009	11/20/2009	3/9/2010	5/6/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	4.3 (0.1)	1.1	1.4 (0.1)	0.085 (0.001)	0.26 (0.005)	0.33 (0.01)	0.42 (0.01)	0.49 (0.005)	0.27 (0.01)	0.26 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.075 (0.02)	0.013	0.026 (0.005)	0.038 (0.002)	0.029 (0.01)	0.024 (0.002)	0.033 (0.002)	0.023 (0.01)	0.026 (0.002)	0.021 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00002)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.01)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.91 (0.01)	0.016	0.022 (0.005)	0.006 (0.001)	0.023 (0.005)	0.003 (0.001)	0.005 (0.001)	ND (0.005)	0.002 (0.001)	ND (0.005)
Methyl tert-butyl ether	0.02	96	ND (0.01)	ND (0.005)	ND (0.005)	0.0005 J (0.001)	ND (0.005)	ND (0.001)	0.0006 J (0.001)	ND (0.005)	ND (0.001)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.33 (0.01)	0.0075	0.014 (0.005)	0.016 (0.001)	0.01 (0.005)	0.004 (0.001)	0.006 (0.001)	0.007 (0.005)	0.007 (0.001)	0.006 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	1.5 (0.2)	NA	NA	0.003 (0.002)	0.004 J (0.01)	ND (0.002)	0.001 J (0.002)	ND (0.01)	0.0009 J (0.002)	ND (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.69 (0.02)	NA	NA	0.002 J (0.002)	0.005 J (0.01)	ND (0.002)	0.001 J (0.002)	ND (0.01)	0.0008 J (0.002)	ND (0.01)
Xylenes (total)	10	12	6.4 (0.1)	0.068	0.089 (0.005)	0.023 (0.001)	0.016 (0.005)	0.003 (0.001)	0.005 (0.001)	0.003 J (0.005)	0.005 (0.001)	0.004 J (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.28 (0.0095)	NA	NA	0.011 J (0.05)	0.0024 (0.001)	NA	0.003 J (0.005)	0.00017 (0.000095)	0.00016 (0.000097)	0.00013 (0.000095)
Benzo(a)anthracene	0.0039	--	ND (0.042)	NA	NA	ND (0.05)	0.0009 (0.0004)	NA	0.001 J (0.005)	0.000025 J (0.000038)	0.000035 J (0.000039)	0.000028 J (0.000038)
Benzo(a)pyrene	0.0002	--	0.0082 (0.0038)	NA	NA	ND (0.05)	ND (0.0006)	NA	ND (0.005)	0.000019 J (0.000038)	0.000024 J (0.000039)	0.000028 J (0.000038)
Benzo(b)fluoranthene	0.0012	--	0.0091 (0.0028)	NA	NA	ND (0.05)	0.00057 (0.0003)	NA	ND (0.005)	0.00002 J (0.000028)	0.00003 (0.000029)	0.000026 J (0.000029)
Benzo(g,h,i)perylene	0.00026	--	0.012 J (0.019)	NA	NA	ND (0.05)	ND (0.002)	NA	ND (0.005)	ND (0.00019)	0.000083 J (0.00019)	0.000069 J (0.00019)
Chrysene	0.0019	--	ND (0.13)	ND (0.00014)	ND (0.01)	ND (0.05)	ND (0.002)	NA	0.001 J (0.005)	ND (0.00019)	0.000065 J (0.00019)	ND (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.4 (0.038)	ND (0.01)	ND (0.01)	NA	0.013 (0.004)	NA	0.007 (0.005)	0.0014 (0.00038)	0.0016 (0.00039)	0.0014 (0.00038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.43 (0.04)	0.074	0.041 (0.01)	0.002 J (0.004)	0.012 J (0.02)	ND (0.004)	0.003 J (0.004)	ND (0.02)	0.001 J (0.004)	ND (0.02)
Phenanthrene	1.1	--	0.98 (0.019)	ND (0.01)	ND (0.01)	0.037 J (0.05)	0.011 (0.002)	NA	0.005 (0.005)	0.00051 (0.00019)	0.00057 (0.00019)	0.00061 (0.00019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (1.3)	ND (0.01)	ND (0.01)	0.015 J (0.05)	0.0042 (0.004)	NA	0.005 J (0.005)	0.00031 J (0.00038)	0.00028 J (0.00039)	0.00023 J (0.00038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	ND (0.001)	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0053 (0.000001)	ND (0.005)	NA	0.00086 J (0.000001)	0.00038 J (0.000001)	0.00035 J (0.000001)	0.0007 J (0.000001)	0.00045 J (0.000001)	0.00043 J (0.000001)	0.00045 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-101	S-101	S-101	S-101	S-101	S-116	S-116	S-116	S-116	S-116
Field Sample ID	Used Aquifer	Vapor Intrusion	101_072110	S-101~7/21/2010	S-101_071012	S-101~JB68586	S-101-20141211	S-116~10/12/2004	S116-041805	S-116_071112	S-116~JB67626	S-116-20141209
Sample Date	(TDS <2500)	Screening Values	7/21/2010	7/21/2010	7/10/2012	6/4/2014	12/11/2014	10/12/2004	4/18/2005	7/11/2012	5/22/2014	12/9/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.35 (0.01)	NA	0.024 (0.001)	0.0278 (0.0005)	0.0202 (0.0005)	0.0011	ND (0.005)	ND (0.001)	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.037 (0.002)	NA	0.025 (0.002)	0.0397 (0.001)	0.03 (0.001)	ND (0.005)	ND (0.005)	ND (0.002)	ND (0.001)	ND (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00003)	NA	ND (0.00003)	ND (0.00002)	ND (0.000037)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.004 (0.001)	NA	0.0009 J (0.001)	0.0015 (0.001)	0.0016 (0.001)	ND (0.005)	ND (0.005)	0.0009 J (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.008 (0.001)	NA	0.003 (0.001)	0.014 (0.001)	0.0064 (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.002 (0.002)	NA	ND (0.002)	0.00044 J (0.002)	0.0007 J (0.002)	NA	NA	ND (0.002)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	0.002 J (0.002)	NA	ND (0.002)	0.00089 J (0.002)	0.00079 J (0.002)	NA	NA	ND (0.002)	ND (0.002)	ND (0.002)
Xylenes (total)	10	12	0.009 (0.001)	NA	0.005 (0.001)	0.0163 (0.001)	0.012 (0.001)	ND (0.01)	ND (0.005)	0.002 (0.001)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00065 (0.000095)	NA	0.0009 (0.0005)	0.000578 (0.0001)	0.000594 (0.0001)	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(a)anthracene	0.0039	--	0.0001 (0.000038)	NA	0.0001 J (0.0005)	ND (0.0001)	0.000136 (0.0001)	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(a)pyrene	0.0002	--	0.000046 (0.000038)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.000054 (0.000028)	NA	0.0001 J (0.0005)	ND (0.0001)	0.000106 (0.0001)	NA	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Chrysene	0.0019	--	0.00013 J (0.00019)	NA	0.0002 J (0.0005)	ND (0.0001)	0.000131 (0.0001)	ND (0.00014)	ND (0.01)	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0047 (0.00038)	NA	0.006 (0.0005)	0.0046 (0.0001)	0.00484 (0.0001)	ND (0.01)	ND (0.01)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	ND (0.000038)	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.003 J (0.004)	NA	0.0005 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	ND (0.01)	0.009 (0.0005)	ND (0.0001)	ND (0.0001)
Phenanthrene	1.1	--	0.0023 (0.00019)	NA	0.001 (0.0005)	0.00219 (0.0001)	0.002 (0.0001)	ND (0.01)	ND (0.01)	0.0005 J (0.0005)	ND (0.0001)	ND (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00088 (0.00038)	NA	0.0009 (0.0005)	0.000325 (0.0001)	0.000507 (0.0001)	ND (0.01)	ND (0.01)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	ND (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00037 J (0.000001)	NA	0.00023 J (0.001)	ND (0.003)	ND (0.003)	ND (0.005)	NA	0.00035 J (0.001)	0.0023 J (0.003)	0.0075 (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-125	S-125	S-125	S-125	S-125	S-125	S-126	S-179	S-179	S-179
Field Sample ID	Groundwater	Groundwater	S-125~3/17/2004	S-125~10/13/2004	S-125~4/19/2005	S125-041905	S-125_022409	S-125_062609	S-126	S-179~3/17/2004	S-179~10/14/2004	S179-041905
Sample Date	Used Aquifer	Vapor Intrusion	3/17/2004	10/13/2004	4/19/2005	4/19/2005	2/24/2009	6/26/2009	10/12/2004	3/17/2004	10/14/2004	4/19/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	14	7.6	NA	17 (0.5)	9 (0.05)	5.1 (0.1)	ND (0.001)	0.005	0.0021	ND (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	ND (0.039)	NA	0.061 (0.05)	0.1 (0.02)	0.04 (0.02)	ND (0.005)	NA	0.097	0.11 (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	ND (0.00002)	NA	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	0.11	NA	ND (0.05)	ND (0.01)	ND (0.01)	ND (0.005)	NA	ND (0.005)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.23	0.38	NA	0.25 (0.05)	0.46 (0.01)	0.14 (0.01)	ND (0.005)	0.013	ND (0.005)	ND (0.005)
Methyl tert-butyl ether	0.02	96	NA	0.8	NA	11 (0.5)	26 (0.05)	13 (0.1)	ND (0.005)	NA	ND (0.005)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.2	0.19	NA	0.18 (0.05)	0.82 (0.01)	0.2 (0.01)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	NA	NA	1.8 (0.1)	1 (0.02)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	NA	NA	1.9 (0.02)	0.43 (0.02)	NA	NA	NA	NA
Xylenes (total)	10	12	0.72	1.3	NA	0.92 (0.05)	6.7 (0.05)	2.8 (0.01)	ND (0.01)	0.089	ND (0.01)	ND (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	0.13 (0.0041)	0.013 (0.00047)	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	NA	NA	NA	NA	ND (0.018)	0.00093 (0.000038)	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	NA	NA	NA	NA	0.0025 (0.0016)	0.00025 (0.000038)	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	NA	0.0022 (0.0012)	0.00025 (0.000028)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	ND (0.0082)	0.00039 (0.00019)	NA	NA	NA	NA
Chrysene	0.0019	--	NA	ND (0.00014)	NA	ND (0.01)	ND (0.05)	ND (0.005)	ND (0.00014)	NA	ND (0.00014)	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	ND (0.01)	NA	ND (0.01)	0.19 (0.016)	0.017 (0.00038)	ND (0.01)	NA	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	0.091	NA	0.16 (0.048)	0.52 (0.04)	0.13 (0.04)	ND (0.005)	NA	ND (0.005)	ND (0.01)
Phenanthrene	1.1	--	NA	ND (0.01)	NA	ND (0.01)	0.46 (0.0082)	0.041 (0.00095)	ND (0.01)	NA	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	ND (0.01)	NA	ND (0.01)	ND (0.55)	ND (0.024)	ND (0.01)	NA	ND (0.01)	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	0.0068 (0.001)	NA	NA	NA	NA	NA	ND (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	ND (0.005)	ND (10)	NA	0.0091 (0.000001)	0.0056 (0.000001)	ND (0.005)	NA	ND (0.005)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-179	S-179	S-179	S-179	S-179	S-180	S-180	S-180	S-180	S-180
Field Sample ID			S-179~4/19/2008	S-179_110508	S-179_071912	S-179~JB67626	S-179-20141210	S-180~3/18/2004	S-180~10/14/2004	S-180~4/19/2005	S180-041905	S-180_071812
Sample Date			4/19/2008	11/5/2008	7/19/2012	5/22/2014	12/10/2014	3/18/2004	10/14/2004	4/19/2005	4/19/2005	7/18/2012
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.005)	0.005 (0.002)	0.0007 J (0.001)	ND (0.0005)	0.00047 J (0.0005)	ND (0.005)	ND (0.001)	NA	ND (0.005)	0.13 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.11	0.037 (0.004)	0.066 (0.002)	0.0272 (0.001)	0.0462 (0.001)	NA	ND (0.005)	NA	ND (0.005)	ND (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	NA	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.005)	NA	ND (0.005)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.005)	0.002 J (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	NA	ND (0.005)	ND (0.005)
Methyl tert-butyl ether	0.02	96	ND (0.005)	0.97 (0.002)	0.063 (0.001)	ND (0.001)	0.0224 (0.001)	NA	ND (0.005)	NA	ND (0.005)	3.5 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.005)	0.002 J (0.002)	ND (0.001)	ND (0.001)	0.00023 J (0.001)	ND (0.005)	ND (0.005)	NA	ND (0.005)	ND (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.012 (0.004)	ND (0.002)	ND (0.002)	0.00065 J (0.002)	NA	NA	NA	NA	ND (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.004 (0.004)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA	ND (0.01)
Xylenes (total)	10	12	ND (0.005)	0.011 (0.002)	0.0006 J (0.001)	ND (0.001)	0.0015 (0.001)	0.018	ND (0.01)	NA	ND (0.005)	0.003 J (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	0.0006 (0.0005)	0.000455 (0.0001)	0.000271 (0.0001)	NA	NA	NA	NA	0.0001 J (0.0005)
Benzo(a)anthracene	0.0039	--	NA	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)
Benzo(a)pyrene	0.0002	--	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)
Chrysene	0.0019	--	ND (0.01)	ND (0.005)	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	0.0005	NA	ND (0.01)	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.01)	NA	0.002 (0.0005)	0.000839 (0.0001)	0.0012 (0.0001)	NA	ND (0.01)	NA	ND (0.01)	0.0002 J (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.01)	0.004 J (0.008)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)	NA	ND (0.01)	0.001 (0.0005)
Phenanthrene	1.1	--	ND (0.01)	ND (0.005)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	NA	ND (0.01)	ND (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.01)	ND (0.005)	0.0004 J (0.0005)	0.000403 (0.0001)	0.000173 B (0.0001)	NA	ND (0.01)	NA	ND (0.01)	0.0003 J (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.001)	0.00047 J (0.000001)	0.00032 J (0.001)	ND (0.006)	0.0017 J (0.003)	NA	ND (0.005)	ND (0.001)	NA	0.0011 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-180	S-180	S-181	S-181	S-181	S-181	S-181	S-182	S-182	S-182
Field Sample ID			S-180~JB67921	S-180-20141210	S-181~3/18/2004	S-181~10/14/2004	S181-041905	S-181~4/19/2007	S-181_071812	S-182~3/17/2004	S-182~10/13/2004	S182-041805
Sample Date			5/27/2014	12/10/2014	3/18/2004	10/14/2004	4/19/2005	4/19/2007	7/18/2012	3/17/2004	10/13/2004	4/18/2005
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.00066 (0.0005)	ND (0.0005)	5.1	1.6	0.46 (0.05)	0.46	5.3 (0.1)	14	9.5	12 (0.5)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.001)	ND (0.001)	NA	0.012	ND (0.05)	ND (0.05)	0.14 (0.02)	NA	0.089	0.12 (0.1)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	NA	ND (0.00002)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	NA	ND (0.005)	ND (0.05)	ND (0.05)	ND (0.01)	NA	0.12	ND (0.1)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	0.48	0.16	ND (0.05)	ND (0.05)	1.7 (0.01)	0.13	0.13	0.14 (0.1)
Methyl tert-butyl ether	0.02	96	0.0021 (0.001)	ND (0.001)	NA	0.2	0.24 (0.05)	0.24	31 (0.1)	NA	0.24	0.34 (0.1)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	ND (0.001)	0.25	0.25	ND (0.05)	ND (0.05)	3.9 (0.1)	0.16	0.13	0.15 (0.1)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	NA	NA	NA	NA	1.1 (0.2)	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	NA	NA	NA	NA	0.85 (0.02)	NA	NA	NA
Xylenes (total)	10	12	0.00022 J (0.001)	ND (0.001)	2.2	0.66	0.095 (0.05)	0.095	7 (0.1)	0.27	0.25	0.32 (0.1)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	0.006 (0.005)	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	0.001 J (0.005)	NA	NA	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.005)	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.005)	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	ND (0.005)	NA	NA	NA
Chrysene	0.0019	--	ND (0.0001)	ND (0.0001)	NA	ND (0.00014)	ND (0.01)	ND (0.01)	0.001 J (0.005)	NA	ND (0.00014)	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.024 (0.005)	NA	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.0001)	NA	0.04	ND (0.01)	ND (0.01)	0.56 (0.005)	NA	0.33	0.24 (0.097)
Phenanthrene	1.1	--	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.038 (0.005)	NA	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.004 J (0.005)	NA	ND (0.01)	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	0.0014 (0.001)	NA	NA	NA	NA	0.011 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0061 (0.006)	ND (0.003)	NA	ND (0.005)	NA	0.0014	0.0077 (0.001)	NA	0.011	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-182	S-182	S-182	S-182	S-183	S-183	S-183	S-183	S-183	S-183
Field Sample ID	Groundwater	Groundwater	S-182~4/19/2005	S-182_071812	S-182~JB67921	S-182-20141215	S-183~3/18/2004	S-183~10/13/2004	S183-041805	S-183~4/19/2005	S-183_071812	S-183~JB67921
Sample Date	Used Aquifer	Vapor Intrusion	4/19/2005	7/18/2012	5/27/2014	12/15/2014	3/18/2004	10/13/2004	4/18/2005	4/19/2005	7/18/2012	5/27/2014
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	12	2.1 (0.05)	0.482 (0.0025)	1.95 (0.025)	14	9.9	14 (1)	14	3.8 (0.05)	0.831 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.12	0.049 (0.01)	0.0249 (0.005)	0.0839 (0.005)	NA	0.053	ND (0.13)	ND (0.13)	0.15 (0.01)	0.0533 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.1)	ND (0.005)	ND (0.005)	ND (0.005)	NA	0.14	ND (0.13)	ND (0.13)	ND (0.005)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.14	0.15 (0.005)	0.0788 (0.005)	0.229 (0.005)	0.17	0.077	ND (0.13)	ND (0.13)	0.68 (0.05)	0.0945 (0.01)
Methyl tert-butyl ether	0.02	96	0.34	61 (0.5)	1.26 (0.05)	1.18 (0.05)	NA	ND (0.044)	0.14 (0.13)	0.14	7.7 (0.05)	1.64 (0.01)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.15	0.056 (0.005)	0.0129 (0.005)	0.0843 (0.005)	0.13	0.084	0.13 (0.13)	0.13	0.16 (0.005)	0.497 (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.096 (0.01)	0.0727 (0.01)	0.134 (0.01)	NA	NA	NA	NA	0.88 (0.1)	0.112 (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.14 (0.01)	0.0698 (0.01)	0.152 (0.01)	NA	NA	NA	NA	0.87 (0.01)	0.123 (0.02)
Xylenes (total)	10	12	0.32	0.4 (0.005)	0.122 (0.005)	0.43 (0.005)	0.65	0.19	0.29 (0.13)	0.32	3.2 (0.05)	0.386 (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.001 (0.0005)	0.00039 (0.0001)	0.000452 J- (0.0001)	NA	NA	NA	NA	0.015 (0.005)	ND (0.0001)
Benzo(a)anthracene	0.0039	--	NA	0.0002 J (0.0005)	ND (0.0001)	NA	NA	NA	NA	NA	0.003 J (0.005)	0.000464 (0.0001)
Benzo(a)pyrene	0.0002	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	NA	NA	NA	0.001 J (0.005)	0.000452 (0.0001)
Benzo(b)fluoranthene	0.0012	--	NA	0.0001 J (0.0005)	ND (0.0001)	NA	NA	NA	NA	NA	0.002 J (0.005)	0.000517 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	NA	NA	NA	ND (0.005)	0.000272 (0.0001)
Chrysene	0.0019	--	ND (0.01)	0.0002 J (0.0005)	ND (0.0001)	NA	NA	ND (0.00014)	ND (0.01)	ND (0.01)	0.003 J (0.005)	0.000725 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.01)	0.005 (0.0005)	0.00246 (0.0001)	0.00305 J- (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.058 (0.005)	0.00669 (0.001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.24	0.059 (0.0005)	0.0221 (0.001)	0.0686 (0.001)	NA	0.48	0.54 (0.097)	0.54	0.66 (0.005)	0.0487 (0.001)
Phenanthrene	1.1	--	ND (0.01)	0.005 (0.0005)	0.00193 (0.0001)	0.00271 J- (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.087 (0.005)	0.00864 (0.001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.01)	0.0008 (0.0005)	0.000428 (0.0001)	0.000199 J- (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.011 (0.005)	0.00217 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	0.0099 (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.011	0.0075 (0.001)	0.0048 (0.003)	0.0128 (0.003)	NA	0.011	NA	0.0099	0.0159 (0.001)	0.0147 (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-183	S-184	S-184	S-184	S-184	S-184	S-184	S-185	S-185	S-185
Field Sample ID	Groundwater	Groundwater	S-183-20141216	S-184~3/18/2004	S-184~10/13/2004	S184-041805	S-184~4/19/2005	S-184_071812	S-184~JB67921	S-185~3/18/2004	S-185~10/13/2004	S185-041805
Sample Date	Used Aquifer	Vapor Intrusion	12/16/2014	3/18/2004	10/13/2004	4/18/2005	4/19/2005	7/18/2012	5/27/2014	3/18/2004	10/13/2004	4/18/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.432 (0.005)	0.7	0.46	0.65 (0.025)	0.65	0.13 (0.01)	2.66 (0.05)	0.16	0.045	0.85 (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.111 (0.002)	NA	0.045	0.057 (0.025)	0.057	0.095 (0.02)	0.0286 (0.01)	NA	0.0085	0.05 (0.05)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.002)	NA	0.0069	NA	ND (0.025)	ND (0.01)	ND (0.01)	NA	ND (0.005)	ND (0.05)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.122 (0.002)	0.041	0.019	ND (0.025)	ND (0.025)	0.3 (0.01)	0.241 (0.01)	0.04	0.0074	0.068 (0.05)
Methyl tert-butyl ether	0.02	96	0.546 (0.01)	NA	ND (0.0018)	ND (0.025)	ND (0.025)	0.15 (0.01)	4.22 (0.1)	NA	ND (0.005)	ND (0.05)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.128 (0.002)	0.02	0.011	ND (0.025)	ND (0.025)	0.029 (0.01)	2.25 (0.1)	0.016	ND (0.005)	ND (0.05)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.131 (0.004)	NA	NA	NA	NA	0.85 (0.2)	0.507 (0.02)	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.175 (0.004)	NA	NA	NA	NA	1.2 (0.02)	0.19 (0.02)	NA	NA	NA
Xylenes (total)	10	12	0.244 (0.002)	0.098	0.051	0.046 (0.025)	0.046	2.7 (0.01)	1.56 (0.01)	0.078	0.014	0.13 (0.05)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00122 (0.0001)	NA	NA	NA	NA	0.04 (0.005)	ND (0.0001)	NA	NA	NA
Benzo(a)anthracene	0.0039	--	0.000265 (0.0001)	NA	NA	NA	NA	0.011 (0.005)	0.000834 (0.0001)	NA	NA	NA
Benzo(a)pyrene	0.0002	--	0.000129 (0.0001)	NA	NA	NA	NA	0.005 (0.005)	0.000459 (0.0001)	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.000194 (0.0001)	NA	NA	NA	NA	0.006 (0.005)	0.000534 (0.0001)	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	NA	NA	NA	NA	0.004 J (0.005)	0.000291 (0.0001)	NA	NA	NA
Chrysene	0.0019	--	0.000291 (0.0001)	NA	ND (0.00014)	ND (0.01)	ND (0.01)	0.011 (0.005)	0.000935 (0.0001)	NA	ND (0.00014)	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00497 (0.001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.11 (0.005)	0.00892 (0.001)	NA	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0218 (0.001)	NA	0.018	0.024 (0.01)	0.024	0.62 (0.005)	0.0634 (0.001)	NA	0.012	0.56 (0.097)
Phenanthrene	1.1	--	0.00541 (0.001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.18 (0.005)	0.0118 (0.001)	NA	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00128 (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.038 (0.005)	0.00348 (0.0001)	NA	ND (0.01)	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	0.0054 (0.001)	NA	NA	NA	NA	NA	0.0063 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0177 (0.003)	NA	0.006	NA	0.0054	0.0077 (0.001)	0.0045 (0.003)	NA	ND (0.005)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-185	S-185	S-185	S-185	S-186	S-186	S-186	S-186	S-186	S-186
Field Sample ID	Groundwater	Groundwater	S187-041805	S-185~4/19/2005	S-185_071812	S-185~JB67921	S-186~3/18/2004	S-186~10/13/2004	S186-041805	S-186~4/19/2005	S-186_071712	S-186~JB67921
Sample Date	Used Aquifer	Vapor Intrusion	4/18/2005	4/19/2005	7/18/2012	5/27/2014	3/18/2004	10/13/2004	4/18/2005	4/19/2005	7/17/2012	5/27/2014
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.13 (0.02)	0.85	0.043 (0.001)	0.00069 (0.0005)	0.089	0.032	0.047 (0.01)	0.047	0.096 (0.005)	0.0049 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.042 (0.02)	0.05	0.023 (0.002)	0.009 (0.001)	NA	0.045	0.049 (0.01)	0.049	0.017 (0.01)	0.0199 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.02)	ND (0.05)	ND (0.001)	ND (0.001)	NA	ND (0.005)	ND (0.01)	ND (0.01)	ND (0.005)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.02)	0.068	0.01 (0.001)	ND (0.001)	0.007	0.005	ND (0.01)	ND (0.01)	0.022 (0.005)	0.0078 (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.02)	ND (0.05)	0.034 (0.001)	0.003 (0.001)	NA	ND (0.005)	ND (0.01)	ND (0.01)	1.1 (0.005)	0.008 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.02)	ND (0.05)	0.01 (0.001)	0.00067 J (0.001)	0.008	ND (0.005)	ND (0.01)	ND (0.01)	0.073 (0.005)	0.0019 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	0.003 (0.002)	ND (0.002)	NA	NA	NA	NA	0.19 (0.01)	0.0697 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	0.008 (0.002)	ND (0.002)	NA	NA	NA	NA	0.056 (0.01)	0.0343 (0.002)
Xylenes (total)	10	12	0.03 (0.02)	0.13	0.032 (0.001)	0.0015 (0.001)	0.015	0.012	ND (0.01)	ND (0.01)	0.45 (0.005)	0.0245 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	0.0008 (0.0005)	0.000285 (0.0001)	NA	NA	NA	NA	0.0009 (0.0005)	0.00193 (0.0001)
Benzo(a)anthracene	0.0039	--	NA	NA	0.0002 J (0.0005)	0.000116 (0.0001)	NA	NA	NA	NA	0.0001 J (0.0005)	0.000663 (0.0001)
Benzo(a)pyrene	0.0002	--	NA	NA	0.0001 J (0.0005)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)	0.000309 (0.0001)
Benzo(b)fluoranthene	0.0012	--	NA	NA	0.0001 J (0.0005)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)	0.000372 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	ND (0.0005)	ND (0.0001)	NA	NA	NA	NA	ND (0.0005)	0.000164 (0.0001)
Chrysene	0.0019	--	ND (0.01)	ND (0.01)	0.0002 J (0.0005)	0.000129 (0.0001)	NA	ND (0.00014)	ND (0.01)	ND (0.01)	0.0002 J (0.0005)	0.000675 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.01)	0.01	0.005 (0.0005)	0.00246 (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.005 (0.0005)	0.0044 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.01)	0.56	0.006 (0.0005)	ND (0.0001)	NA	ND (0.005)	ND (0.01)	ND (0.01)	0.023 (0.0005)	ND (0.0001)
Phenanthrene	1.1	--	ND (0.01)	ND (0.01)	0.004 (0.0005)	0.000433 (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.003 (0.0005)	0.00486 (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.01)	ND (0.01)	0.0007 (0.0005)	0.000405 (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)	0.001 (0.0005)	0.00263 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0044 (0.001)	NA	NA	NA	NA	NA	0.0021 (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0063	0.0017 (0.001)	0.0019 J (0.003)	NA	ND (0.005)	NA	0.0021	0.0032 (0.001)	0.003 (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-186	S-187	S-187	S-187	S-187	S-187	S-188	S-188	S-188	S-188
Field Sample ID	Groundwater	Groundwater	S-186-20141210	S-187~3/17/2004	S-187~10/13/2004	S-187~4/19/2005	S-187~JB67921	S-187-20141215	S-188~3/17/2004	S-188~10/13/2004	S188-041805	S-188~4/19/2005
Sample Date	Used Aquifer	Vapor Intrusion	12/10/2014	3/17/2004	10/13/2004	4/19/2005	5/27/2014	12/15/2014	3/17/2004	10/13/2004	4/18/2005	4/19/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.107 (0.0025)	0.45	0.27	0.13	0.167 (0.0025)	0.0627 (0.001)	0.99	3.7	1.2 (0.05)	1.2
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0284 (0.005)	NA	0.043	0.042	0.0657 (0.005)	0.0144 (0.002)	NA	0.063	0.11 (0.005)	0.11
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	0.000038 (0.000029)	0.000038
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	NA	0.0037	ND (0.02)	ND (0.005)	ND (0.002)	NA	0.056	ND (0.005)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.006 (0.005)	0.046	0.022	ND (0.02)	0.0085 (0.005)	0.0838 (0.002)	0.32	0.3	0.097 (0.005)	0.097
Methyl tert-butyl ether	0.02	96	1.95 (0.05)	NA	ND (0.0018)	ND (0.02)	0.643 (0.005)	0.0963 (0.002)	NA	ND (0.018)	ND (0.005)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0287 (0.005)	0.037	0.029	ND (0.02)	0.0191 (0.005)	0.118 (0.002)	0.015	0.023	0.015 (0.005)	0.015
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0026 J (0.01)	NA	NA	NA	ND (0.01)	0.32 (0.004)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.0038 J (0.01)	NA	NA	NA	ND (0.01)	0.133 (0.004)	NA	NA	NA	NA
Xylenes (total)	10	12	0.0373 (0.005)	0.1	0.05	0.03	0.0327 (0.005)	0.819 (0.002)	0.66	0.27	0.21 (0.005)	0.21
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.000559 (0.0001)	NA	NA	NA	0.00095 (0.0001)	0.000508 (0.0001)	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	ND,J (0.0001)	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Chrysene	0.0019	--	ND (0.0001)	NA	ND (0.00014)	ND (0.01)	ND (0.0001)	ND (0.0001)	NA	ND (0.00014)	ND (0.01)	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00282 (0.0001)	NA	ND (0.01)	ND (0.01)	0.00639 (0.001)	0.00214 (0.0001)	NA	ND (0.01)	0.01 (0.01)	0.01
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	NA	0.012	ND (0.01)	ND (0.0001)	0.0275 (0.001)	NA	0.14	0.066 (0.01)	0.066
Phenanthrene	1.1	--	0.00242 B (0.0001)	NA	ND (0.01)	ND (0.01)	0.00425 (0.0001)	0.0026 (0.0001)	NA	ND (0.01)	0.012 (0.01)	0.012
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000542 B (0.0001)	NA	ND (0.01)	ND (0.01)	0.000421 (0.0001)	0.000434 (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	0.0063 (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0026 J (0.003)	NA	ND (0.005)	0.0044	0.0067 (0.003)	0.0026 J (0.003)	NA	ND (0.005)	NA	0.0063
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-188	S-188	S-188	S-189	S-189	S-189	S-189	S-190	S-190	S-191
Field Sample ID			S-188_071712	S-188~JB67747	S-188-20141212	S-189~3/18/2004	S-189~10/12/2004	S-189_071712	S-189~JB67921	S-190_071712	S-190-20141212	S-191
Sample Date			7/17/2012	5/23/2014	12/12/2014	3/18/2004	10/12/2004	7/17/2012	5/27/2014	7/17/2012	12/12/2014	5/28/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.014 (0.001)	0.0249 (0.0005)	0.0184 (0.0013)	3.4	1.2	0.019 (0.001)	0.154 (0.0005)	0.018 (0.001)	0.138 (0.0005)	0.0481 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.021 (0.002)	0.0731 (0.001)	0.0592 (0.0025)	NA	0.11	0.015 (0.002)	0.0125 (0.001)	0.024 (0.002)	0.104 (0.001)	0.0722 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND,J (0.001)	ND (0.0025)	NA	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.005 (0.001)	0.0103 (0.001)	0.0069 (0.0025)	0.18	0.082	0.002 (0.001)	0.0412 (0.001)	0.002 (0.001)	0.0304 (0.001)	0.0294 (0.001)
Methyl tert-butyl ether	0.02	96	0.009 (0.001)	0.128 (0.001)	0.383 (0.0025)	NA	ND (0.005)	0.004 (0.001)	0.296 (0.02)	0.034 (0.001)	0.358 (0.01)	0.0267 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.002 (0.001)	0.0049 (0.001)	0.0123 (0.0025)	0.025	0.025	0.003 (0.001)	0.155 (0.001)	0.007 (0.001)	0.0245 (0.001)	0.0041 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.002 (0.002)	0.0212 (0.002)	0.02 (0.005)	NA	NA	ND (0.002)	0.12 (0.002)	0.005 (0.002)	0.152 (0.002)	0.105 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	0.002 (0.002)	0.0096 (0.002)	0.0086 (0.005)	NA	NA	ND (0.002)	0.0442 (0.002)	0.002 (0.002)	0.0574 (0.002)	0.0702 (0.002)
Xylenes (total)	10	12	0.006 (0.001)	0.0184 (0.001)	0.0413 (0.0025)	0.49	0.19	0.003 (0.001)	0.191 (0.001)	0.02 (0.001)	0.0497 (0.001)	0.0472 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0009 (0.0005)	0.00129 (0.0001)	0.000558 (0.0001)	NA	NA	0.0003 J (0.0005)	ND (0.0001)	0.001 (0.0005)	0.00101 (0.0001)	0.00211 (0.0001)
Benzo(a)anthracene	0.0039	--	0.0003 J (0.0005)	0.000291 (0.0001)	ND (0.0001)	NA	NA	0.0001 J (0.0005)	0.000739 (0.0001)	0.0003 J (0.0005)	0.000355 (0.0001)	0.000625 (0.0001)
Benzo(a)pyrene	0.0002	--	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)	0.000772 (0.0001)	0.0001 J (0.0005)	0.000164 (0.0001)	0.000277 (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.0002 J (0.0005)	0.000119 (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)	0.000872 (0.0001)	0.0002 J (0.0005)	0.000234 (0.0001)	0.000348 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)	0.000648 (0.0001)	ND (0.0005)	ND (0.0001)	0.000164 (0.0001)
Chrysene	0.0019	--	0.0004 J (0.0005)	0.000342 (0.0001)	ND (0.0001)	NA	0.003	0.0002 J (0.0005)	0.00118 (0.0001)	0.0004 J (0.0005)	0.00036 (0.0001)	0.000743 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.003 (0.0005)	0.0051 (0.001)	0.00322 (0.0001)	NA	0.02	0.001 (0.0005)	ND (0.0001)	0.005 (0.0005)	0.00508 (0.001)	0.00568 (0.001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.003 (0.0005)	ND (0.0001)	0.00397 (0.0001)	NA	0.18	ND (0.0005)	ND (0.0001)	0.006 (0.0005)	0.0205 (0.001)	0.0051 (0.001)
Phenanthrene	1.1	--	0.002 (0.0005)	0.0064 (0.001)	0.00301 (0.0001)	NA	0.035	ND (0.0005)	0.00377 (0.0001)	0.001 (0.0005)	0.00405 (0.0001)	0.00377 (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.002 (0.0005)	0.00173 (0.0001)	0.00063 (0.0001)	NA	ND (0.01)	0.001 (0.0005)	0.004 (0.0001)	0.002 (0.0005)	0.00106 (0.0001)	0.00275 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0158 (0.001)	0.0037 (0.003)	0.006 (0.003)	NA	0.014	0.0028 (0.001)	0.0068 (0.003)	0.0029 (0.001)	0.012 (0.003)	0.0015 J (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-191	S-192	S-192	S-192	S-192	S-192	S-193	S-193	S-193	S-193
Field Sample ID	Groundwater	Groundwater	S-191-20141212	S-192~3/18/2004	S-192~10/12/2004	S-192_071712	S-192~JB67747	S-192-20141211	S-193~3/17/2004	S193-042205	S-193~11/7/2005	S-193_11_10_2005
Sample Date	Used Aquifer	Vapor Intrusion	12/12/2014	3/18/2004	10/12/2004	7/17/2012	5/23/2014	12/11/2014	3/17/2004	4/22/2005	11/7/2005	11/10/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.202 (0.001)	0.99	0.93	0.009 (0.005)	0.00085 (0.0005)	0.00049 J (0.0005)	0.17	0.22 (0.025)	0.404	0.404 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0534 (0.002)	NA	0.054	0.009 J (0.01)	0.0036 (0.001)	0.0062 (0.001)	NA	0.016 (0.005)	0.028	NA
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.000025)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.002)	NA	ND (0.005)	ND (0.005)	ND,J (0.001)	ND (0.001)	NA	ND (0.005)	0.01	0.01 (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.16 (0.002)	1.2	0.38	ND (0.005)	ND (0.001)	ND (0.001)	0.051	0.027 (0.005)	0.013	0.013 (0.01)
Methyl tert-butyl ether	0.02	96	0.0415 (0.002)	NA	0.034	0.66 (0.005)	0.0076 (0.001)	0.0158 (0.001)	NA	ND (0.005)	ND (0.01)	ND (0.01)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.006 (0.002)	0.028	0.011	ND (0.005)	0.00083 J (0.001)	0.00034 J (0.001)	ND (0.005)	0.006 (0.005)	ND (0.01)	ND (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.396 (0.004)	NA	NA	0.004 J (0.01)	0.0187 (0.002)	0.00072 J (0.002)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.216 (0.004)	NA	NA	0.004 J (0.01)	0.0051 (0.002)	0.00045 J (0.002)	NA	NA	NA	NA
Xylenes (total)	10	12	0.248 (0.002)	2.7	0.6	0.004 J (0.005)	0.0042 (0.001)	0.00076 J (0.001)	0.068	0.12 (0.005)	0.028	0.028 (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	NA	NA	0.0005 (0.0005)	0.000342 (0.0001)	0.00028 (0.0001)	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	0.00126 (0.0001)	NA	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	ND (0.0001)
Benzo(a)pyrene	0.0002	--	0.000523 (0.0001)	NA	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.000653 (0.0001)	NA	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	ND (0.0001)
Benzo(g,h,i)perylene	0.00026	--	0.000346 (0.0001)	NA	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA	NA	ND (0.0001)
Chrysene	0.0019	--	0.000941 (0.0001)	NA	0.002	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0124 (0.001)	NA	ND (0.011)	0.001 (0.0005)	0.000978 (0.0001)	0.000838 (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0001)
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0242 (0.001)	NA	0.19	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.01)	ND (0.01)	ND (0.01)
Phenanthrene	1.1	--	0.0134 (0.001)	NA	0.016	0.001 (0.0005)	0.000194 (0.0001)	0.000324 (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00454 (0.0001)	NA	ND (0.011)	0.001 (0.0005)	0.000611 (0.0001)	0.0005 (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	ND (0.001)	NA	ND (0.01)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0129 (0.003)	NA	ND (0.005)	0.0034 (0.001)	ND (0.003)	0.0023 J (0.003)	NA	NA	ND (0.1)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193
Field Sample ID	Groundwater	Groundwater	S-193~12/5/2006	S-193~12/19/2007	S-193_110608	S-193_022309	S-193_062909	S-193_090909	S-193_112009	193_030910	S-193_050610	193_072110
Sample Date	Used Aquifer	Vapor Intrusion	12/5/2006	12/19/2007	11/6/2008	2/23/2009	6/29/2009	9/9/2009	11/20/2009	3/9/2010	5/6/2010	7/21/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.14	0.27	0.93 (0.02)	0.76 (0.005)	0.21 (0.01)	0.76 (0.02)	0.93 (0.005)	0.5 (0.01)	0.27 (0.005)	0.35 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.007	0.016	0.019 (0.01)	0.02 (0.01)	0.016 (0.002)	0.017 (0.004)	0.016 (0.01)	0.016 (0.002)	0.009 J (0.01)	0.007 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.0000098)	ND (0.0000095)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.0005)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.002)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.019	0.007	0.022 (0.005)	0.015 (0.005)	0.004 (0.001)	0.037 (0.002)	0.019 (0.005)	0.052 (0.001)	0.018 (0.005)	0.028 (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.0005)	NA	0.005 (0.005)	0.004 J (0.005)	0.009 (0.001)	0.03 (0.002)	0.009 (0.005)	0.11 (0.001)	0.045 (0.005)	0.034 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.002 J	0.004	0.013 (0.005)	0.01 (0.005)	0.003 (0.001)	0.009 (0.002)	0.011 (0.005)	0.006 (0.001)	0.003 J (0.005)	0.003 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	0.04 (0.01)	0.021 (0.01)	0.006 (0.002)	0.044 (0.004)	0.025 (0.01)	0.017 (0.002)	0.012 (0.01)	0.05 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	ND (0.01)	0.003 J (0.01)	0.001 J (0.002)	0.015 (0.004)	0.011 (0.01)	0.007 (0.002)	0.006 J (0.01)	0.016 (0.002)
Xylenes (total)	10	12	0.031	0.013	0.064 (0.005)	0.071 (0.005)	0.021 (0.001)	0.12 (0.002)	0.081 (0.005)	0.13 (0.001)	0.063 (0.005)	0.12 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	ND (0.005)	ND (0.000095)	NA	ND (0.005)	ND (0.000095)	ND (0.000095)	ND (0.000096)	0.00006 J (0.000095)
Benzo(a)anthracene	0.0039	--	NA	NA	ND (0.005)	ND (0.000038)	NA	ND (0.005)	0.000021 J (0.000038)	ND (0.000038)	ND (0.000038)	ND (0.000038)
Benzo(a)pyrene	0.0002	--	NA	NA	ND (0.005)	ND (0.000038)	NA	ND (0.005)	0.000015 J (0.000038)	ND (0.000038)	ND (0.000038)	ND (0.000038)
Benzo(b)fluoranthene	0.0012	--	NA	NA	ND (0.005)	ND (0.000028)	NA	ND (0.005)	0.000012 J (0.000028)	ND (0.000029)	ND (0.000029)	0.000011 J (0.000028)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	ND (0.005)	ND (0.00019)	NA	ND (0.005)	ND (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.00019)
Chrysene	0.0019	--	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.00019)	NA	ND (0.005)	0.000066 J (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.001)	ND (0.001)	NA	0.00096 (0.00038)	NA	ND (0.005)	0.00039 (0.00038)	0.00012 J (0.00038)	ND (0.00038)	0.00028 J (0.00038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.003 J	0.002 J	ND (0.02)	ND (0.02)	ND (0.004)	0.008 (0.008)	ND (0.02)	0.004 J (0.004)	0.006 J (0.02)	0.008 (0.004)
Phenanthrene	1.1	--	ND (0.001)	ND (0.001)	ND (0.005)	0.00005 J (0.00019)	NA	ND (0.005)	ND (0.00019)	ND (0.00019)	ND (0.00019)	0.00013 J (0.00019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.00038)	NA	ND (0.005)	ND (0.00038)	ND (0.00038)	ND (0.00038)	ND (0.00038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00019 J	0.00038 J	0.00097 J (0.000001)	0.0013 (0.000001)	0.00033 J (0.000001)	0.00037 J (0.000001)	0.00051 J (0.000001)	0.00012 J (0.000001)	0.00017 J (0.000001)	0.000097 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193	S-193
Field Sample ID	Groundwater	Groundwater	S-193~7/21/2010	S-193~11/10/2010	S-193~11/22/2011	S-193_071012	S-193_040413	S-193~JB68336	S-193-20141215	S-193_20150519	S-193-20160518	S-193-20170516
Sample Date	Used Aquifer	Vapor Intrusion	7/21/2010	11/10/2010	11/22/2011	7/10/2012	4/4/2013	6/3/2014	12/15/2014	5/19/2015	5/18/2016	5/16/2017
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	NA	1	1.2	0.33 (0.005)	0.64 (0.01)	0.707 (0.005)	1.35 (0.013)	1 (0.05)	0.24 (0.01)	0.047 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	0.02	0.011	0.016 (0.01)	0.0166 (0.004)	0.0074 (0.0025)	0.0135 (0.005)	0.01 (0.01)	0.016 (0.002)	0.008 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	ND (0.0000098)	ND (0.0000098)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	0.000029 (0.000029)	ND (0.000028)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	ND (0.005)	ND (0.001)	ND (0.005)	0.0157 (0.002)	ND (0.0025)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	0.02	0.1	0.004 J (0.005)	0.0129 (0.002)	0.0496 (0.0025)	0.0469 (0.005)	0.034 (0.005)	0.009 (0.001)	0.022 (0.001)
Methyl tert-butyl ether	0.02	96	NA	0.037	0.016	0.015 (0.005)	0.016 (0.002)	0.0126 (0.0025)	0.0355 (0.005)	0.015 (0.005)	0.01 (0.001)	0.002 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	NA	0.012	0.011	0.005 J (0.005)	0.0083 (0.002)	0.0063 (0.0025)	0.0102 (0.005)	0.008 (0.005)	0.005 (0.001)	0.001 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.028	0.04	0.005 J (0.01)	0.0301 (0.004)	0.0352 (0.005)	0.0506 (0.01)	0.046 (0.01)	0.019 (0.002)	0.14 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.014 J	0.018	0.005 J (0.01)	0.0134 (0.004)	0.0136 (0.005)	0.0221 (0.01)	0.02 (0.01)	0.011 (0.002)	0.059 (0.002)
Xylenes (total)	10	12	NA	0.11	0.18	0.038 (0.005)	0.071 (0.002)	0.0891 (0.0025)	0.138 (0.005)	0.14 (0.005)	0.038 (0.001)	0.11 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	0.0001 J (0.0005)
Benzo(a)anthracene	0.0039	--	NA	NA	NA	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)
Benzo(a)pyrene	0.0002	--	NA	NA	NA	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	NA	NA	NA	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)
Chrysene	0.0019	--	NA	ND (0.001)	0.0003	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	ND (0.001)	0.00053	0.0002 J (0.0005)	ND (0.00011)	ND (0.0001)	0.000302 J- (0.0001)	0.0001 J (0.0005)	0.0001 J (0.0005)	0.0003 J (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.000038)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	0.007	0.011	0.001 (0.0005)	0.000311 (0.00011)	0.00359 (0.0001)	0.00442 J- (0.0001)	0.006 (0.0005)	0.001 (0.0005)	0.001 (0.0005)
Phenanthrene	1.1	--	NA	ND (0.001)	0.00028	ND (0.0005)	ND (0.00011)	ND (0.0001)	0.000262 J- (0.0001)	ND (0.0005)	ND (0.0005)	0.0004 J (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	ND (0.001)	ND (0.000096)	ND (0.0005)	ND (0.00011)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	0.0002 J (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.00053 J	0.00012 J	0.00019 J (0.001)	0.0011 (0.001)	ND (0.003)	0.002 J (0.003)	0.00009 J (0.001)	0.00082 J (0.001)	0.0031 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-193	S-193	S-193	S-193	S-194	S-194	S-194	S-194	S-195	S-195
Field Sample ID	Groundwater	Groundwater	S-193_20190709	S-193_20191113	S-193_20210512_410-39710-1	S-193_20220330_42387	S-194~3/17/2004	S194-042205	S-194~JB68336	S-194-20141209	S-195~3/17/2004	S-195~11/7/2005
Sample Date	Used Aquifer	Vapor Intrusion	7/9/2019	11/13/2019	5/12/2021	3/30/2022	3/17/2004	4/22/2005	6/3/2014	12/9/2014	3/17/2004	11/7/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.14 (0.001)	0.17 (0.001)	0.0078 (0.001)	0.0311 (0.0005)	0.007	0.016 (0.005)	0.00044 J (0.0005)	0.0382 (0.0005)	ND (0.005)	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.002 J (0.005)	0.003 J (0.005)	0.00056 J (0.005)	0.0046 (0.001)	NA	0.011 (0.005)	0.0047 (0.001)	0.0193 (0.001)	NA	ND (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	0.000012 J (0.000029)	ND (0.000028)	ND (0.000029)	ND (0.00002)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.001)	NA	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.007 (0.001)	0.008 (0.001)	0.0015 (0.001)	0.0052 (0.001)	0.033	0.011 (0.005)	0.00061 J (0.001)	0.008 (0.001)	ND (0.005)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.008 (0.001)	0.007 (0.001)	0.00086 J (0.001)	0.0018 (0.001)	NA	ND (0.005)	ND (0.001)	0.0017 (0.001)	NA	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.062 (0.025)	0.11 (0.025)	0.014 J (0.05)	0.0602 (0.01)	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0006 J (0.001)	0.0004 J (0.001)	ND (0.001)	0.00098 J (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	0.0014 (0.001)	ND (0.005)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.005 J (0.005)	0.0004 J (0.005)	ND (0.005)	ND (0.002)	NA	NA	0.0135 (0.002)	0.0712 (0.002)	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.001 J (0.005)	ND (0.005)	ND (0.005)	ND (0.002)	NA	NA	0.0287 (0.002)	0.0077 (0.002)	NA	NA
Xylenes (total)	10	12	0.004 J (0.005)	0.0009 J (0.003)	ND (0.006)	0.0021 (0.001)	0.12	0.033 (0.005)	0.0024 (0.001)	0.027 (0.001)	ND (0.005)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.000151 (0.000077)	NA	NA	0.000342 (0.0001)	ND (0.0001)	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.000028 J (0.000038)	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.000038)	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.000038)	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.000077)	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA
Chrysene	0.0019	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.000077)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.000077)	NA	ND (0.01)	0.00101 (0.0001)	0.00128 (0.0001)	NA	ND (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0005 (0.0005)	ND (0.0005)	ND (0.0005)	0.00022 B (0.000077)	NA	ND (0.01)	ND (0.0001)	0.00851 (0.001)	NA	ND (0.001)
Phenanthrene	1.1	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.000151 (0.000077)	NA	ND (0.01)	0.000998 (0.0001)	0.00143 (0.0001)	NA	ND (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0000515 J (0.000077)	NA	ND (0.01)	0.000329 (0.0001)	0.000396 (0.0001)	NA	ND (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	ND (0.001)	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.003)	0.0003 J (0.0005)	0.00014 J (0.00052)	ND (0.001)	NA	NA	0.0037 (0.003)	0.0053 (0.003)	NA	ND (0.01)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-195	S-196	S-196	S-196	S-196	S-196	S-196	S-196	S-196	S-196
Field Sample ID	Groundwater	Groundwater	S-195_11_10_2005	S-196~3/18/2004	S196-042205	S-196~11/7/2005	S-196_11_10_2005	S-196~12/19/2006	S-196~12/19/2007	S-196_110608	S-196_022309	S-196_062909
Sample Date	Used Aquifer	Vapor Intrusion	11/10/2005	3/18/2004	4/22/2005	11/7/2005	11/10/2005	12/19/2006	12/19/2007	11/6/2008	2/23/2009	6/29/2009
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	NA	ND (0.005)	0.004	NA	ND (0.0005)	ND (0.0005)	ND (0.01)	ND (0.002)	ND (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.0000097)	ND (0.0000096)	ND (0.000029)	ND (0.000029)	ND (0.00003)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	NA	ND (0.005)	ND (0.001)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.002)	ND (0.002)
Xylenes (total)	10	12	ND (0.001)	ND (0.005)	0.013 (0.005)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.000097)	NA
Benzo(a)anthracene	0.0039	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	NA	NA	ND (0.05)	ND (0.000039)	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	NA	NA	ND (0.05)	ND (0.000039)	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	NA	NA	ND (0.05)	ND (0.000029)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	NA	NA	ND (0.05)	ND (0.00019)	NA
Chrysene	0.0019	--	ND (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.00019)	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.001)	NA	ND (0.00039)	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.0001)	NA	NA	NA	ND (0.0001)	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.001)	NA	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.02)	ND (0.004)	ND (0.004)
Phenanthrene	1.1	--	ND (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.001)	ND (0.05)	0.000059 J (0.00019)	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0001)	NA	ND (0.01)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.001)	ND (0.05)	ND (0.00039)	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.01)	NA	ND (0.001)	NA	ND (0.01)	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	ND (0.01)	NA	0.00021 J	0.000066 J	0.00018 J (0.000001)	0.00012 J (0.000001)	0.00012 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-196	S-196	S-196	S-196	S-196	S-196	S-196	S-196	S-196	S-196
Field Sample ID	Groundwater	Groundwater	S-196_090909	S-196_112009	196_030910	S-196_050610	196_072110	S-196~7/21/2010	S-196~11/10/2010	S-196~11/22/2011	S-196_071012	S-196_040413
Sample Date	Used Aquifer	Vapor Intrusion	9/9/2009	11/20/2009	3/9/2010	5/6/2010	7/21/2010	7/21/2010	11/10/2010	11/22/2011	7/10/2012	4/4/2013
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	NA	ND (0.0000097)	ND (0.0000097)	ND (0.000029)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.002)
Xylenes (total)	10	12	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.005)	ND (0.0001)	ND (0.000096)	ND (0.0002)	0.000025 J (0.000097)	NA	NA	NA	ND (0.0006)	ND (0.00011)
Benzo(a)anthracene	0.0039	--	ND (0.005)	0.000015 J (0.00004)	ND (0.000038)	ND (0.00008)	ND (0.000039)	NA	NA	NA	ND (0.0006)	ND (0.00011)
Benzo(a)pyrene	0.0002	--	ND (0.005)	0.000029 J (0.00004)	ND (0.000038)	ND (0.00008)	ND (0.000039)	NA	NA	NA	ND (0.0006)	ND (0.00011)
Benzo(b)fluoranthene	0.0012	--	ND (0.005)	0.000023 J (0.00003)	ND (0.000029)	ND (0.00006)	ND (0.000029)	NA	NA	NA	ND (0.0006)	ND (0.00011)
Benzo(g,h,i)perylene	0.00026	--	ND (0.005)	ND (0.0002)	ND (0.00019)	ND (0.0004)	ND (0.00019)	NA	NA	NA	ND (0.0006)	ND (0.00011)
Chrysene	0.0019	--	ND (0.005)	0.000063 J (0.0002)	ND (0.00019)	ND (0.0004)	ND (0.00019)	NA	ND (0.0009)	0.00019 J	ND (0.0006)	ND (0.00011)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.005)	ND (0.0004)	ND (0.00038)	ND (0.0008)	ND (0.00039)	NA	ND (0.0009)	ND (0.000099)	ND (0.0006)	ND (0.00011)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	ND (0.000039)	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	NA	ND (0.0009)	ND (0.00099)	ND (0.0006)	ND (0.00011)
Phenanthrene	1.1	--	ND (0.005)	ND (0.0002)	ND (0.00019)	ND (0.0004)	0.000047 J (0.00019)	NA	ND (0.0009)	ND (0.000079)	ND (0.0006)	ND (0.00011)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.005)	ND (0.0004)	ND (0.00038)	ND (0.0008)	ND (0.00039)	NA	ND (0.0009)	0.00016 J	ND (0.0006)	ND (0.00011)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0001 J (0.000001)	ND (0.000001)	ND (0.000001)	ND (0.000001)	0.000078 J (0.000001)	NA	0.000061 J	ND (0.00008)	ND (0.001)	0.000035 J (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-196	S-196	S-196	S-196	S-197	S-197	S-197	S-198	S-199	S-199
Field Sample ID	Used Aquifer	Vapor Intrusion	S-196~JB68586	S-196-20141209	S-196_20150519	S-196-20160516	S-197~3/18/2004	S-197~11/7/2005	S-197_11_10_2005	S-198_20180817	S-199_20180817	S-199-SL_20190711
Sample Date	(TDS <2500)	Screening Values	6/4/2014	12/9/2014	5/19/2015	5/16/2016	3/18/2004	11/7/2005	11/10/2005	8/17/2018	8/17/2018	7/11/2019
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	9.55 SL (0.1)	10.8 SL (0.2)	8 SL (0.1)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	NA	ND (0.001)	NA	0.136 SL (0.1)	ND,SL (0.2)	0.068 SL (0.05)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.000029)	0.000013 J (0.000029)	NA	ND (0.00002)	ND (0.00002)	ND,SL (0.00001)	ND,SL (0.00001)	ND,SL (0.000028)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND,SL (0.1)	ND,SL (0.2)	ND,SL (0.05)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	1.37 SL (0.1)	0.872 SL (0.2)	0.77 SL (0.01)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	1.46 SL (0.1)	20.2 SL (0.2)	21 SL (0.1)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	47 SL (2.5)
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	0.474 SL (0.1)	0.412 SL (0.2)	1.3 SL (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	1.36 SL (0.1)	0.998 SL (0.2)	0.69 SL (0.05)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	0.468 SL (0.1)	0.297 SL (0.2)	0.22 SL (0.05)
Xylenes (total)	10	12	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	3.92 SL (0.3)	3.77 SL (0.6)	2.7 SL (0.05)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	NA	NA	0.194 SL (0.001)	0.00506 SL (0.00005)	0.022 J,SL (0.025)
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	NA	ND (0.0002)	0.0912 SL (0.001)	0.00113 SL (0.00005)	0.008 J,SL (0.025)
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	NA	ND (0.0002)	0.0564 SL (0.001)	0.000731 SL (0.00005)	0.005 J,SL (0.025)
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	NA	ND (0.0002)	0.0739 SL (0.001)	0.000915 SL (0.00005)	0.007 J,SL (0.025)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	NA	ND (0.0002)	0.0248 SL (0.001)	0.000399 SL (0.00005)	ND,SL (0.025)
Chrysene	0.0019	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0002)	ND (0.0002)	0.0921 SL (0.001)	0.00125 SL (0.00005)	0.008 J,SL (0.025)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0002)	ND (0.0002)	0.356 SL (0.001)	0.021 SL (0.00005)	0.076 SL (0.025)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	ND (0.0002)	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.001)	ND (0.001)	9.93 SL (0.125)	1.89 SL (0.0125)	5.4 SL (0.025)
Phenanthrene	1.1	--	0.00018 (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0002)	ND (0.0002)	0.826 SL (0.001)	0.026 SL (0.00005)	0.12 SL (0.025)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000323 (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0002)	ND (0.0002)	0.247 SL (0.001)	0.00367 SL (0.00005)	0.027 SL (0.025)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	ND (0.01)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0041 (0.003)	ND (0.003)	ND (0.001)	ND (0.001)	NA	ND (0.01)	NA	ND,SL (0.002)	0.00657 SL (0.002)	0.0026 J,SL (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-199	S-199	S-199	S-200	S-200	S-200	S-200	S-200	S-200	S-200
Field Sample ID	Groundwater	Groundwater	S-199-SL_20191113	S-199_SL_20210426	S-199_SL_20220412	S-200_071012	S-200	S-200-20141215	S-200_20180725	S-200_20210519	S-200-221221	S-200-230124
Sample Date	Used Aquifer	Vapor Intrusion	11/13/2019	4/26/2021	4/12/2022	7/10/2012	5/28/2014	12/15/2014	7/25/2018	5/19/2021	12/21/2022	1/24/2023
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	13 SL (0.5)	11 SL (0.1)	0.881 SL (0.005)	5.8 (0.2)	0.623 (0.005)	9.59 (0.1)	7.6 (0.1)	6.2 (0.05)	5.2 (0.025)	4.6 (0.012)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.042 SL (0.025)	0.047 J,SL (0.05)	0.0239 SL (0.004)	0.08 (0.04)	0.0064 (0.0025)	0.0936 (0.01)	0.0352 (0.01)	0.032 (0.005)	0.04 (0.025)	0.13 (0.012)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND,SL (0.000028)	ND,SL (0.000082)	ND,SL (0.00002)	ND (0.00003)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.000028)	ND (0.00001)	ND (0.00001)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND,SL (0.025)	ND,SL (0.01)	ND,SL (0.004)	ND (0.02)	ND (0.0025)	ND (0.01)	ND (0.01)	ND (0.001)	ND (0.025)	ND (0.012)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.64 SL (0.005)	0.64 SL (0.01)	0.208 SL (0.004)	0.88 (0.02)	0.0748 (0.0025)	1.14 (0.01)	0.585 (0.01)	0.38 (0.02)	0.4 (0.025)	1.1 (0.012)
Methyl tert-butyl ether	0.02	96	34 SL (0.05)	15 SL (0.1)	0.176 SL (0.004)	0.77 (0.02)	0.0271 (0.0025)	1.7 (0.01)	1.36 (0.01)	0.24 (0.001)	0.14 (0.05)	0.2 (0.025)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	47 SL (1.3)	56 SL (5)	0.769 SL (0.04)	NA	NA	NA	NA	0.27 (0.05)	NA	NA
Toluene	1	430	1.2 SL (0.05)	1.8 SL (0.01)	0.209 SL (0.004)	0.33 (0.02)	0.0297 (0.0025)	0.373 (0.01)	0.108 (0.01)	0.063 (0.001)	0.06 (0.038)	0.15 (0.019)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.55 SL (0.025)	0.57 SL (0.05)	0.741 SL (0.008)	1.4 (0.04)	0.484 (0.02)	1.5 (0.02)	0.831 (0.01)	0.58 (0.1)	0.59 (0.12)	1.2 (0.062)
1,3,5-Trimethylbenzene	0.53	4.5	0.17 SL (0.025)	0.19 SL (0.05)	0.269 SL (0.008)	0.54 (0.04)	0.26 (0.005)	0.537 (0.02)	0.344 (0.01)	0.29 (0.1)	0.3 (0.12)	0.47 (0.062)
Xylenes (total)	10	12	2.3 SL (0.015)	2.6 SL (0.06)	2.54 SL (0.01)	5.8 (0.02)	0.841 (0.0025)	5.03 (0.01)	1.3 (0.03)	0.58 (0.12)	0.57 J (0.05)	2.74 J (0.025)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.005 J,SL (0.005)	0.0015 SL (0.00051)	0.0015 SL (0.000083)	0.66 (0.01)	0.00093 (0.0001)	0.00609 (0.001)	0.00924 (0.00005)	0.0062 (0.00056)	0.009 (0.0001)	0.26 (0.01)
Benzo(a)anthracene	0.0039	--	ND,SL (0.005)	0.00029 J,SL (0.00051)	0.000626 SL (0.000042)	0.32 (0.01)	0.000975 (0.0001)	0.00168 (0.0001)	0.00311 (0.00005)	0.0033 (0.00056)	0.0014 (0.00005)	0.15 (0.005)
Benzo(a)pyrene	0.0002	--	ND,SL (0.005)	0.00027 J,SL (0.00051)	0.000407 SL (0.000042)	0.21 (0.01)	0.000832 (0.0001)	0.000704 (0.0001)	0.00185 (0.00005)	0.002 (0.00056)	0.00086 (0.0001)	0.095 (0.01)
Benzo(b)fluoranthene	0.0012	--	ND,SL (0.005)	0.00022 J,SL (0.00051)	0.000549 SL (0.000042)	0.26 (0.01)	0.00119 (0.0001)	0.000991 (0.0001)	0.00254 (0.00005)	0.0022 (0.00056)	0.0011 (0.00005)	0.12 (0.005)
Benzo(g,h,i)perylene	0.00026	--	ND,SL (0.005)	ND,SL (0.00051)	0.000262 SL (0.000083)	0.078 (0.01)	0.000543 (0.0001)	0.000327 (0.0001)	0.000719 (0.00005)	0.0007 (0.00056)	0.00042 (0.0001)	0.039 (0.0001)
Chrysene	0.0019	--	ND,SL (0.005)	0.00034 J,SL (0.00051)	0.00072 SL (0.000083)	0.36 (0.01)	0.00147 (0.0001)	0.00168 (0.0001)	0.00332 (0.00005)	0.0029 (0.00056)	0.0013 (0.0001)	0.15 (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.015 SL (0.005)	0.0065 SL (0.00051)	0.0061 SL (0.0017)	1.1 (0.01)	0.00226 (0.0001)	0.0251 (0.001)	0.0365 (0.00005)	0.022 (0.00056)	0.04 (0.0001)	0.47 (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	0.00041 (0.0001)	0.038 (0.0001)
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.16 SL (0.005)	0.56 SL (0.0051)	0.15 SL (0.0017)	12 (0.097)	0.0305 (0.001)	1.98 (0.05)	1.38 (0.005)	0.66 (0.0056)	1.4 (0.005)	6.6 (0.01)
Phenanthrene	1.1	--	0.026 SL (0.005)	0.0096 SL (0.00051)	0.0085 SL (0.0017)	3 (0.097)	0.0016 (0.0001)	0.0318 (0.001)	0.0472 (0.00005)	0.015 (0.00056)	0.046 (0.00005)	1.1 (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.003 J,SL (0.005)	0.0014 SL (0.00051)	0.00188 SL (0.000083)	0.95 (0.01)	0.0031 (0.0001)	0.00464 (0.001)	0.0106 (0.00005)	0.0098 (0.00056)	0.0065 (0.0001)	0.43 (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0057 SL (0.0005)	0.0035 SL (0.0026)	0.0182 SL (0.001)	0.0062 (0.001)	0.0029 J (0.003)	0.0061 (0.003)	ND (0.002)	0.00081 (0.00052)	0.0006155 J (0.001)	0.0008838 J (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-202	S-202	S-202	S-202	S-202	S-202	S-203	S-204	S-206	S-206
Field Sample ID	Used Aquifer	Vapor Intrusion	S202-041905	S-202_071012	S-202	S-202-20141215	S-202_20191119	S-202_20220324	S203-042005	S204-041905	S206-041905	S-206_071012
Sample Date	(TDS <2500)	Screening Values	4/19/2005	7/10/2012	5/28/2014	12/15/2014	11/19/2019	3/24/2022	4/20/2005	4/19/2005	4/19/2005	7/10/2012
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	1.4 (0.1)	0.54 (0.02)	0.573 (0.01)	0.0121 (0.0005)	0.002 (0.001)	0.0014 (0.0005)	0.94 (0.1)	26 (10)	0.052 (0.025)	0.004 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.1)	0.001 J (0.004)	0.003 (0.001)	0.0027 (0.001)	0.012 (0.005)	0.0073 (0.001)	ND (0.1)	ND (10)	0.029 (0.025)	0.049 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.000028)	ND (0.00002)	NA	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.1)	ND (0.002)	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.1)	ND (10)	ND (0.025)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.35 (0.1)	0.004 (0.002)	0.0032 (0.001)	0.0009 J (0.001)	0.0005 J (0.001)	ND (0.001)	ND (0.1)	ND (10)	ND (0.025)	0.001 (0.001)
Methyl tert-butyl ether	0.02	96	0.13 (0.1)	0.071 (0.002)	0.0386 (0.001)	0.0366 (0.001)	0.011 (0.001)	0.0038 (0.001)	17 (0.5)	370 (10)	0.076 (0.025)	0.035 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	0.644 (0.01)	NA	NA	NA	NA
Toluene	1	430	1.6 (0.1)	0.004 (0.002)	0.0032 (0.001)	0.0032 (0.001)	0.002 (0.001)	ND (0.001)	ND (0.1)	ND (10)	ND (0.025)	0.003 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.003 J (0.004)	0.0033 (0.002)	0.0011 J (0.002)	ND (0.005)	ND (0.002)	NA	NA	NA	0.002 J (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.002 J (0.004)	0.0032 (0.002)	0.0019 J (0.002)	0.0008 J (0.005)	ND (0.002)	NA	NA	NA	0.0006 J (0.002)
Xylenes (total)	10	12	1.7 (0.1)	0.013 (0.002)	0.0109 (0.001)	0.0051 (0.001)	0.006 (0.003)	0.00074 J (0.001)	0.22 (0.1)	ND (10)	ND (0.025)	0.009 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.0002 J (0.0005)	ND (0.0001)	NA	NA	ND (0.000083)	NA	NA	NA	0.0003 J (0.0005)
Benzo(a)anthracene	0.0039	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	ND (0.000042)	NA	NA	NA	ND (0.0005)
Benzo(a)pyrene	0.0002	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	ND (0.000042)	NA	NA	NA	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	0.0000341 J (0.000042)	NA	NA	NA	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	NA	ND (0.0005)	ND (0.0001)	NA	NA	ND (0.000083)	NA	NA	NA	ND (0.0005)
Chrysene	0.0019	--	ND (0.01)	ND (0.0005)	ND (0.0001)	NA	NA	ND (0.000083)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.01)	0.0004 J (0.0005)	0.000296 (0.0001)	0.000212 J- (0.0001)	NA	0.000166 (0.000083)	0.011 (0.01)	0.011 (0.01)	ND (0.01)	0.005 (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.094 (0.01)	0.009 (0.0005)	0.00104 (0.0001)	0.000324 J- (0.0001)	ND (0.01)	0.000145 (0.000083)	0.025 (0.01)	0.29 (0.096)	ND (0.01)	0.005 (0.0005)
Phenanthrene	1.1	--	ND (0.01)	0.0005 (0.0005)	0.000245 (0.0001)	0.000124 J- (0.0001)	NA	0.000107 (0.000083)	0.01 (0.01)	0.021 (0.01)	ND (0.01)	0.004 (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.01)	0.0002 J (0.0005)	0.000117 (0.0001)	NA	NA	0.0000544 J (0.000083)	ND (0.01)	ND (0.01)	ND (0.01)	0.0002 J (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0049 (0.001)	NA	NA	NA	NA	NA	0.0044 (0.001)	0.0064 (0.001)	ND (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0111 (0.001)	0.0019 J (0.003)	0.0024 J (0.003)	NA	0.0024 (0.001)	NA	NA	NA	0.0006 J (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-206	S-206	S-206	S-206	S-206	S-207	S-207	S-207	S-207	S-207
Field Sample ID	Groundwater	Groundwater	S-206	S-206-20141212	S-206_20220325	S-206-221222	S-206-230124	S207-041905	S-207_071112	S-207	S-207-20141209	S-207-221222
Sample Date	Used Aquifer	Vapor Intrusion	5/28/2014	12/12/2014	3/25/2022	12/22/2022	1/24/2023	4/19/2005	7/11/2012	5/28/2014	12/9/2014	12/22/2022
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0078 (0.0005)	0.003 (0.0005)	0.00092 (0.0005)	0.0011 (0.0005)	0.001 (0.0005)	ND (0.005)	ND (0.001)	0.00042 J (0.0005)	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0433 (0.001)	0.0481 (0.001)	0.0163 (0.001)	0.018 (0.0005)	0.0081 (0.0005)	0.025 (0.005)	0.024 (0.002)	0.0082 (0.001)	0.0218 (0.001)	0.022 (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.00001)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.00066 J (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	0.0203 (0.001)	0.0339 (0.001)	0.0032 (0.001)	0.0039 (0.001)	0.0022 (0.001)	0.01 (0.005)	0.003 (0.001)	ND (0.001)	0.0011 (0.001)	0.00097 J (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	0.0542 (0.01)	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0019 (0.001)	0.0017 (0.001)	ND (0.001)	0.00033 J (0.00075)	0.00036 J (0.00075)	ND (0.005)	0.0008 J (0.001)	ND (0.001)	0.00038 J (0.001)	ND (0.00075)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.00049 J (0.002)	ND (0.002)	ND (0.002)	ND (0.0025)	ND (0.0025)	NA	ND (0.002)	0.00028 J (0.002)	ND (0.002)	ND (0.0025)
1,3,5-Trimethylbenzene	0.53	4.5	0.00022 J (0.002)	ND (0.002)	ND (0.002)	ND (0.0025)	ND (0.0025)	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.0025)
Xylenes (total)	10	12	0.0048 (0.001)	0.0039 (0.001)	0.0021 (0.001)	0.0022 J (0.001)	0.00157 J (0.001)	ND (0.005)	0.002 (0.001)	0.0004 J (0.001)	0.00057 J (0.001)	0.00087 J (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	ND (0.0001)	ND (0.000071)	0.00007 J (0.0001)	0.00002 J (0.0001)	NA	0.0005 (0.0005)	0.00016 (0.0001)	0.000223 (0.0001)	0.00019 (0.0001)
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.0001)	ND (0.000036)	0.00002 J (0.00005)	0.00004 J (0.00005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.0001)	ND (0.000036)	ND (0.0001)	0.00003 J (0.0001)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.0001)	ND (0.000036)	ND (0.00005)	0.00006 (0.00005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.0001)	ND (0.000071)	ND (0.0001)	0.00003 J (0.0001)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Chrysene	0.0019	--	ND (0.0001)	ND (0.0001)	ND (0.000071)	ND (0.0001)	0.00004 J (0.0001)	ND (0.01)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00297 (0.0001)	0.00305 (0.0001)	0.000922 (0.000071)	0.0016 (0.0001)	0.0007 (0.0001)	ND (0.01)	0.003 (0.0005)	0.00134 (0.0001)	0.00168 (0.0001)	0.0014 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	ND (0.0001)	0.00004 J (0.0001)	NA	NA	NA	NA	ND (0.0001)
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.0001)	0.000356 (0.000071)	0.00023 (0.0001)	ND (0.0001)	ND (0.01)	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.00036 (0.0001)
Phenanthrene	1.1	--	0.0016 (0.0001)	0.00167 (0.0001)	0.000891 (0.000071)	0.0011 (0.00005)	0.00046 (0.00005)	ND (0.01)	0.001 (0.0005)	0.000679 (0.0001)	0.000533 B (0.0001)	0.00072 (0.00005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0001)	ND (0.0001)	0.0000475 J (0.000071)	0.00005 J (0.0001)	0.00002 J (0.0001)	ND (0.01)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	0.00006 J (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	ND (0.001)	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.003)	0.0014 J (0.003)	ND (0.001)	ND (0.001)	ND (0.001)	NA	0.00032 J (0.001)	ND (0.003)	0.0026 J (0.003)	ND (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-207 S-207-230124 1/24/2023	S-215 S215-041905 4/19/2005	S-261 S-261_071112 7/11/2012	S-261 S-261~JB67626 5/22/2014	S-261 S-261-20141209 12/9/2014	S-267 S-267_071012 7/10/2012	S-267 S-267 6/3/2014	S-267 S-267-20141209 12/9/2014	S-268 S-268~12/19/2007 12/19/2007	S-268 S-268_110608 11/6/2008
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	29 (2.5)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.001)	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.016 (0.0005)	ND (2.5)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00001)	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.0000096)	ND (0.00003)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.0005)	ND (2.5)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	3.3 (2.5)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.00076 J (0.001)	51 (2.5)	0.0009 J (0.001)	ND (0.001)	ND (0.001)	0.0008 J (0.001)	0.0033 (0.001)	0.00078 J (0.001)	NA	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.00023 J (0.00075)	29 (2.5)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.0025)	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.0025)	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.002)
Xylenes (total)	10	12	ND (0.001)	19 (2.5)	0.0006 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00008 J (0.0001)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)
Benzo(a)anthracene	0.0039	--	ND (0.00005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)
Benzo(a)pyrene	0.0002	--	ND (0.0001)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)
Benzo(b)fluoranthene	0.0012	--	ND (0.00005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.005)
Chrysene	0.0019	--	ND (0.0001)	ND (0.01)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00085 (0.0001)	0.053 (0.01)	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.001)	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.0001)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	2.2 (0.5)	0.005 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.004)
Phenanthrene	1.1	--	0.0004 (0.00005)	0.087 (0.01)	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00003 J (0.0001)	0.013 (0.01)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.001)	ND (0.005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0447 (0.001)	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.001)	NA	0.00013 J (0.001)	0.0021 J (0.003)	0.0013 J (0.003)	0.00011 J (0.001)	0.0025 J (0.003)	ND (0.003)	0.00093 J	0.00019 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-268	S-268	S-268	S-268	S-268	S-268	S-268	S-268	S-268	S-268
Field Sample ID	Groundwater	Groundwater	S-268_022309	S-268_062909	S-268_090909	S-268_112009	268_030910	S-268_050610	268_072110	S-268~7/21/2010	S-268~11/10/2010	S-268~11/22/2011
Sample Date	Used Aquifer	Vapor Intrusion	2/23/2009	6/29/2009	9/9/2009	11/20/2009	3/9/2010	5/6/2010	7/21/2010	7/21/2010	11/10/2010	11/22/2011
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.004 (0.001)	ND (0.001)	ND (0.001)	0.001 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00003)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.000029)	NA	ND (0.0000097)	ND (0.0000096)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.002 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0006 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.012 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)
1,3,5-Trimethylbenzene	0.53	4.5	0.004 (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	ND (0.0005)	ND (0.0005)
Xylenes (total)	10	12	0.018 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.0005)	ND (0.0005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00018 (0.000095)	NA	ND (0.005)	0.000046 J (0.000095)	0.000032 J (0.000095)	0.000043 J (0.000095)	0.000031 J (0.000096)	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.00004)	NA	ND (0.005)	0.000014 J (0.000038)	0.00005 (0.000038)	ND (0.000038)	ND (0.000038)	NA	NA	NA
Benzo(a)pyrene	0.0002	--	0.000012 J (0.000038)	NA	ND (0.005)	ND (0.000038)	0.000066 (0.000038)	ND (0.000038)	ND (0.000038)	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.000015 J (0.000028)	NA	ND (0.005)	ND (0.000028)	0.000062 (0.000028)	0.000008 J (0.000028)	ND (0.000029)	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.00019)	NA	ND (0.005)	ND (0.00019)	0.000062 J (0.00019)	ND (0.00019)	ND (0.00019)	NA	NA	NA
Chrysene	0.0019	--	ND (0.00019)	NA	ND (0.005)	ND (0.00019)	0.000074 J (0.00019)	0.000069 J (0.00019)	0.000069 J (0.00019)	NA	ND (0.001)	ND (0.000079)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00028 J (0.00038)	NA	ND (0.005)	ND (0.00038)	ND (0.00038)	ND (0.00038)	ND (0.00038)	NA	ND (0.001)	ND (0.000099)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	ND (0.000038)	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.003 J (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	ND (0.004)	NA	ND (0.001)	ND (0.00099)
Phenanthrene	1.1	--	0.00067 (0.00019)	NA	ND (0.005)	0.000065 J (0.00019)	ND (0.00019)	ND (0.00019)	0.000054 J (0.00019)	NA	ND (0.001)	ND (0.000079)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.00038)	NA	ND (0.005)	0.00022 J (0.00038)	0.0002 J (0.00038)	0.00018 J (0.00038)	0.00014 J (0.00038)	NA	ND (0.001)	ND (0.000099)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00031 J (0.000001)	0.00019 J (0.000001)	0.00013 J (0.000001)	0.00016 J (0.000001)	0.00027 J (0.000001)	0.0003 J (0.000001)	0.0003 J (0.000001)	NA	0.000064 J	ND (0.00008)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-268	S-268	S-268	S-268	S-268	S-268	S-269	S-269	S-269	S-269
Field Sample ID	Used Aquifer	Vapor Intrusion	S-268_071112	S-268_040413	S-268~JB68586	S-268-20141209	S-268_20150519	S-268-20160518	S-269	S-269_072512	S-269~JB68176	S-269-20141215
Sample Date	(TDS <2500)	Screening Values	7/11/2012	4/4/2013	6/4/2014	12/9/2014	5/19/2015	5/18/2016	8/29/2008	7/25/2012	5/29/2014	12/15/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	0.002 (0.001)	ND (0.001)	0.83 (0.01)	0.4 (0.005)	0.149 (0.0005)	0.0494 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.002)	NA	0.004 J (0.01)	0.0067 (0.001)	0.0016 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	NA	ND (0.00003)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.24 (0.01)	0.048 (0.005)	0.0137 (0.001)	0.0043 (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.072 (0.001)	0.021 (0.005)	0.0267 (0.001)	0.0198 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.2 (0.001)	0.019 (0.005)	0.0148 (0.001)	0.004 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	0.2 (0.01)	0.0551 (0.002)	0.0082 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	0.053 (0.01)	0.0161 (0.002)	0.014 (0.002)
Xylenes (total)	10	12	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	2 (0.01)	0.16 (0.005)	0.0496 (0.001)	0.0131 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Chrysene	0.0019	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	0.0001 J (0.0005)	0.000603 (0.0001)	0.000301 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	0.0007 (0.0005)	ND (0.0001)	ND (0.0001)
Phenanthrene	1.1	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	NA	ND (0.0005)	0.000293 (0.0001)	ND (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0005)	ND (0.00011)	ND (0.0001)	ND (0.0001)	ND (0.0005)	0.0001 J (0.0005)	NA	0.0001 J (0.0005)	0.000135 (0.0001)	ND (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.000051 J (0.001)	0.0001 J (0.001)	0.0013 J (0.003)	ND (0.003)	ND (0.001)	ND (0.001)	NA	0.00081 J (0.001)	ND (0.003)	0.0014 J (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-270	S-270	S-270	S-270	S-271	S-271	S-271	S-271	S-271	S-271
Field Sample ID	Groundwater	Groundwater	S-270	S-270_072512	S-270~JB67921	S-270-20141212	S-271_110308	S-271_021909	S-271_062509	S-271_090809	S-271_112309	271_030810
Sample Date	Used Aquifer	Vapor Intrusion	8/29/2008	7/25/2012	5/28/2014	12/12/2014	11/3/2008	2/19/2009	6/25/2009	9/8/2009	11/23/2009	3/8/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	1.8 (0.01)	0.26 (0.002)	0.0846 (0.0005)	0.371 (0.005)	2.5 (0.05)	1.9 (0.02)	2 (0.02)	1.1 (0.02)	1.2 (0.01)	0.56 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	0.009 (0.004)	0.0158 (0.001)	0.0288 (0.001)	0.094 (0.01)	0.1 (0.04)	0.097 (0.002)	0.093 (0.004)	0.085 (0.02)	0.081 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.02)	ND (0.001)	ND (0.002)	ND (0.01)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.35 (0.01)	0.008 (0.002)	0.0073 (0.001)	0.0098 (0.001)	0.45 (0.005)	0.4 (0.02)	0.33 (0.02)	0.25 (0.002)	0.21 (0.01)	0.095 (0.001)
Methyl tert-butyl ether	0.02	96	0.015 (0.001)	0.006 (0.002)	0.0027 (0.001)	0.0541 (0.001)	0.34 (0.005)	0.18 (0.02)	0.11 (0.001)	0.036 (0.002)	0.012 (0.01)	0.011 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.2 (0.001)	0.003 (0.002)	0.0057 (0.001)	0.0134 (0.001)	0.06 (0.005)	0.033 (0.02)	0.055 (0.001)	0.036 (0.002)	0.05 (0.01)	0.012 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.023 (0.004)	0.0222 (0.002)	0.0263 (0.002)	0.43 (0.01)	0.51 (0.04)	0.29 (0.04)	0.16 (0.004)	0.12 (0.02)	0.058 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.004 (0.004)	0.0037 (0.002)	0.0049 (0.002)	0.21 (0.01)	0.31 (0.04)	0.18 (0.002)	0.12 (0.004)	0.1 (0.02)	0.065 (0.002)
Xylenes (total)	10	12	1.4 (0.01)	0.025 (0.002)	0.0261 (0.001)	0.0346 (0.001)	1.1 (0.005)	0.89 (0.02)	0.55 (0.02)	0.37 (0.002)	0.3 (0.01)	0.13 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.002 (0.0005)	0.0003 (0.0001)	0.000299 (0.0001)	0.005 (0.005)	0.0038 (0.0001)	0.0041 (0.000095)	0.004 J (0.005)	0.0052 (0.000098)	0.0033 (0.000095)
Benzo(a)anthracene	0.0039	--	NA	0.0004 J (0.0005)	ND (0.0001)	ND (0.0001)	0.002 J (0.005)	0.0017 (0.000041)	0.00086 (0.000038)	ND (0.005)	0.0019 (0.000039)	0.00051 (0.000038)
Benzo(a)pyrene	0.0002	--	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.0014 (0.000041)	0.00061 (0.000038)	ND (0.005)	0.0014 (0.000039)	0.00031 (0.000038)
Benzo(b)fluoranthene	0.0012	--	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	0.001 J (0.005)	0.001 (0.000031)	0.00053 (0.000028)	ND (0.005)	0.0012 (0.000029)	0.00029 (0.000029)
Benzo(g,h,i)perylene	0.00026	--	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00099 (0.00021)	0.00065 (0.00019)	ND (0.005)	0.0012 (0.0002)	0.00019 J (0.00019)
Chrysene	0.0019	--	NA	0.0007 (0.0005)	ND (0.0001)	ND (0.0001)	0.002 J (0.005)	0.0019 (0.00021)	0.00097 (0.00019)	ND (0.005)	0.0024 (0.0002)	0.00062 (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	0.005 (0.0005)	0.00254 (0.0001)	0.00351 (0.0001)	NA	0.014 (0.00041)	0.018 (0.00038)	0.018 (0.005)	0.018 (0.00039)	0.018 (0.00038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	0.003 (0.0005)	ND (0.0001)	ND (0.0001)	0.62 (0.02)	0.68 (0.08)	0.43 (0.08)	0.39 (0.008)	0.33 (0.04)	0.17 (0.004)
Phenanthrene	1.1	--	NA	0.003 (0.0005)	0.00211 (0.0001)	0.00281 (0.0001)	0.027 (0.005)	0.02 (0.001)	0.022 (0.00095)	0.019 (0.005)	0.028 (0.00098)	0.017 (0.00095)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	0.001 (0.0005)	0.000172 (0.0001)	0.000185 (0.0001)	0.005 (0.005)	0.0089 (0.00041)	0.0037 (0.00038)	0.002 J (0.005)	0.0073 (0.00039)	0.0027 (0.00038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0089 (0.001)	ND (0.003)	0.0014 J (0.003)	0.0098 (0.000001)	0.0101 (0.000001)	0.0083 (0.000001)	0.0074 (0.000001)	0.0074 (0.000001)	0.0051 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-271	S-271	S-271	S-271	S-271	S-271	S-271	S-271	S-271	S-271
Field Sample ID	Groundwater	Groundwater	S-271_050510	271_072110	S-271~7/21/2010	S-271_071812	S-271~JB67921	S-271-20141215	S-271_20180628	S-271-HS_20180628	S-271_20190618	S-271_20191030
Sample Date	Used Aquifer	Vapor Intrusion	5/5/2010	7/21/2010	7/21/2010	7/18/2012	5/27/2014	12/15/2014	6/28/2018	6/28/2018	6/18/2019	10/30/2019
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.98 (0.01)	0.89 (0.005)	NA	0.17 (0.005)	0.151 (0.0005)	0.404 (0.005)	0.0867 (0.05)	0.0671 (0.05)	0.14 (0.001)	0.11 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.076 (0.02)	0.073 (0.01)	NA	0.065 (0.01)	0.0758 (0.001)	0.0814 (0.01)	0.0742 (0.05)	ND (0.05)	0.088 (0.005)	0.081 (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND,HT (0.00001)	ND,HT (0.00001)	ND (0.000028)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.01)	ND (0.005)	NA	ND (0.005)	ND (0.001)	ND (0.01)	ND (0.05)	ND (0.05)	ND (0.005)	ND (0.025)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.11 (0.01)	0.091 (0.005)	NA	0.013 (0.005)	0.0091 (0.001)	0.0123 (0.01)	ND (0.05)	ND (0.05)	0.01 (0.001)	0.008 (0.005)
Methyl tert-butyl ether	0.02	96	0.038 (0.01)	0.16 (0.005)	NA	0.074 (0.005)	0.199 (0.02)	7.03 (0.05)	ND (0.05)	ND (0.05)	0.032 (0.001)	0.45 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	1.01 OE (0.25)	1.16 OE (0.25)	2.5 (0.25)	5.2 (1.3)
Toluene	1	430	0.029 (0.01)	0.023 (0.005)	NA	0.027 (0.005)	0.0244 (0.001)	0.0446 (0.01)	ND (0.05)	ND (0.05)	0.033 (0.001)	0.024 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.058 (0.02)	0.047 (0.01)	NA	ND (0.01)	0.001 J (0.002)	0.0026 J (0.02)	ND (0.05)	ND (0.05)	0.001 J (0.005)	ND (0.025)
1,3,5-Trimethylbenzene	0.53	4.5	0.066 (0.02)	0.054 (0.01)	NA	0.007 J (0.01)	0.0037 (0.002)	0.0072 J (0.02)	ND (0.05)	ND (0.05)	0.011 (0.005)	0.013 J (0.025)
Xylenes (total)	10	12	0.14 (0.01)	0.11 (0.005)	NA	0.025 (0.005)	0.0193 (0.001)	0.0394 (0.01)	ND (0.15)	ND (0.15)	0.049 (0.005)	0.05 (0.015)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0028 (0.000098)	0.0029 (0.000097)	NA	0.003 (0.0005)	0.000951 (0.0001)	0.00144 J- (0.0001)	NA	NA	0.002 (0.0005)	0.002 (0.0005)
Benzo(a)anthracene	0.0039	--	0.0004 (0.000039)	0.00038 (0.000039)	NA	0.0002 J (0.0005)	0.000118 (0.0001)	NA	NA	NA	0.0003 J (0.0005)	ND (0.0005)
Benzo(a)pyrene	0.0002	--	0.00027 (0.000039)	0.00025 (0.000039)	NA	ND (0.0005)	ND (0.0001)	NA	NA	NA	0.0002 J (0.0005)	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	0.00021 (0.000029)	0.00022 (0.000029)	NA	ND (0.0005)	0.000146 (0.0001)	NA	NA	NA	0.0003 J (0.0005)	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	0.0002 (0.0002)	0.00022 (0.00019)	NA	ND (0.0005)	ND (0.0001)	NA	NA	NA	0.0001 J (0.0005)	ND (0.0005)
Chrysene	0.0019	--	0.00059 (0.0002)	0.00051 (0.00019)	NA	0.0002 J (0.0005)	0.000159 (0.0001)	0.000107 J- (0.0001)	NA	NA	0.0003 J (0.0005)	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.016 (0.00039)	0.016 (0.00039)	NA	0.015 (0.0005)	0.00653 (0.001)	0.00798 J- (0.001)	NA	NA	0.008 (0.0005)	0.012 (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	0.00018 J	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.21 (0.04)	0.17 (0.02)	NA	0.013 (0.0005)	ND (0.0001)	0.011 J- (0.001)	NA	NA	ND (0.0005)	0.005 (0.0005)
Phenanthrene	1.1	--	0.018 (0.00098)	0.018 (0.00097)	NA	0.016 (0.0005)	0.00423 (0.0001)	0.00789 J- (0.001)	NA	NA	0.008 (0.0005)	0.013 (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0023 (0.00039)	0.0022 (0.00039)	NA	0.001 (0.0005)	0.000746 (0.0001)	0.000742 J- (0.0001)	NA	NA	0.002 (0.0005)	0.0007 (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0064 (0.000001)	0.0064 (0.000001)	NA	0.0046 (0.001)	0.0126 (0.003)	0.0108 (0.003)	NA	NA	0.007 (0.003)	0.0078 (0.0005)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-271 S-271_20210507_410-39177-1 5/7/2021	S-271 S-271_20220330 3/30/2022	S-271 S-271-221222 12/22/2022	S-271 S-271-230123 1/23/2023	S-272 S-272_110408 11/4/2008	S-272 S-272_021909 2/19/2009	S-272 S-272_062509 6/25/2009	S-272 S-272_090809 9/8/2009	S-272 S-272_112309 11/23/2009	S-272 272_030810 3/8/2010
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.12 (0.005)	0.12 (0.005)	0.14 (0.025)	0.13 (0.05)	0.025 (0.001)	0.007 (0.001)	0.004 (0.001)	0.015 (0.001)	0.057 (0.001)	0.004 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.078 (0.025)	0.102 (0.01)	0.1 (0.025)	0.066 (0.05)	0.009 (0.002)	0.003 (0.002)	0.003 (0.002)	0.012 (0.002)	0.003 (0.002)	0.01 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.00002)	ND (0.00001)	ND (0.00001)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.01)	ND (0.025)	ND (0.05)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0076 (0.005)	0.0074 J (0.01)	0.0086 J (0.025)	ND (0.05)	0.019 (0.001)	0.002 (0.001)	0.0007 J (0.001)	0.003 (0.001)	ND (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	0.29 (0.005)	3.8 (0.1)	10 (0.25)	11 (0.1)	0.0006 J (0.001)	0.0007 J (0.001)	0.001 (0.001)	0.0007 J (0.001)	ND (0.001)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	7.3 (2.5)	12.8 (1)	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.035 (0.005)	0.0297 (0.01)	0.059 (0.038)	0.051 J (0.075)	0.0009 J (0.001)	0.0008 J (0.001)	0.0006 J (0.001)	0.001 J (0.001)	0.0006 J (0.001)	0.0008 J (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.025)	ND (0.02)	ND (0.12)	ND (0.25)	0.044 (0.002)	0.009 (0.002)	0.005 (0.002)	0.009 (0.002)	0.0007 J (0.002)	0.001 J (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	0.0092 J (0.025)	0.0101 J (0.02)	ND (0.12)	ND (0.25)	0.017 (0.002)	0.004 (0.002)	0.002 J (0.002)	0.006 (0.002)	0.001 J (0.002)	0.0008 J (0.002)
Xylenes (total)	10	12	0.036 (0.03)	0.0549 (0.01)	0.064 J (0.05)	0.098 J (0.1)	0.045 (0.001)	0.01 (0.001)	0.004 (0.001)	0.008 (0.001)	0.002 (0.001)	0.003 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0014 (0.00055)	0.00146 (0.000074)	0.0019 (0.0001)	0.0012 (0.0001)	ND (0.005)	0.00031 (0.000099)	0.00033 (0.00011)	ND (0.005)	ND (0.0001)	0.00035 J (0.0005)
Benzo(a)anthracene	0.0039	--	0.00013 J (0.00055)	0.000112 (0.000037)	0.00008 (0.00005)	0.00006 (0.00005)	ND (0.005)	0.000057 (0.00004)	0.000017 J (0.000043)	ND (0.005)	0.000041 (0.00004)	ND (0.0002)
Benzo(a)pyrene	0.0002	--	0.00012 J (0.00055)	0.000071 (0.000037)	0.00002 J (0.0001)	0.00003 J (0.0001)	ND (0.005)	0.00007 (0.00004)	ND (0.000043)	ND (0.005)	0.00005 (0.00004)	ND (0.0002)
Benzo(b)fluoranthene	0.0012	--	0.00011 J (0.00055)	0.0000959 (0.000037)	0.00002 J (0.00005)	0.00003 J (0.00005)	ND (0.005)	0.000061 (0.00003)	ND (0.000032)	ND (0.005)	0.000048 (0.00003)	0.000044 J (0.00015)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00055)	ND (0.000074)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.000063 J (0.0002)	ND (0.00021)	ND (0.005)	ND (0.0002)	ND (0.001)
Chrysene	0.0019	--	0.00014 J (0.00055)	0.000136 (0.000074)	0.00006 J (0.0001)	0.00007 J (0.0001)	ND (0.005)	0.00011 J (0.0002)	0.000072 J (0.00021)	ND (0.005)	0.000066 J (0.0002)	ND (0.001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0098 (0.00055)	0.0117 (0.00074)	0.015 (0.0001)	0.0086 (0.0001)	NA	0.0025 (0.0004)	0.0025 (0.00043)	0.001 J (0.005)	ND (0.0004)	0.0021 (0.002)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.00055)	ND (0.000074)	0.0007 (0.0001)	0.0007 (0.0001)	0.01 (0.004)	0.003 J (0.004)	0.001 J (0.004)	0.004 (0.004)	ND (0.004)	0.001 J (0.004)
Phenanthrene	1.1	--	0.0071 (0.00055)	0.0097 (0.00074)	0.011 (0.00005)	0.008 (0.00005)	ND (0.005)	0.00034 (0.0002)	0.00054 (0.00021)	ND (0.005)	ND (0.0002)	0.00061 J (0.001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00087 (0.00055)	0.000745 (0.000074)	0.00075 (0.0001)	0.0006 (0.0001)	ND (0.005)	ND (0.0006)	0.00023 J (0.00043)	ND (0.005)	0.00037 J (0.0004)	ND (0.002)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0091 (0.00052)	0.0069 (0.001)	0.00927 (0.001)	0.008246 (0.001)	0.00089 J (0.000001)	0.0004 J (0.000001)	0.00045 J (0.000001)	0.00074 J (0.000001)	0.00045 J (0.000001)	0.0003 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-272	S-272	S-272	S-272	S-272	S-272	S-273	S-273	S-273	S-273
Field Sample ID	Groundwater	Groundwater	S-272_050510	272_072210	S-272~7/22/2010	S-272_071812	S-272~JB67747	S-272-20141210	S-273_110408	S-273_021909	S-273_062509	S-273_090809
Sample Date	Used Aquifer	Vapor Intrusion	5/5/2010	7/22/2010	7/22/2010	7/18/2012	5/23/2014	12/10/2014	11/4/2008	2/19/2009	6/25/2009	9/8/2009
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.004 (0.001)	0.002 (0.001)	NA	0.003 (0.001)	0.002 (0.0005)	0.00042 J (0.0005)	0.13 (0.01)	0.046 (0.001)	0.17 (0.001)	0.14 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.008 (0.002)	0.004 (0.002)	NA	0.014 (0.002)	0.0068 (0.001)	0.0026 (0.001)	0.035 (0.02)	0.008 (0.002)	0.023 (0.002)	0.019 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND,J (0.001)	ND (0.001)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.099 (0.01)	0.011 (0.001)	0.025 (0.001)	0.039 (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	NA	0.012 (0.001)	0.0107 (0.001)	0.0085 (0.001)	0.01 J (0.01)	0.0008 J (0.001)	0.004 (0.001)	0.001 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0006 J (0.001)	ND (0.001)	NA	0.0005 J (0.001)	0.00068 J (0.001)	0.00023 J (0.001)	0.014 (0.01)	0.004 (0.001)	0.02 (0.001)	0.005 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0007 J (0.002)	0.001 J (0.002)	NA	0.0005 J (0.002)	0.00038 J (0.002)	0.00025 J (0.002)	0.15 (0.02)	0.04 (0.002)	0.046 (0.002)	0.053 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	0.001 J (0.002)	NA	ND (0.002)	0.00026 J (0.002)	ND (0.002)	0.061 (0.02)	0.019 (0.002)	0.024 (0.002)	0.028 (0.002)
Xylenes (total)	10	12	0.002 (0.001)	0.002 (0.001)	NA	0.003 (0.001)	0.0022 (0.001)	0.0011 (0.001)	0.47 (0.01)	0.081 (0.001)	0.13 (0.001)	0.15 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00027 (0.000095)	0.0004 (0.000095)	NA	0.0004 J (0.0005)	0.000113 (0.0001)	ND (0.0001)	0.002 J (0.005)	0.00019 (0.00011)	0.00046 (0.00011)	ND (0.005)
Benzo(a)anthracene	0.0039	--	0.00002 J (0.000038)	0.000043 (0.000038)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00036 (0.000042)	0.00024 (0.000042)	ND (0.005)
Benzo(a)pyrene	0.0002	--	0.000024 J (0.000038)	0.000042 (0.000038)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00033 (0.000042)	0.00025 (0.000042)	ND (0.005)
Benzo(b)fluoranthene	0.0012	--	0.000023 J (0.000029)	0.000043 (0.000028)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00029 (0.000032)	0.00024 (0.000032)	ND (0.005)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00019)	ND (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00027 (0.00021)	0.00027 (0.00021)	ND (0.005)
Chrysene	0.0019	--	0.000073 J (0.00019)	0.000075 J (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.005)	0.00057 (0.00021)	0.00041 (0.00021)	ND (0.005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0018 (0.00038)	0.0026 (0.00038)	NA	0.002 (0.0005)	0.000493 (0.0001)	0.000496 (0.0001)	NA	0.00062 (0.00042)	0.0026 (0.00042)	0.002 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	ND (0.000038)	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.004)	ND (0.004)	NA	0.0007 (0.0005)	ND (0.0001)	ND (0.0001)	0.03 J (0.04)	0.006 (0.004)	0.01 (0.004)	0.006 (0.004)
Phenanthrene	1.1	--	0.00047 (0.00019)	0.00081 (0.00019)	NA	0.0008 (0.0005)	0.000137 (0.0001)	0.000235 B (0.0001)	0.007 (0.005)	0.0005 (0.00021)	0.0017 (0.00021)	0.001 J (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00024 J (0.00038)	0.00035 J (0.00038)	NA	0.0003 J (0.0005)	0.000124 (0.0001)	0.000123 B (0.0001)	0.003 J (0.005)	ND (0.002)	0.00086 (0.00042)	ND (0.005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00044 J (0.000001)	0.0003 J (0.000001)	NA	0.00061 J (0.001)	ND (0.003)	0.0016 J (0.003)	0.0035 (0.000001)	0.0017 (0.000001)	0.003 (0.000001)	0.0017 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-273 S-273_112309 11/23/2009	S-273 273_030810 3/8/2010	S-273 S-273_050510 5/5/2010	S-273 273_072210 7/22/2010	S-273 S-273~7/22/2010 7/22/2010	S-273 S-273_071812 7/18/2012	S-273 S-273~JB67921 5/27/2014	S-273 S-273-20141212 12/12/2014	S-273 S-273_20180622 6/22/2018	S-273 S-273_20190618 6/18/2019
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.12 (0.001)	0.16 (0.005)	0.51 (0.005)	0.33 (0.01)	NA	0.13 (0.005)	0.0695 (0.0005)	0.376 (0.01)	0.00988 (0.001)	0.33 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.022 (0.002)	0.012 (0.002)	0.015 (0.01)	0.022 (0.002)	NA	0.026 (0.01)	0.05 (0.001)	0.0162 J (0.02)	0.0541 (0.001)	0.021 (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00003)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.02)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.015 (0.001)	0.014 (0.001)	0.041 (0.005)	0.062 (0.001)	NA	0.019 (0.005)	0.0029 (0.001)	ND (0.02)	0.00249 (0.001)	0.016 (0.001)
Methyl tert-butyl ether	0.02	96	0.001 J (0.001)	0.0008 J (0.001)	ND (0.005)	0.0009 J (0.001)	NA	0.005 (0.005)	0.0656 (0.001)	2.15 (0.02)	0.0918 (0.001)	0.072 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	1.32 (0.1)	0.56 (0.025)
Toluene	1	430	0.008 (0.001)	0.003 (0.001)	0.009 (0.005)	0.006 (0.001)	NA	0.007 (0.005)	0.0084 (0.001)	0.0124 J (0.02)	0.00257 (0.001)	0.007 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.021 (0.002)	0.01 (0.002)	0.016 (0.01)	0.029 (0.002)	NA	0.012 (0.01)	0.00086 J (0.002)	0.0047 J (0.04)	0.0186 (0.001)	0.004 J (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	0.011 (0.002)	0.005 (0.002)	0.01 J (0.01)	0.02 (0.002)	NA	0.011 (0.01)	0.0016 J (0.002)	0.0057 J (0.04)	0.00979 (0.001)	0.007 (0.005)
Xylenes (total)	10	12	0.066 (0.001)	0.025 (0.001)	0.099 (0.005)	0.13 (0.001)	NA	0.088 (0.005)	0.0182 (0.001)	0.0388 (0.02)	0.0166 (0.003)	0.081 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.00021)	0.00022 (0.000096)	0.0002 (0.000096)	0.00023 (0.000095)	NA	0.0003 J (0.0005)	ND (0.0001)	0.00016 (0.0001)	NA	ND (0.0005)
Benzo(a)anthracene	0.0039	--	0.00012 (0.000038)	0.00011 (0.000038)	0.000026 J (0.000039)	0.000027 J (0.000038)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Benzo(a)pyrene	0.0002	--	0.00013 (0.000038)	0.00007 (0.000038)	0.000018 J (0.000039)	0.000017 J (0.000038)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	0.00011 (0.000028)	0.00007 (0.000029)	0.000012 J (0.000029)	0.000015 J (0.000029)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	0.00012 J (0.00019)	ND (0.00019)	ND (0.00019)	ND (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Chrysene	0.0019	--	0.00021 (0.00019)	0.00016 J (0.00019)	0.000068 J (0.00019)	0.000082 J (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0018 (0.00038)	0.00063 (0.00038)	0.0018 (0.00039)	0.0018 (0.00038)	NA	0.003 (0.0005)	0.000818 (0.0001)	0.00151 (0.0001)	NA	0.0003 J (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	ND (0.000038)	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.005 (0.004)	0.002 J (0.004)	ND (0.02)	0.002 J (0.004)	NA	0.0005 (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)
Phenanthrene	1.1	--	0.0011 (0.00019)	0.00074 (0.00019)	0.00092 (0.00019)	0.00091 (0.00019)	NA	0.002 (0.0005)	0.000493 (0.0001)	0.000807 (0.0001)	NA	ND (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00039 (0.00038)	0.00048 (0.00038)	0.00024 J (0.00039)	0.00025 J (0.00038)	NA	0.0003 J (0.0005)	0.000146 (0.0001)	0.000156 (0.0001)	NA	ND (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0026 (0.000001)	0.00062 J (0.000001)	0.0015 (0.000001)	0.0012 (0.000001)	NA	0.0018 (0.001)	0.0035 (0.003)	0.0036 (0.003)	NA	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1. All concentrations reported in mg/L (ppm); detection limits in parentheses.
2. Only compounds with at least one detection are shown.
3. D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4. Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5. Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-273	S-273	S-273	S-274	S-274	S-274	S-274	S-274	S-274	S-274
Field Sample ID	Groundwater	Groundwater	S-273_20191030	S-273_20210506_410-39001-1	S-273_20220330_42387	S-274_110408	S-274_021909	S-274_062509	S-274_090809	S-274_112309	274_030810	S-274_050510
Sample Date	Used Aquifer	Vapor Intrusion	10/30/2019	5/6/2021	3/30/2022	11/4/2008	2/19/2009	6/25/2009	9/8/2009	11/23/2009	3/8/2010	5/5/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.045 (0.001)	0.42 (0.01)	0.0084 (0.0005)	2.4 (0.05)	1 (0.025)	1 (0.02)	1.4 (0.05)	0.61 (0.01)	0.6 (0.02)	0.36 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.012 (0.005)	0.0084 (0.005)	0.0065 (0.001)	0.081 (0.01)	0.064 (0.01)	0.067 (0.004)	0.086 (0.01)	0.066 (0.02)	0.11 (0.004)	0.067 (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.000028)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.002)	ND (0.005)	ND (0.01)	ND (0.002)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.001 (0.001)	0.058 (0.001)	0.00068 J (0.001)	0.15 (0.005)	0.14 (0.005)	0.14 (0.002)	0.46 (0.005)	0.13 (0.01)	1.5 (0.02)	0.35 (0.01)
Methyl tert-butyl ether	0.02	96	0.071 (0.001)	0.055 (0.001)	0.0435 (0.001)	12 (0.05)	3.1 (0.005)	0.9 (0.002)	0.36 (0.005)	0.13 (0.01)	0.021 (0.002)	0.061 (0.01)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.53 (0.025)	0.21 (0.05)	0.275 (0.01)	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.01 (0.001)	0.0099 (0.001)	0.0016 (0.001)	0.074 (0.005)	0.047 (0.005)	0.067 (0.002)	0.056 (0.005)	0.042 (0.01)	0.066 (0.002)	0.03 (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0009 J (0.005)	0.023 (0.005)	0.0037 (0.002)	0.092 (0.01)	0.098 (0.01)	0.08 (0.004)	0.19 (0.01)	0.071 (0.02)	0.98 (0.04)	0.52 (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	0.003 J (0.005)	0.021 (0.005)	0.0059 (0.002)	0.11 (0.01)	0.11 (0.01)	0.094 (0.004)	0.14 (0.01)	0.081 (0.02)	0.38 (0.004)	0.19 (0.02)
Xylenes (total)	10	12	0.015 (0.003)	0.26 (0.006)	0.0092 (0.001)	0.33 (0.005)	0.31 (0.005)	0.32 (0.002)	0.88 (0.005)	0.3 (0.01)	4.6 (0.02)	1.4 (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0001 J (0.0005)	ND (0.00057)	0.0000452 J (0.000077)	0.004 J (0.005)	0.0026 (0.0001)	0.0022 (0.000095)	0.004 J (0.005)	0.0033 (0.000096)	0.00088 (0.000097)	0.001 (0.000097)
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.00057)	ND (0.000038)	0.001 J (0.005)	0.00048 (0.000041)	0.00026 (0.000038)	0.002 J (0.005)	0.00099 (0.000038)	0.00019 (0.000039)	0.00015 (0.000039)
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.00057)	ND (0.000038)	ND (0.005)	0.0003 (0.000041)	0.00015 (0.000038)	ND (0.005)	0.00061 (0.000038)	0.0001 (0.000039)	0.0001 (0.000039)
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.00057)	ND (0.000038)	ND (0.005)	0.00025 (0.000031)	0.00014 (0.000029)	0.001 J (0.005)	0.00054 (0.000029)	0.000095 (0.000029)	0.000072 (0.000029)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.00057)	ND (0.000077)	ND (0.005)	0.00021 J (0.00021)	0.00015 J (0.00019)	ND (0.005)	0.00052 (0.00019)	ND (0.00019)	ND (0.00019)
Chrysene	0.0019	--	ND (0.0005)	ND (0.00057)	ND (0.000077)	0.001 J (0.005)	0.00057 (0.00021)	0.00032 (0.00019)	0.002 J (0.005)	0.0012 (0.00019)	0.00023 (0.00019)	0.00026 (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0007 (0.0005)	0.00029 J (0.00057)	0.000161 (0.000077)	NA	0.013 (0.00041)	0.013 (0.00038)	0.015 (0.005)	0.014 (0.00038)	0.0045 (0.00039)	0.0081 (0.00039)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0005)	ND (0.00057)	0.000188 B (0.000077)	0.48 (0.02)	0.46 (0.02)	0.4 (0.08)	0.3 (0.02)	0.32 (0.04)	0.47 (0.08)	0.2 (0.04)
Phenanthrene	1.1	--	0.0004 J (0.0005)	ND (0.00057)	ND (0.000077)	0.023 (0.005)	0.015 (0.00021)	0.013 (0.00019)	0.022 (0.005)	0.02 (0.00096)	0.0034 (0.00019)	0.0066 (0.00019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0005)	ND (0.00057)	0.000042 J (0.000077)	0.004 J (0.005)	0.0027 (0.00041)	0.0015 (0.00038)	0.006 (0.005)	0.0044 (0.00038)	0.001 (0.00039)	0.0011 (0.00039)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0013 (0.0005)	0.0004 J (0.00052)	ND (0.001)	0.0117 (0.000001)	0.0084 (0.000001)	0.008 (0.000001)	0.0063 (0.000001)	0.007 (0.000001)	0.0112 (0.000001)	0.0056 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-274	S-274	S-275	S-275	S-275	S-275	S-275	S-275	S-275	S-275
Field Sample ID	Groundwater	Groundwater	274_072210	S-274~7/22/2010	S-275_110408	S-275~2/19/2009	S-275_022009	S-275_062509	S-275_090809	S-275_112309	275_030810	S-275_050510
Sample Date	Used Aquifer	Vapor Intrusion	7/22/2010	7/22/2010	11/4/2008	2/19/2009	2/20/2009	6/25/2009	9/8/2009	11/23/2009	3/8/2010	5/5/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.87 (0.02)	NA	3.7 (0.1)	1	1 (0.01)	5.9 (0.1)	7.3 (0.2)	1.7 (0.01)	0.18 (0.005)	0.15 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.078 (0.002)	NA	0.055 (0.02)	0.03	0.03 (0.02)	0.062 (0.02)	0.096 (0.04)	0.052 (0.002)	0.004 (0.002)	0.007 J (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	NA	ND (0.000029)	ND (0.0000096)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.01)	ND (0.005)	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.001)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.15 (0.001)	NA	0.58 (0.01)	0.3	0.3 (0.01)	0.57 (0.01)	0.72 (0.02)	0.21 (0.01)	0.038 (0.001)	0.043 (0.005)
Methyl tert-butyl ether	0.02	96	1.1 (0.02)	NA	0.76 (0.01)	0.085	0.085 (0.01)	9 (0.01)	3 (0.02)	0.97 (0.001)	0.007 (0.001)	0.009 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.045 (0.001)	NA	1.9 (0.01)	0.44	0.44 (0.01)	0.85 (0.01)	0.88 (0.02)	0.13 (0.001)	0.009 (0.001)	0.008 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.38 (0.04)	NA	0.64 (0.02)	0.29	0.29 (0.02)	0.49 (0.02)	0.68 (0.04)	0.24 (0.02)	0.03 (0.002)	0.041 (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.17 (0.04)	NA	0.27 (0.02)	0.11	0.11 (0.02)	0.2 (0.02)	0.32 (0.04)	0.14 (0.002)	0.013 (0.002)	0.031 (0.01)
Xylenes (total)	10	12	0.67 (0.02)	NA	2.9 (0.01)	1.1	1.1 (0.01)	2.3 (0.01)	2.9 (0.02)	0.8 (0.01)	0.09 (0.001)	0.064 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0024 (0.000096)	NA	0.002 J (0.005)	0.0012	0.0012 (0.0001)	0.001 (0.00011)	0.001 J (0.005)	0.00074 (0.000097)	0.00012 (0.000096)	0.00021 (0.000095)
Benzo(a)anthracene	0.0039	--	0.0005 (0.000038)	NA	ND (0.005)	0.00042	0.00042 (0.00004)	0.00012 (0.000043)	ND (0.005)	0.000052 (0.000039)	0.000048 (0.000038)	0.000057 (0.000038)
Benzo(a)pyrene	0.0002	--	0.00032 (0.000038)	NA	ND (0.005)	0.00028	0.00028 (0.00004)	0.000074 (0.000043)	ND (0.005)	0.000028 J (0.000039)	0.000033 J (0.000038)	0.000042 (0.000038)
Benzo(b)fluoranthene	0.0012	--	0.0003 (0.000029)	NA	ND (0.005)	0.00022	0.00022 (0.00003)	0.000065 (0.000032)	ND (0.005)	0.000029 (0.000029)	0.000031 (0.000029)	0.00003 (0.000028)
Benzo(g,h,i)perylene	0.00026	--	0.0003 (0.00019)	NA	ND (0.005)	0.00024	0.00024 (0.0002)	0.000095 J (0.00022)	ND (0.005)	ND (0.00019)	ND (0.00019)	ND (0.00019)
Chrysene	0.0019	--	0.00068 (0.00019)	NA	0.001 J (0.005)	0.00047	0.00047 (0.0002)	0.00017 J (0.00022)	ND (0.005)	0.000078 J (0.00019)	0.000075 J (0.00019)	0.000097 J (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.012 (0.00038)	NA	NA	0.0034	0.0034 (0.0004)	0.0054 (0.00043)	0.006 (0.005)	0.005 (0.00039)	0.00042 (0.00038)	0.001 (0.00038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	0.00021	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.2 (0.004)	NA	0.59 (0.04)	0.32	0.32 (0.04)	0.7 (0.04)	1.1 (0.08)	0.32 (0.04)	0.035 (0.004)	0.039 (0.02)
Phenanthrene	1.1	--	0.014 (0.00019)	NA	0.012 (0.005)	0.0051	0.0051 (0.0002)	0.0058 (0.00022)	0.007 (0.005)	0.0043 (0.00019)	0.00046 (0.00019)	0.0011 (0.00019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0026 (0.00038)	NA	0.003 J (0.005)	0.0025	0.0025 (0.0004)	0.00075 (0.00043)	0.001 J (0.005)	0.0004 (0.00039)	0.0002 J (0.00038)	0.00033 J (0.00038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0077 (0.000001)	NA	0.0076 (0.000001)	0.0098	0.0098 (0.000001)	0.0019 (0.000001)	0.0114 (0.000001)	0.0123 (0.000001)	0.002 (0.000001)	0.0023 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-275	S-275	S-275	S-275	S-275	S-275	S-276	S-276	S-276	S-276
Field Sample ID	Groundwater	Groundwater	275_072210	S-275~7/22/2010	S-275_071912	S-275~JB67921	S-275-20141215	S-275_20220104	S-276-20180629	S-276-SL_20190710	S-276-SL_20191108	S-276_SL_20210427_410-37682-1
Sample Date	Used Aquifer	Vapor Intrusion	7/22/2010	7/22/2010	7/19/2012	5/27/2014	12/15/2014	1/4/2022	6/29/2018	7/10/2019	11/8/2019	4/27/2021
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	6.3	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.51 (0.01)	NA	1.9 (0.05)	0.166 (0.0005)	0.993 (0.013)	NA	6.04 SL (0.2)	5.8 SL (0.1)	8.8 SL (0.1)	1.6 SL (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.023 (0.002)	NA	0.036 (0.01)	0.0332 (0.001)	0.0621 (0.005)	NA	ND,SL (0.2)	0.04 J,SL (0.05)	0.028 J,SL (0.05)	0.024 J,SL (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	NA	ND,HT,SL (0.00001)	ND,SL (0.000028)	ND,SL (0.000028)	ND,SL (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.005)	ND (0.001)	ND (0.005)	NA	ND,SL (0.2)	ND,SL (0.05)	ND,SL (0.05)	ND,SL (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.12 (0.001)	NA	0.28 (0.005)	0.022 (0.001)	0.183 (0.005)	NA	0.373 SL (0.2)	0.7 SL (0.01)	0.69 SL (0.01)	0.27 SL (0.005)
Methyl tert-butyl ether	0.02	96	0.32 (0.001)	NA	0.6 (0.005)	0.0111 (0.001)	0.118 (0.005)	NA	ND,SL (0.2)	0.072 SL (0.01)	0.26 SL (0.01)	0.14 SL (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	ND,SL (1)	0.3 SL (0.25)	0.71 SL (0.25)	1.1 SL (0.25)
Toluene	1	430	0.025 (0.001)	NA	0.057 (0.005)	0.0128 (0.001)	0.137 (0.005)	NA	ND,SL (0.2)	0.069 SL (0.01)	0.071 SL (0.01)	0.018 SL (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.11 (0.002)	NA	0.22 (0.01)	0.0216 (0.002)	0.203 (0.01)	NA	0.454 SL (0.2)	0.38 SL (0.05)	0.34 SL (0.05)	0.2 SL (0.025)
1,3,5-Trimethylbenzene	0.53	4.5	0.064 (0.002)	NA	0.085 (0.01)	0.0219 (0.002)	0.131 (0.01)	NA	0.243 SL (0.2)	0.22 SL (0.05)	0.17 SL (0.05)	0.086 SL (0.025)
Xylenes (total)	10	12	0.23 (0.001)	NA	0.74 (0.005)	0.0312 (0.001)	0.37 (0.005)	NA	1.5 SL (0.6)	2.1 SL (0.05)	2 SL (0.03)	0.71 SL (0.03)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00048 (0.000095)	NA	0.0005 (0.0005)	0.000288 (0.0001)	0.00132 J- (0.0001)	NA	NA	ND,SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Benzo(a)anthracene	0.0039	--	0.000085 (0.000038)	NA	0.0001 J (0.0005)	ND (0.0001)	0.000347 J- (0.0001)	NA	NA	0.002 SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Benzo(a)pyrene	0.0002	--	0.000058 (0.000038)	NA	ND (0.0005)	ND (0.0001)	0.000146 J- (0.0001)	NA	NA	0.001 SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Benzo(b)fluoranthene	0.0012	--	0.000057 (0.000028)	NA	ND (0.0005)	ND (0.0001)	0.000185 J- (0.0001)	NA	NA	0.002 SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND,J (0.0001)	NA	NA	0.0008 SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Chrysene	0.0019	--	0.00014 J (0.00019)	NA	0.0001 J (0.0005)	ND (0.0001)	0.000356 J- (0.0001)	NA	NA	0.003 SL (0.0005)	ND,SL (0.0006)	ND,SL (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0033 (0.00038)	NA	0.003 (0.0005)	0.0019 (0.0001)	0.00474 J- (0.005)	NA	NA	0.03 SL (0.0005)	0.003 SL (0.0006)	0.0013 SL (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	ND (0.000038)	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.1 (0.004)	NA	0.17 (0.005)	0.0269 (0.001)	0.222 J- (0.005)	NA	NA	0.08 SL (0.0005)	0.029 SL (0.0006)	0.015 SL (0.0005)
Phenanthrene	1.1	--	0.0025 (0.00019)	NA	0.003 (0.0005)	0.0017 (0.0001)	0.00716 J- (0.005)	NA	NA	0.054 SL (0.0005)	0.003 SL (0.0006)	0.001 SL (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00039 (0.00038)	NA	0.0005 (0.0005)	0.000243 (0.0001)	0.00125 J- (0.0001)	NA	NA	0.009 SL (0.0005)	0.0004 J,SL (0.0006)	0.00027 J,SL (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	ND (0.00002)	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	0.000024 (0.00002)	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	0.00011 (0.00002)	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	0.000053 (0.00002)	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	0.000046 (0.00002)	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	0.00072 (0.00002)	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0029 (0.000001)	NA	0.0064 (0.001)	0.008 (0.003)	0.0169 (0.003)	NA	NA	0.0023 J,SL (0.003)	0.0067 SL (0.0005)	0.0017 SL (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-276	S-277	S-277	S-277	S-277	S-277	S-277	S-277	S-277	S-277
Field Sample ID	Groundwater	Groundwater	S-276_SL_20220412_43052	S-277~2/19/2009	S-277_022009	S-277_062609	S-277_090809	S-277_112309	S-277_20180629	S-277-SL_20190710	S-277-SL_20191118	S-277_SL_20210426_410-37461-1
Sample Date	Used Aquifer	Vapor Intrusion	4/12/2022	2/19/2009	2/20/2009	6/26/2009	9/8/2009	11/23/2009	6/29/2018	7/10/2019	11/18/2019	4/26/2021
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	2.83 SL (0.05)	3	3 (0.02)	2.3 (0.1)	2.6 (0.1)	1.1 (0.01)	4.02 SL (0.05)	3 SL (0.1)	1.3 SL (0.05)	4.8 SL (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0646 SL (0.001)	0.076	0.076 (0.04)	0.052 (0.02)	0.042 (0.02)	0.073 (0.002)	ND,SL (0.05)	0.062 SL (0.05)	0.061 SL (0.025)	0.048 SL (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND,SL (0.00002)	ND (0.0000096)	ND (0.000029)	ND (0.00003)	ND (0.00003)	ND (0.00003)	ND,HT,SL (0.00001)	ND,SL (0.000028)	ND,SL (0.000028)	ND,SL (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND,SL (0.001)	ND (0.01)	ND (0.02)	ND (0.01)	ND (0.01)	ND (0.001)	ND,SL (0.05)	ND,SL (0.05)	ND,SL (0.025)	ND,SL (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.772 SL (0.01)	0.44	0.44 (0.02)	0.096 (0.01)	0.075 (0.01)	0.075 (0.001)	0.139 SL (0.05)	0.51 SL (0.01)	0.13 SL (0.005)	0.14 SL (0.005)
Methyl tert-butyl ether	0.02	96	0.0871 SL (0.001)	130	130 (0.2)	22 (0.1)	25 (0.1)	2.5 (0.01)	4.32 SL (0.05)	1.8 SL (0.01)	0.31 SL (0.005)	4.7 SL (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.88 SL (0.01)	NA	NA	NA	NA	NA	120 SL (25)	56 SL (2.5)	68 SL (13)	68 E,SL (2.5)
Toluene	1	430	0.087 SL (0.001)	1.1	1.1 (0.02)	0.72 (0.01)	0.93 (0.01)	0.32 (0.01)	1.05 SL (0.05)	1 SL (0.01)	0.16 SL (0.005)	1.4 SL (0.05)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.654 SL (0.02)	0.93	0.93 (0.04)	0.19 (0.02)	0.16 (0.02)	0.1 (0.002)	0.614 SL (0.05)	0.41 SL (0.05)	0.1 SL (0.025)	0.27 SL (0.025)
1,3,5-Trimethylbenzene	0.53	4.5	0.196 SL (0.002)	0.39	0.39 (0.04)	0.076 (0.02)	0.071 (0.02)	0.053 (0.002)	0.323 SL (0.05)	0.18 SL (0.05)	0.048 SL (0.025)	0.13 SL (0.025)
Xylenes (total)	10	12	2.98 SL (0.01)	2.8	2.8 (0.02)	0.73 (0.01)	0.69 (0.01)	0.42 (0.001)	2.91 SL (0.15)	2.9 SL (0.05)	0.65 SL (0.015)	1.4 SL (0.03)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.000181 SL (0.000077)	ND (0.0035)	ND (0.0035)	0.00082 (0.000095)	ND (0.005)	ND (0.0025)	NA	0.0004 J,SL (0.0005)	ND,SL (0.0005)	0.00024 J,SL (0.0005)
Benzo(a)anthracene	0.0039	--	ND,SL (0.000038)	ND (0.0005)	ND (0.0005)	0.000033 J (0.000038)	ND (0.005)	0.00033 (0.00004)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Benzo(a)pyrene	0.0002	--	ND,SL (0.000038)	0.00015	0.00015 (0.000039)	0.000019 J (0.000038)	ND (0.005)	0.00016 (0.00004)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Benzo(b)fluoranthene	0.0012	--	ND,SL (0.000038)	0.00013	0.00013 (0.000029)	0.000017 J (0.000028)	ND (0.005)	0.00016 (0.00003)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Benzo(g,h,i)perylene	0.00026	--	ND,SL (0.000077)	0.00013 J	0.00013 J (0.0002)	ND (0.00019)	ND (0.005)	0.00018 J (0.0002)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Chrysene	0.0019	--	ND,SL (0.000077)	ND (0.0015)	ND (0.0015)	0.00011 J (0.00019)	ND (0.005)	0.00086 (0.0002)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00192 SL (0.000077)	0.0099	0.0099 (0.00039)	0.0043 (0.00038)	0.004 J (0.005)	0.0078 (0.0004)	NA	0.003 SL (0.0005)	0.002 SL (0.0005)	0.002 SL (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.131 SL (0.0038)	0.31	0.31 (0.08)	0.059 (0.04)	0.051 (0.04)	0.036 (0.004)	NA	0.089 SL (0.0005)	0.017 SL (0.0005)	0.052 SL (0.0005)
Phenanthrene	1.1	--	0.00175 SL (0.000077)	0.016	0.016 (0.0002)	0.0044 (0.00019)	0.005 (0.005)	0.012 (0.0002)	NA	0.003 SL (0.0005)	0.002 SL (0.0005)	0.0015 SL (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0000901 SL (0.000077)	ND (0.016)	ND (0.016)	ND (0.00038)	ND (0.005)	ND (0.0004)	NA	ND,SL (0.0005)	ND,SL (0.0005)	ND,SL (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0032 SL (0.001)	0.0083	0.0083 (0.000001)	0.0037 (0.000001)	0.0043 (0.000001)	0.0054 (0.000001)	NA	0.0093 SL (0.003)	0.016 SL (0.0005)	0.011 SL (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-277	S-294	S-294	S-294	S-294	S-294	S-294	S-294	S-294	S-294
Field Sample ID			S-277_SL_20220412_43052	S-294_071510	S-294_06_04_2013	S-294-20160817-WG	S-294-20161005-WG	S-294-20180731	S-294-20180731 DUP	S-294_20190617	S-294_20191108	S-294_20210427
Sample Date			4/12/2022	7/15/2010	6/4/2013	8/17/2016	10/5/2016	7/31/2018	7/31/2018	6/17/2019	11/8/2019	4/27/2021
Comments									FD			
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	3.76 SL (0.013)	0.13 (0.01)	0.111 (0.001)	0.0799 (0.001)	0.052 (0.001)	0.0642 (0.001)	0.0612 (0.001)	0.049 (0.001)	0.047 (0.005)	0.046 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0557 SL (0.025)	0.11 (0.02)	0.151 (0.002)	0.141 (0.001)	0.101 (0.001)	0.134 (0.001)	0.125 (0.001)	0.14 (0.005)	0.11 (0.025)	0.13 (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND,SL (0.00002)	ND (0.000029)	ND (0.00002)	0.000044 (0.00004)	0.000085 (0.00004)	ND (0.0000101)	ND (0.00001)	ND (0.000028)	ND (0.000028)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND,SL (0.025)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.025)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.461 SL (0.025)	0.47 (0.01)	0.118 (0.001)	0.148 (0.001)	0.111 (0.001)	0.0908 (0.001)	0.0952 (0.001)	0.26 (0.01)	0.41 (0.005)	0.34 (0.005)
Methyl tert-butyl ether	0.02	96	3.25 SL (0.025)	ND (0.01)	0.0073 (0.001)	0.0031 (0.001)	0.0021 (0.001)	0.00338 (0.001)	0.00322 (0.001)	0.002 (0.001)	0.001 J (0.005)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	29.5 SL (2.5)	NA	NA	NA	NA	0.192 (0.025)	0.191 (0.025)	0.091 (0.025)	ND (0.13)	ND (0.25)
Toluene	1	430	0.592 SL (0.025)	ND (0.01)	0.006 (0.001)	0.0062 (0.001)	0.0028 (0.001)	0.00504 (0.001)	0.005 (0.001)	0.006 (0.001)	0.006 (0.005)	0.0068 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.823 SL (0.05)	0.41 (0.02)	0.108 (0.002)	0.122 (0.001)	0.145 (0.001)	0.0838 (0.001)	0.0796 (0.001)	0.24 (0.05)	0.24 (0.025)	0.15 (0.025)
1,3,5-Trimethylbenzene	0.53	4.5	0.347 SL (0.05)	0.13 (0.02)	0.035 (0.002)	0.0412 (0.001)	0.0491 (0.001)	0.0261 (0.001)	0.0255 (0.001)	0.084 (0.005)	0.073 (0.025)	0.047 (0.025)
Xylenes (total)	10	12	5.22 SL (0.025)	0.72 (0.01)	0.122 (0.001)	0.127 (0.003)	0.14 (0.003)	0.0567 (0.003)	0.059 (0.003)	0.32 (0.005)	0.41 (0.015)	0.35 (0.03)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.000196 SL (0.000077)	NA	0.00902 J (0.01)	0.0223 (0.0102)	0.0848 (0.0102)	0.0165 (0.00005)	0.0164 (0.00005)	0.021 (0.0005)	0.043 (0.0005)	0.018 (0.00055)
Benzo(a)anthracene	0.0039	--	ND,SL (0.000038)	NA	0.000227 (0.0001)	0.0067 (0.0001)	0.0441 (0.0102)	0.00214 (0.00005)	0.00242 (0.00005)	0.003 (0.0005)	0.019 (0.0005)	0.0036 (0.00055)
Benzo(a)pyrene	0.0002	--	ND,SL (0.000038)	NA	ND (0.0001)	0.0042 (0.0001)	0.0244 (0.0102)	0.00116 (0.00005)	0.00143 (0.00005)	0.002 (0.0005)	0.011 (0.0005)	0.0021 (0.00055)
Benzo(b)fluoranthene	0.0012	--	ND,SL (0.000038)	NA	ND (0.0001)	0.008 (0.0001)	0.0411 (0.0102)	0.00142 (0.00005)	0.00188 (0.00005)	0.003 (0.0005)	0.013 (0.0005)	0.0023 (0.00055)
Benzo(g,h,i)perylene	0.00026	--	ND,SL (0.000077)	NA	ND (0.0001)	0.0013 (0.0001)	0.0039 (0.0001)	0.000529 (0.00005)	0.000645 (0.00005)	0.0009 (0.0005)	0.004 (0.0005)	0.00085 (0.00055)
Chrysene	0.0019	--	ND,SL (0.000077)	0.14 (0.047)	0.000248 (0.0001)	0.0078 (0.0001)	0.0478 (0.0102)	0.00195 (0.00005)	0.00242 (0.00005)	0.004 (0.0005)	0.02 (0.0005)	0.0037 (0.00055)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00135 SL (0.000077)	0.48 (0.047)	0.0341 (0.01)	0.0647 (0.0102)	0.149 (0.0102)	0.0749 (0.00005)	0.0714 (0.00005)	0.082 (0.0005)	0.091 (0.0005)	0.064 (0.00055)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0903 SL (0.0015)	8.5 (0.47)	0.306 (0.01)	0.635 (0.0102)	1.21 (0.0102)	0.667 (0.005)	0.666 (0.005)	3 (0.023)	2.9 (0.013)	1.3 (0.0055)
Phenanthrene	1.1	--	0.00151 SL (0.000077)	1 (0.047)	0.0374 (0.01)	0.106 (0.0102)	0.347 (0.0102)	0.0742 (0.00005)	0.0713 (0.00005)	0.11 (0.0005)	0.18 (0.013)	0.092 (0.00055)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000112 SL (0.000077)	0.38 (0.047)	0.00224 (0.0001)	0.0264 (0.0102)	0.139 (0.0102)	0.0103 (0.00005)	0.0117 (0.00005)	0.016 (0.0005)	0.051 (0.0005)	0.015 (0.00055)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0078 SL (0.001)	ND (0.000001)	ND (0.003)	0.0026 J (0.005)	ND (0.005)	ND (0.002)	ND (0.002)	ND (0.003)	0.00015 J (0.0005)	ND (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-294	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D
Field Sample ID	Groundwater	Groundwater	S-294_20220401	S-294D_072310	S-294D_04062011	S-294D_04062011 FILTERED	S-294D_06282011	S-294D_06282011 FILTERED	S-294D_53012	S-294D_081712	S-294D_102612	S-294D_40113
Sample Date	Used Aquifer	Vapor Intrusion	4/1/2022	7/23/2010	4/6/2011	4/6/2011	6/28/2011	6/28/2011	5/30/2012	8/17/2012	10/26/2012	4/1/2013
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0345 (0.0013)	ND (0.001)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.0886 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0974 (0.0025)	0.003 (0.002)	0.0008 J (0.002)	NA	ND (0.002)	NA	0.0006 J (0.002)	ND (0.002)	ND (0.002)	0.117 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.000029)	ND (0.000029)	NA	ND (0.000029)	NA	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.0025)	ND (0.001)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0473 (0.0025)	0.017 (0.001)	ND (0.001)	NA	ND (0.001)	NA	0.004 (0.001)	ND (0.001)	0.0021 (0.001)	0.107 (0.001)
Methyl tert-butyl ether	0.02	96	ND (0.0025)	ND (0.001)	0.0008 J (0.001)	NA	0.0008 J (0.001)	NA	0.001 (0.001)	0.0009 J (0.001)	0.0011 (0.001)	0.0054 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.0692 (0.025)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0027 (0.0025)	0.001 (0.001)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	0.0045 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0645 (0.005)	0.015 (0.002)	ND (0.002)	NA	ND (0.002)	NA	0.003 (0.002)	ND (0.002)	ND (0.002)	0.096 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	0.0258 (0.005)	0.006 (0.002)	ND (0.002)	NA	ND (0.002)	NA	0.0009 J (0.002)	ND (0.002)	ND (0.002)	0.0304 (0.002)
Xylenes (total)	10	12	0.0557 (0.0025)	0.019 (0.001)	ND (0.001)	NA	ND (0.001)	NA	0.005 (0.001)	ND (0.001)	0.0025 (0.001)	0.107 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0344 (0.014)	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.002)	0.0113 (0.002)
Benzo(a)anthracene	0.0039	--	0.0206 (0.0069)	NA	NA	NA	NA	NA	NA	0.0001 J (0.0005)	ND (0.002)	0.000514 (0.0001)
Benzo(a)pyrene	0.0002	--	0.0089 (0.0069)	NA	NA	NA	NA	NA	NA	0.0001 J (0.0005)	ND (0.002)	0.000282 (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.0103 (0.0069)	NA	NA	NA	NA	NA	NA	0.0001 J (0.0005)	ND (0.002)	0.000345 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	0.00246 B (0.000069)	NA	NA	NA	NA	NA	NA	ND (0.0005)	ND (0.002)	0.000168 (0.0001)
Chrysene	0.0019	--	0.0145 (0.014)	ND (0.005)	ND (0.005)	NA	ND (0.005)	NA	0.0006 (0.0005)	0.0001 J (0.0005)	ND (0.002)	0.000487 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0813 (0.014)	0.006 (0.005)	ND (0.005)	NA	ND (0.005)	NA	0.002 (0.0005)	0.0002 J (0.0005)	ND (0.002)	0.0487 (0.002)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.834 (0.014)	0.14 (0.024)	ND (0.005)	NA	ND (0.005)	NA	0.048 (0.0005)	0.0004 J (0.0005)	0.0206 (0.005)	0.521 (0.01)
Phenanthrene	1.1	--	0.161 (0.014)	0.008 (0.005)	0.001 J (0.005)	NA	ND (0.005)	NA	0.004 (0.0005)	0.0002 J (0.0005)	ND (0.002)	0.0571 (0.002)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.051 (0.014)	ND (0.005)	ND (0.005)	NA	ND (0.005)	NA	0.001 (0.0005)	0.0003 J (0.0005)	ND (0.002)	0.00297 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	0.0043 (0.002)	NA	0.0045 (0.002)	NA	0.0052 (0.002)	0.0044 (0.002)	ND (0.003)	0.0365 (0.003)
Cobalt	0.029	--	NA	NA	0.0043 J (0.005)	NA	0.0043 J (0.005)	NA	0.0081 (0.005)	0.0046 J (0.005)	ND (0.05)	ND (0.05)
Lead	0.005	--	NA	NA	0.0003 J (0.001)	NA	0.00014 J (0.001)	NA	0.00078 J (0.001)	0.00018 J (0.001)	ND (0.003)	0.0048 (0.003)
Manganese	0.3	--	NA	NA	8.12 (0.005)	NA	8.4 (0.005)	NA	8.96 (0.005)	8.62 (0.005)	8.09 (0.015)	0.503 (0.015)
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	0.000052 J (0.0002)	ND (0.0002)	ND (0.0002)
Arsenic	0.01	--	NA	NA	NA	ND (0.002)	NA	0.0032 (0.002)	0.0027 (0.002)	0.0029 (0.002)	ND (0.003)	0.0051 (0.003)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	ND (0.005)	NA	ND (0.005)	0.0054 (0.005)	ND (0.005)	ND (0.05)	ND (0.05)
Lead	0.005	--	ND (0.001)	ND (0.000001)	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.003)	0.0032 (0.003)
Manganese	0.3	--	NA	NA	NA	8.21 (0.005)	NA	8.39 (0.005)	8.73 (0.005)	8.74 (0.005)	7.93 (0.015)	0.485 (0.015)

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-294D	S-295
Field Sample ID	Groundwater	Groundwater	S-294D-20160823-WG	S-294D-HS-20160823-WG	S-294D-HS-20161012-WG	S-394D-20161012-WG	S-294D_20190617	S-294D_20191114	S-294D_20210427	S-294D	S-294D_20220401	S-295_071510
Sample Date	Used Aquifer	Vapor Intrusion	8/23/2016	8/23/2016	10/12/2016	10/12/2016	6/17/2019	11/14/2019	4/27/2021	7/20/2021	4/1/2022	7/15/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	6.43	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.005 (0.001)	ND (0.001)	NA	0.00068 (0.0005)	1.9 (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.005)	NA	ND (0.001)	0.071 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00004)	ND (0.00004)	ND (0.00004)	ND (0.00004)	ND (0.000028)	ND (0.000028)	ND (0.00003)	NA	ND (0.00002)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	NA	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)	0.14 (0.005)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.003 (0.001)	0.002 (0.001)	0.0028 (0.001)	NA	0.00099 J (0.001)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	ND (0.025)	0.015 J (0.025)	ND (0.05)	NA	0.0072 J (0.01)	NA
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.001)	0.56 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.005)	NA	ND (0.002)	0.36 (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.005)	NA	ND (0.002)	0.13 (0.01)
Xylenes (total)	10	12	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.003)	ND (0.005)	ND (0.003)	ND (0.006)	NA	ND (0.001)	1.2 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000121 B (0.000071)	NA
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.00014)	0.000057 J (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000349 B (0.000036)	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.00014)	0.00006 J (0.0001)	0.000012 J (0.0001)	0.0003 J (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000341 B (0.000036)	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.00014)	0.00013 (0.0001)	0.000031 J (0.0001)	0.0006 (0.0005)	ND (0.0005)	0.00012 J (0.00056)	NA	0.000602 B (0.000036)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.00014)	0.000065 J (0.0001)	ND (0.0001)	0.0003 J (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000334 B (0.000071)	NA
Chrysene	0.0019	--	ND (0.0001)	ND (0.00014)	0.000063 J (0.0001)	0.000014 J (0.0001)	0.0004 J (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000467 (0.000071)	ND (0.05)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.0000894 B (0.000071)	ND (0.05)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.0001)	ND (0.00014)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000342 B (0.000071)	0.74 (0.05)
Phenanthrene	1.1	--	ND (0.0001)	ND (0.00014)	0.000039 J (0.0001)	ND (0.0001)	0.0003 J (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.00063 B (0.000071)	0.097 (0.05)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0001)	ND (0.00014)	0.000083 J (0.0001)	0.000026 J (0.0001)	0.0006 (0.0005)	ND (0.0005)	ND (0.00056)	NA	0.000752 (0.000071)	ND (0.05)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	0.0000043 (0.0000016)	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	0.000038 (0.0000016)	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	0.0000036 (0.0000016)	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	0.0000029 (0.0000016)	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	0.000037 (0.0000016)	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	0.0000064 (0.0000016)	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.003)	0.00056 (0.0005)	0.00034 J (0.00052)	NA	ND (0.001)	1.04 (0.000005)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-295	S-295	S-330	S-330	S-330	S-330	S-330	S-331	S-331	S-331
Field Sample ID	Groundwater	Groundwater	S-295_06_11_2013	S-295-20160817-WG	S-330_1250813	S-330_071212	S-330~JB68176	S-330-20141215	S-330_20180724	S-331_1250813	S-331_071212	S-331~JB67921
Sample Date	Used Aquifer	Vapor Intrusion	6/11/2013	8/17/2016	6/8/2011	7/12/2012	5/29/2014	12/15/2014	7/24/2018	6/8/2011	7/12/2012	5/28/2014
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	0.075	NA	NA	NA	NA	ND (0.015)	NA	NA
Benzene	0.005	0.35	0.582 (0.01)	0.0491 (0.001)	0.14	2.6 (0.025)	0.197 (0.0005)	1.33 (0.01)	0.0734 (0.001)	0.24	0.35 (0.005)	0.117 (0.005)
2-Butanone	4	49000	NA	NA	ND (0.006)	NA	NA	NA	NA	ND (0.008)	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	ND (0.002)	NA	NA	NA	NA	ND (0.002)	NA	NA
Chloroform	0.08	0.18	NA	NA	ND (0.002)	NA	NA	NA	NA	ND (0.002)	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0122 J (0.02)	0.0071 (0.001)	0.065	ND (0.05)	0.0054 (0.001)	0.0142 (0.005)	0.0218 (0.001)	ND (0.003)	0.01 J (0.01)	0.0198 (0.01)
Cyclohexane	53	53	NA	NA	0.45	NA	NA	NA	NA	0.05	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	0.000037 J (0.00004)	ND (0.002)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.003)	ND (0.000029)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	ND (0.002)	NA	NA	NA	NA	ND (0.003)	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.01)	ND (0.001)	ND (0.002)	ND (0.025)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.003)	ND (0.005)	ND (0.01)
cis-1,2-Dichloroethene	0.07	--	NA	NA	ND (0.002)	NA	NA	NA	NA	ND (0.002)	NA	NA
Ethyl Benzene	0.7	0.86	0.0188 (0.01)	0.0062 (0.001)	0.011	0.074 (0.025)	0.0072 (0.001)	0.0304 (0.005)	0.00161 (0.001)	0.006 J	0.018 (0.005)	ND (0.01)
Methyl tert-butyl ether	0.02	96	0.0022 J (0.01)	0.0004 J (0.001)	0.1	0.11 (0.025)	0.0167 (0.001)	0.0909 (0.005)	0.02 (0.001)	2.4	3.6 (0.005)	3.03 (0.1)
4-Methyl-2-pentanone	7.8	13000	NA	NA	ND (0.006)	NA	NA	NA	NA	ND (0.008)	NA	NA
Methylcyclohexane	--	--	NA	NA	0.4	NA	NA	NA	NA	0.035	NA	NA
Methylene Chloride	0.005	95	NA	NA	ND (0.004)	NA	NA	NA	NA	ND (0.005)	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0932 (0.01)	0.0068 (0.001)	0.016	0.33 (0.025)	0.0076 (0.001)	0.0241 (0.005)	0.00452 (0.001)	0.003 J	0.005 J (0.005)	0.0029 J (0.01)
Trichloroethene	0.005	0.11	NA	NA	ND (0.002)	NA	NA	NA	NA	ND (0.003)	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0457 (0.02)	0.0224 (0.001)	0.002 J	0.041 J (0.05)	0.0109 (0.002)	0.0083 J (0.01)	0.00101 (0.001)	0.016	0.032 (0.01)	0.003 J (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	0.0212 (0.02)	0.0096 (0.001)	ND (0.002)	0.015 J (0.05)	0.0041 (0.002)	0.0039 J (0.01)	0.00161 (0.001)	0.012 J	0.017 (0.01)	ND (0.02)
Xylenes (total)	10	12	0.202 (0.01)	0.0377 (0.003)	0.016	0.34 (0.025)	0.0164 (0.001)	0.0406 (0.005)	0.0105 (0.003)	0.034	0.042 (0.005)	0.009 J (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.000051 J (0.00014)	NA	ND (0.024)	0.000279 (0.0001)	0.000128 J- (0.0001)	0.000204 (0.00005)	NA	0.003 (0.0005)	0.000592 (0.0001)
Benzo(a)anthracene	0.0039	--	NA	0.00022 (0.00014)	NA	ND (0.024)	ND (0.0001)	ND,J (0.0001)	ND (0.00005)	NA	0.001 (0.0005)	0.000229 (0.0001)
Benzo(a)pyrene	0.0002	--	NA	0.000098 J (0.00014)	NA	ND (0.024)	ND (0.0001)	ND,J (0.0001)	ND (0.00005)	NA	0.0009 (0.0005)	0.000117 (0.0001)
Benzo(b)fluoranthene	0.0012	--	NA	0.00014 J (0.00014)	NA	ND (0.024)	ND (0.0001)	ND,J (0.0001)	ND (0.00005)	NA	0.001 (0.0005)	0.000214 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	NA	0.000035 J (0.00014)	NA	ND (0.024)	ND (0.0001)	ND,J (0.0001)	ND (0.00005)	NA	0.0004 J (0.0005)	ND (0.0001)
Chrysene	0.0019	--	NA	0.00018 (0.00014)	ND (0.028)	ND (0.024)	ND (0.0001)	ND,J (0.0001)	ND (0.00005)	ND (0.015)	0.001 (0.0005)	0.000163 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	0.000036 J (0.00014)	0.063	ND (0.024)	0.00135 (0.0001)	0.001 J- (0.0001)	0.00279 (0.00005)	0.0041	0.008 (0.0005)	0.00353 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	0.00047 (0.00014)	0.011 J	0.011 J (0.024)	0.0165 (0.001)	0.00146 J- (0.0001)	0.000994 (0.00025)	0.0027	0.028 (0.0005)	0.0024 (0.0001)
Phenanthrene	1.1	--	NA	0.00006 J (0.00014)	0.082	ND (0.024)	0.00118 (0.0001)	0.000886 J- (0.0001)	0.00138 (0.00005)	0.0033	0.012 (0.0005)	0.00255 (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	0.00058 (0.00014)	ND (0.054)	ND (0.024)	0.000224 (0.0001)	ND,J (0.0001)	0.0000601 (0.00005)	ND (0.008)	0.005 (0.0005)	0.000702 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0331 (0.005)	0.00089 J	0.0043 (0.001)	ND (0.003)	ND (0.003)	ND (0.002)	0.0004 J	0.00065 J (0.001)	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-331	S-331	S-332	S-332	S-332	S-332	S-332	S-350	S-350	S-350
Field Sample ID			S-331-20141215	S-331_20180724	S-332_1250813	S-332_071912	S-332~JB68176	S-332-20141215	S-332_20180727	S-350_06_05_2013	S-350-20160817-WG	S-350-20161005-WG
Sample Date			12/15/2014	7/24/2018	6/7/2011	7/19/2012	5/29/2014	12/15/2014	7/27/2018	6/5/2013	8/17/2016	10/5/2016
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	0.045	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0551 (0.0025)	0.042 (0.001)	1.4	0.3 (0.005)	0.509 (0.0025)	0.432 (0.005)	0.11 (0.001)	0.0796 (0.001)	0.0321 (0.001)	0.0149 (0.001)
2-Butanone	4	49000	NA	NA	ND (0.006)	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	0.005 J	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	ND (0.002)	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0125 (0.005)	0.017 (0.001)	0.055	0.024 (0.01)	0.0703 (0.005)	0.0555 (0.001)	0.0258 (0.001)	0.0991 (0.002)	0.0623 (0.001)	0.0107 (0.001)
Cyclohexane	53	53	NA	NA	0.2	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00001)	ND (0.002)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.00002)	0.000043 (0.00004)	ND (0.00004)
1,1-Dichloroethane	0.16	1.6	NA	NA	ND (0.002)	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.001)	ND (0.002)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	ND (0.002)	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.005)	0.00108 (0.001)	0.16	0.022 (0.005)	0.0528 (0.005)	0.0354 (0.001)	0.0183 (0.001)	0.0763 (0.001)	0.0078 (0.001)	ND (0.001)
Methyl tert-butyl ether	0.02	96	1.33 (0.02)	2.22 (0.05)	0.012	ND (0.005)	0.0026 J (0.005)	0.0043 (0.001)	0.00139 (0.001)	0.0037 (0.001)	0.0019 (0.001)	0.00098 J (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	ND (0.006)	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	0.15	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	ND (0.004)	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	0.0394 (0.005)	NA	NA	NA
Toluene	1	430	0.0038 J (0.005)	0.00406 (0.001)	0.026	0.005 (0.005)	0.0173 (0.005)	0.0164 (0.001)	0.00567 (0.001)	0.0036 (0.001)	0.0022 (0.001)	0.00055 J (0.001)
Trichloroethene	0.005	0.11	NA	NA	ND (0.002)	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0017 J (0.01)	ND (0.001)	0.066	0.016 (0.01)	0.0045 J (0.01)	0.0051 (0.002)	ND (0.001)	0.0222 (0.002)	0.0026 (0.001)	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.01)	ND (0.001)	0.024	0.006 J (0.01)	0.005 J (0.01)	0.0053 (0.002)	0.00155 (0.001)	0.0201 (0.002)	0.0012 (0.001)	ND (0.001)
Xylenes (total)	10	12	0.0076 (0.005)	0.015 (0.003)	0.078	0.016 (0.005)	0.0404 (0.005)	0.0358 (0.001)	0.0212 (0.003)	0.0249 (0.001)	0.0079 (0.003)	ND (0.003)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00133 (0.0001)	0.000591 (0.00005)	NA	0.005 (0.0005)	0.00207 (0.0001)	0.00253 (0.0001)	0.000839 (0.00005)	0.00362 (0.0001)	0.0026 (0.0001)	0.00059 (0.0001)
Benzo(a)anthracene	0.0039	--	0.000377 (0.0001)	0.000172 (0.00005)	NA	0.0005 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0001)	0.000052 J (0.0001)	0.000045 J (0.0001)
Benzo(a)pyrene	0.0002	--	0.000197 (0.0001)	0.00017 (0.00005)	NA	0.0002 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0001)	0.0000089 J (0.0001)	0.000021 J (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.000292 (0.0001)	0.000255 (0.00005)	NA	0.0003 J (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0001)	ND (0.0001)	0.000042 J (0.0001)
Benzo(g,h,i)perylene	0.00026	--	0.000152 (0.0001)	0.000141 (0.00005)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0001)	ND (0.0001)	ND (0.0001)
Chrysene	0.0019	--	0.000408 (0.0001)	0.000249 (0.00005)	0.0012	0.0005 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.00005)	ND (0.0001)	0.000041 J (0.0001)	0.000061 J (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00539 (0.001)	0.00311 (0.00005)	0.027	0.014 (0.0005)	0.0109 (0.001)	0.0125 (0.001)	0.00429 (0.00005)	0.0378 (0.0001)	0.0276 (0.002)	0.0049 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.00247 (0.0001)	0.00191 (0.00025)	0.082	0.029 (0.0005)	0.0093 (0.001)	0.014 (0.001)	0.00768 (0.00025)	0.086 (0.0001)	0.0012 (0.0001)	0.00071 (0.0001)
Phenanthrene	1.1	--	0.00618 (0.001)	0.00295 (0.00005)	0.023	0.02 (0.0005)	0.00785 (0.001)	0.0105 (0.001)	0.00189 (0.00005)	0.0293 (0.0001)	0.0148 (0.0001)	0.0019 (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00174 (0.0001)	0.00103 (0.00005)	0.0043	0.003 (0.0005)	0.000757 (0.0001)	0.00101 (0.0001)	0.000531 (0.00005)	0.00103 (0.0001)	0.00064 (0.0001)	0.00031 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0031 (0.003)	ND (0.002)	ND (0.00008)	0.00041 J (0.001)	ND (0.003)	ND (0.003)	ND (0.002)	ND (0.003)	ND (0.005)	ND (0.005)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-351	S-351	S-351	S-351	S-351	S-351	S-351	S-389D	S-389D	S-389D
Field Sample ID	Groundwater	Groundwater	S-351_06_04_2013	S-351_20150519	S-351-20160512	S-351-20160817-WG	S-351-20161005-WG	S-351-20170517	S-351_20180625	S-389D	S-389D-20141204	S-389D_20210720
Sample Date	Used Aquifer	Vapor Intrusion	6/4/2013	5/19/2015	5/12/2016	8/17/2016	10/5/2016	5/17/2017	6/25/2018	5/20/2014	12/4/2014	7/20/2021
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	6.37
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0041 (0.001)	0.002 (0.001)	ND (0.001)	0.00066 J (0.001)	0.0012 (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	0.00025 J (0.0005)	NA
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.027 (0.002)	0.008 (0.002)	ND (0.002)	0.0024 (0.001)	0.0032 (0.001)	0.002 J (0.002)	0.00187 (0.001)	ND (0.001)	ND (0.001)	NA
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.000028)	ND (0.00003)	ND (0.00004)	0.000036 J (0.00004)	ND (0.000029)	ND (0.00001)	ND (0.00002)	ND (0.00002)	NA
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.0074 (0.001)	0.0006 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA
Methyl tert-butyl ether	0.02	96	0.0015 (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.0026 (0.001)	0.0022 (0.001)	NA
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.00073 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0088 (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.0021 (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)	NA
Xylenes (total)	10	12	0.0064 (0.001)	0.0006 J (0.001)	ND (0.001)	ND (0.003)	ND (0.003)	ND (0.001)	ND (0.003)	ND (0.001)	ND (0.001)	NA
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00143 (0.0001)	0.001 (0.0005)	ND (0.0005)	0.000087 J (0.0001)	0.00018 (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Benzo(a)anthracene	0.0039	--	0.000142 (0.0001)	0.0003 J (0.0005)	ND (0.0005)	ND (0.0001)	0.000032 J (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	0.0001 J (0.0005)	ND (0.0005)	ND (0.0001)	0.000011 J (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	0.0001 J (0.0005)	ND (0.0005)	ND (0.0001)	0.000021 J (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.0005)	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Chrysene	0.0019	--	0.000158 (0.0001)	0.0003 J (0.0005)	ND (0.0005)	ND (0.0001)	0.000029 J (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.004 (0.0001)	0.002 (0.0005)	ND (0.0005)	0.00038 (0.0001)	0.00041 (0.0001)	0.0001 J (0.0005)	0.000161 (0.00005)	ND (0.0001)	ND (0.0001)	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0425 (0.001)	0.001 (0.0005)	ND (0.0005)	0.00013 (0.0001)	0.00028 (0.0001)	ND (0.0005)	ND (0.00025)	ND (0.0001)	ND (0.0001)	NA
Phenanthrene	1.1	--	0.00335 (0.0001)	0.003 (0.0005)	ND (0.0005)	0.00033 (0.0001)	0.00039 (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000787 (0.0001)	0.001 (0.0005)	ND (0.0005)	0.000035 J (0.0001)	0.00011 (0.0001)	ND (0.0005)	ND (0.00005)	ND (0.0001)	ND (0.0001)	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000018 (0.0000016)
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000014 (0.0000016)
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00022 (0.0000016)
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.0000016)
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.000068 (0.0000016)
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.00028 (0.0000016)
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.003)	0.00031 J (0.001)	ND (0.001)	ND (0.005)	ND (0.01)	ND (0.001)	ND (0.002)	0.0042 (0.003)	ND (0.003)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-390D	S-390D	S-391D	S-391D	S-391D	S-396	S-396	S-396	S-396	S-396
Field Sample ID			S-390D	S-390D-20141203	S-391D	S-391D-20141203	S-391D_20210720	S-396	S-396-20141204	S-396_20180628	S-396_HS_20180628	S-396_20190620
Sample Date			5/19/2014	12/3/2014	5/20/2014	12/3/2014	7/20/2021	5/20/2014	12/4/2014	6/28/2018	6/28/2018	6/20/2019
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	6.26	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.0005)	ND (0.0005)	ND (0.0005)	ND (0.0005)	NA	6.73 (0.05)	7.71 (0.025)	4.65 (2)	5.2 (2)	1.6 (0.01)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.025)	0.0209 (0.005)	0.0149 (0.001)	0.0201 (0.001)	0.012 J (0.05)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.00002)	NA	ND (0.00002)	ND (0.00002)	ND,HT (0.00001)	ND,HT (0.00001)	ND (0.000028)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.025)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.05)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	ND (0.0005)	ND (0.001)	ND (0.0005)	ND (0.001)	NA	ND (0.025)	0.0169 (0.005)	0.0203 (0.001)	0.0239 (0.001)	0.014 (0.01)
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	0.0011 (0.001)	ND (0.001)	NA	6.95 (0.1)	6.17 (0.05)	2.12 (2)	2.29 (2)	1.7 (0.01)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	72.8 (10)	75.4 (10)	78 (2.5)
Toluene	1	430	0.00045 J (0.001)	ND (0.001)	ND (0.001)	0.0007 J (0.001)	NA	ND (0.025)	ND (0.005)	0.00101 (0.001)	0.00113 (0.001)	ND (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	ND (0.002)	0.00073 J (0.002)	NA	0.0315 J (0.05)	0.0115 (0.01)	0.00419 (0.001)	0.00532 (0.001)	ND (0.05)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	ND (0.002)	0.00027 J (0.002)	NA	0.0128 J (0.05)	0.003 J (0.01)	ND (0.001)	ND (0.001)	ND (0.05)
Xylenes (total)	10	12	ND (0.001)	ND (0.001)	ND (0.001)	0.0019 (0.001)	NA	0.0225 J (0.025)	0.0167 (0.005)	0.0221 (0.003)	0.025 (0.003)	0.006 J (0.05)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	0.000125 (0.0001)	0.000141 (0.0001)	NA	NA	ND (0.0005)
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)
Chrysene	0.0019	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)	NA	NA	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0001)	0.00012 (0.0001)	ND (0.0001)	ND (0.0001)	NA	0.000652 (0.0001)	0.000559 (0.0001)	NA	NA	ND (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.000174 (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	0.0451 (0.001)	NA	NA	NA	0.0009 (0.0005)
Phenanthrene	1.1	--	ND (0.0001)	0.000143 (0.0001)	ND (0.0001)	ND (0.0001)	NA	0.000364 (0.0001)	0.000779 (0.0001)	NA	NA	0.0001 J (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	0.000125 (0.0001)	NA	NA	ND (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	ND (0.0000016)	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	0.000042 (0.0000016)	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	0.0000037 (0.0000016)	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	0.000011 (0.0000016)	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	0.000051 (0.0000016)	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	0.0000066 (0.0000016)	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.006)	ND (0.003)	0.0034 (0.003)	ND (0.003)	NA	0.0019 J (0.003)	ND (0.003)	NA	NA	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-396	S-396	S-396	S-396	S-396	S-397	S-397	S-397	S-400	S-400
Field Sample ID			S-396_20191101	S-396_20210505_410-38735-1	S-396_DDT_20210505	S-396_20220110	S-396_20220325	S-397	S-397-20141203	S-397_20180621	S-400	S-400-20141203
Sample Date			11/1/2019	5/5/2021	5/5/2021	1/10/2022	3/25/2022	5/19/2014	12/3/2014	6/21/2018	5/20/2014	12/3/2014
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	6.77	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.66 (0.005)	ND (0.05)	NA	NA	0.0764 (0.0005)	0.0038 (0.0005)	0.0019 (0.0005)	ND (0.001)	0.0021 (0.0005)	0.00068 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.018 J (0.025)	0.022 J (0.25)	NA	NA	0.0337 (0.001)	0.0019 (0.001)	0.00095 J (0.001)	ND (0.001)	0.00027 J (0.001)	ND (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	NA	NA	ND (0.000021)	ND (0.00002)	ND (0.00002)	0.0000122 HT (0.00001)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.025)	ND (0.05)	NA	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	0.016 (0.005)	ND (0.05)	NA	NA	0.0019 (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	NA	NA
Methyl tert-butyl ether	0.02	96	1.6 (0.005)	0.73 (0.05)	NA	NA	1.17 (0.02)	0.0117 (0.001)	0.015 (0.001)	0.00778 (0.001)	ND (0.001)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	81 (13)	45 (25)	NA	NA	70.7 (2)	NA	NA	ND (0.005)	NA	NA
Toluene	1	430	ND (0.005)	ND (0.05)	NA	NA	0.0012 (0.001)	0.00082 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.025)	ND (0.25)	NA	NA	ND (0.002)	0.00089 J (0.002)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.025)	ND (0.25)	NA	NA	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.002)
Xylenes (total)	10	12	0.01 J (0.015)	ND (0.3)	NA	NA	0.0086 (0.001)	0.00029 J (0.001)	0.00089 J (0.001)	ND (0.003)	ND (0.001)	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0005)	ND (0.00057)	NA	NA	ND (0.000071)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.00057)	NA	NA	0.0000319 J (0.000036)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.00057)	NA	NA	ND (0.000036)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.00057)	NA	NA	ND (0.000036)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.00057)	NA	NA	ND (0.000071)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Chrysene	0.0019	--	ND (0.0005)	ND (0.00057)	NA	NA	ND (0.000071)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	ND (0.0005)	ND (0.00057)	NA	NA	0.0000474 J (0.000071)	0.000166 (0.0001)	0.000157 (0.0001)	NA	ND (0.0001)	0.000129 (0.0001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0006 (0.0005)	0.00038 J (0.00057)	NA	NA	0.000205 (0.000071)	0.000706 (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Phenanthrene	1.1	--	ND (0.0005)	ND (0.00057)	NA	NA	0.000129 (0.000071)	0.000134 (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.0005)	ND (0.00057)	NA	NA	0.0000681 J (0.000071)	ND (0.0001)	ND (0.0001)	NA	ND (0.0001)	ND (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	0.000019 (0.0000017)	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	0.00019 (0.0000017)	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	0.000072 (0.0000017)	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	0.00057 (0.000017)	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	0.00027 (0.0000017)	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	0.000096 (0.0000017)	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00017 J (0.0005)	ND (0.00052)	NA	NA	ND (0.001)	ND (0.006)	ND (0.003)	NA	ND (0.009)	ND (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-401	S-401	S-402	S-403	S-403	S-403	S-403	S-404	S-405	S-452_CD
Field Sample ID	Groundwater	Groundwater	S-401	S-401-20141212	S-402_20220324	S-403_20150519	AOI1_S-403_020416	S-403_SL_20220331	S-403_SL_20220518	S-404_20150519	S-405_20150519	BT-02B-W-28-20201202
Sample Date	Used Aquifer	Vapor Intrusion	5/20/2014	12/12/2014	3/24/2022	5/19/2015	2/4/2016	3/31/2022	5/18/2022	5/19/2015	5/19/2015	12/2/2020
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0254 (0.0005)	0.0109 (0.0005)	0.716 (0.005)	0.16 (0.01)	0.486 (0.1)	NA	0.0916 SL (0.0005)	0.013 (0.001)	5.7 (0.2)	0.02 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0378 (0.001)	0.0079 (0.001)	0.106 (0.01)	0.057 (0.002)	0.0546 (0.001)	NA	0.0602 SL (0.001)	0.002 (0.002)	0.19 (0.04)	0.0061 (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.00004)	NA	ND,SL (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.01)	ND (0.001)	ND (0.001)	NA	ND,SL (0.001)	ND (0.001)	ND (0.02)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.00088 J (0.001)	0.00076 J (0.001)	5.91 (0.1)	0.017 (0.001)	0.0161 (0.001)	NA	0.0251 SL (0.001)	ND (0.001)	0.016 J (0.02)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	21.1 (1)	NA	NA	NA	4.38 SL (0.2)	NA	NA	ND (0.05)
Toluene	1	430	0.002 (0.001)	0.0005 J (0.001)	0.0427 (0.01)	0.014 (0.001)	0.066 (0.001)	NA	0.0094 SL (0.001)	0.0006 J (0.001)	ND (0.02)	0.0018 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0692 (0.002)	0.0087 (0.002)	0.0178 J (0.02)	0.06 (0.002)	0.0479 (0.001)	NA	0.071 SL (0.002)	0.005 (0.002)	2 (0.04)	0.03 (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	0.0305 (0.002)	0.0194 (0.002)	0.0305 (0.02)	0.021 (0.002)	0.0184 (0.001)	NA	0.0331 SL (0.002)	0.002 J (0.002)	0.64 (0.04)	0.009 (0.005)
Xylenes (total)	10	12	0.0079 (0.001)	0.002 (0.001)	0.123 (0.01)	0.14 (0.001)	0.0747 (0.003)	NA	0.107 SL (0.001)	0.024 (0.001)	4.2 (0.02)	0.12 (0.006)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.00011)	ND (0.0001)	0.00562 (0.00043)	0.0002 J (0.0005)	0.00023 (0.0001)	NA	0.000238 SL (0.00008)	0.0002 J (0.0005)	0.002 (0.0005)	NA
Benzo(a)anthracene	0.0039	--	ND (0.00011)	ND (0.0001)	0.00146 (0.00021)	ND (0.0005)	0.000033 J (0.0001)	NA	ND,SL (0.00004)	0.0003 J (0.0005)	0.0003 J (0.0005)	NA
Benzo(a)pyrene	0.0002	--	ND (0.00011)	ND (0.0001)	0.000921 (0.00021)	ND (0.0005)	ND (0.0001)	NA	ND,SL (0.00004)	0.0002 J (0.0005)	0.0002 J (0.0005)	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.00011)	ND (0.0001)	0.00116 (0.00021)	ND (0.0005)	ND (0.0001)	NA	ND,SL (0.00004)	0.0001 J (0.0005)	0.0001 J (0.0005)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.00011)	ND (0.0001)	0.000657 (0.00043)	ND (0.0005)	ND (0.0001)	NA	ND,SL (0.00008)	0.0001 J (0.0005)	ND (0.0005)	NA
Chrysene	0.0019	--	ND (0.00011)	ND (0.0001)	0.00147 (0.00043)	ND (0.0005)	0.000017 J (0.0001)	NA	ND,SL (0.00008)	0.0006 (0.0005)	0.0005 J (0.0005)	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00182 (0.00011)	0.00191 (0.0001)	0.0138 (0.00043)	0.003 (0.0005)	0.0023 (0.0001)	NA	0.000893 SL (0.00008)	0.0004 J (0.0005)	0.012 (0.0005)	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0163 (0.0011)	0.00989 (0.001)	0.00261 (0.00043)	0.019 (0.0005)	0.0185 (0.0001)	NA	0.013 SL (0.0004)	0.0002 J (0.0005)	0.27 (0.005)	NA
Phenanthrene	1.1	--	0.00115 (0.00011)	0.000951 (0.0001)	0.0164 (0.00043)	0.002 (0.0005)	0.0022 (0.0001)	NA	0.00118 B,SL (0.00008)	0.0001 J (0.0005)	0.017 (0.0005)	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.00011)	ND (0.0001)	0.00517 (0.00043)	0.0001 J (0.0005)	0.000071 J (0.0001)	NA	0.0000883 SL (0.00008)	0.0006 (0.0005)	0.0008 (0.0005)	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0024 J (0.003)	0.0021 J (0.003)	ND (0.001)	0.001 (0.001)	ND (0.005)	0.0012 SL (0.001)	NA	0.00044 J (0.001)	0.0053 (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-452	S-452	S-452	S-453_CD	S-453	S-453	S-453	S-454	S-454	S-455
Field Sample ID	Groundwater	Groundwater	S-452-20210326	S-452_20211028	S-452_20220328	BT-11A-W-29-20201203	S-453-20210326	S-453_20211027	S-453_20220328	S-454-20210326	S-454_20211026	S-455-20210326
Sample Date	Used Aquifer	Vapor Intrusion	3/26/2021	10/28/2021	3/28/2022	12/3/2020	3/26/2021	10/27/2021	3/28/2022	3/26/2021	10/26/2021	3/26/2021
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	3.2 (0.05)	6.4 (0.1)	3.28 (0.025)	0.026 (0.005)	3.8 (0.05)	3.9 (0.05)	3.99 (0.05)	0.012 (0.001)	ND (0.001)	6.3 (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.083 (0.025)	0.11 (0.05)	0.136 (0.004)	0.023 J (0.025)	0.066 (0.025)	0.075 (0.025)	0.0987 (0.01)	ND (0.005)	ND (0.005)	0.12 (0.025)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	0.000019 J (0.000028)	ND (0.00002)	ND (0.000021)	ND (0.000029)	ND,IQ (0.000028)	ND (0.00002)	ND (0.000028)	ND (0.000028)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.005)	ND (0.01)	ND (0.004)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.01)	ND (0.001)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	1 (0.005)	2 (0.01)	0.678 (0.004)	0.0017 J (0.005)	0.05 (0.005)	0.09 (0.005)	0.0936 (0.01)	0.00088 J (0.001)	0.00074 J (0.001)	0.4 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	22 (2.5)	44 (5)	23.8 (0.5)	0.079 J (0.25)	ND (0.25)	5.4 (2.5)	2.82 (0.1)	ND (0.05)	ND (0.05)	2.2 (0.25)
Toluene	1	430	0.057 (0.005)	0.097 (0.01)	0.0819 (0.004)	ND (0.005)	0.05 (0.005)	0.051 (0.005)	0.063 (0.01)	0.00057 J (0.001)	ND (0.001)	0.41 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.32 (0.025)	0.43 (0.05)	0.399 (0.008)	0.13 (0.025)	0.69 (0.025)	0.67 (0.025)	0.974 (0.02)	ND (0.005)	ND (0.005)	0.28 (0.025)
1,3,5-Trimethylbenzene	0.53	4.5	0.11 (0.025)	0.16 (0.05)	0.152 (0.008)	0.044 (0.025)	0.22 (0.025)	0.2 (0.025)	0.294 (0.02)	ND (0.005)	ND (0.005)	0.17 (0.025)
Xylenes (total)	10	12	1.6 (0.03)	2.2 (0.06)	1.62 (0.004)	0.14 (0.03)	1.8 (0.03)	2 (0.03)	2.34 (0.01)	0.0017 J (0.006)	ND (0.006)	0.58 (0.03)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0056 (0.00051)	0.0061 (0.00053)	0.0033 (0.000083)	NA	ND (0.00051)	ND (0.00057)	0.000162 (0.000087)	ND (0.00051)	ND (0.00052)	0.0069 (0.00051)
Benzo(a)anthracene	0.0039	--	0.001 (0.00051)	0.0012 (0.00053)	0.00123 (0.000042)	NA	ND (0.00051)	0.00018 J (0.00057)	0.0000717 (0.000043)	ND (0.00051)	ND (0.00052)	0.00029 J (0.00051)
Benzo(a)pyrene	0.0002	--	0.00058 (0.00051)	0.00072 (0.00053)	0.000665 (0.000042)	NA	ND (0.00051)	0.00015 J (0.00057)	0.0000374 J (0.000043)	ND (0.00051)	ND (0.00052)	ND (0.00051)
Benzo(b)fluoranthene	0.0012	--	0.00077 (0.00051)	0.00084 (0.00053)	0.000972 (0.000042)	NA	ND (0.00051)	0.0002 J (0.00057)	0.0000715 (0.000043)	ND (0.00051)	ND (0.00052)	0.00011 J (0.00051)
Benzo(g,h,i)perylene	0.00026	--	0.00027 J (0.00051)	0.00027 J (0.00053)	0.000385 (0.000083)	NA	ND (0.00051)	0.00012 J (0.00057)	ND (0.000087)	ND (0.00051)	ND (0.00052)	ND (0.00051)
Chrysene	0.0019	--	0.0012 (0.00051)	0.0012 (0.00053)	0.0012 (0.000083)	NA	ND (0.00051)	0.00021 J (0.00057)	0.000113 (0.000087)	ND (0.00051)	ND (0.00052)	ND (0.051)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.021 (0.00051)	0.017 (0.00053)	0.016 (0.0083)	NA	0.0027 (0.00051)	0.0019 (0.00057)	0.00101 (0.000087)	ND (0.00051)	ND (0.00052)	0.043 (0.00051)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	1.3 (0.01)	1.7 (0.053)	1.56 (0.83)	NA	0.3 (0.0025)	0.27 (0.0029)	0.308 (0.0087)	0.0014 (0.00051)	0.00012 J (0.00052)	4.4 (0.051)
Phenanthrene	1.1	--	0.03 (0.00051)	0.031 (0.00053)	0.0283 (0.0083)	NA	0.0019 (0.00051)	0.0019 (0.00057)	0.00194 (0.000087)	0.00018 J (0.00051)	ND (0.00052)	0.038 (0.00051)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0046 (0.00051)	0.0046 (0.00053)	0.00353 (0.000083)	NA	0.00017 J (0.00051)	0.00043 J (0.00057)	0.000161 (0.000087)	0.00019 J (0.00051)	ND (0.00052)	0.0028 (0.00051)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.001 (0.00052)	0.0029 (0.00052)	0.0052 (0.001)	0.00023 J (0.00052)	0.0089 (0.00052)	0.0091 (0.00052)	0.0116 (0.001)	ND (0.00052)	0.00024 J (0.00052)	0.0033 (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-455 S-455_20211028 10/28/2021	S-455 DUP-1_20211028 10/28/2021 FD	S-455 S-455_20220328 3/28/2022	S-455 DUP-1_20220328 3/28/2022 FD	S-457_CD BT-09-W-32-20201228 12/28/2020	S-457 S-457-20210326 3/26/2021	S-457 S-457_20211029 10/29/2021	S-457 S-457_20220330_42387 3/30/2022	S-459_CD BT-13-W-40-20210105 1/5/2021	S-459 S-459-20210324 3/24/2021
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	7.7 (0.1)	7.7 (0.1)	5.72 (0.05)	6.01 (0.05)	0.56 (0.005)	18 (0.1)	20 (0.5)	25.1 (0.25)	0.13 (0.005)	0.013 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.13 (0.05)	0.13 (0.05)	0.15 (0.02)	0.152 (0.02)	0.0066 J (0.025)	0.053 (0.05)	0.063 J (0.25)	0.0719 (0.05)	0.013 J (0.025)	0.0033 J (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.000028)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	0.000017 J (0.000028)	ND (0.00002)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.01)	ND (0.01)	ND (0.02)	ND (0.02)	ND (0.005)	ND (0.01)	ND (0.05)	ND (0.05)	ND (0.005)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.36 (0.01)	0.38 (0.01)	0.148 (0.02)	0.147 (0.02)	0.0067 (0.005)	3.7 (0.01)	4.4 (0.05)	6.02 (0.05)	0.043 (0.005)	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	3.2 (0.5)	3.2 (0.5)	6.75 (0.2)	6.77 (0.2)	ND (0.25)	23 (5)	22 (2.5)	22 (0.5)	1.7 (0.25)	ND (0.05)
Toluene	1	430	0.55 (0.01)	0.59 (0.01)	0.0487 (0.02)	0.0495 (0.02)	0.08 (0.005)	0.77 (0.01)	1.1 (0.05)	1.39 (0.05)	0.0073 (0.005)	0.00063 J (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.3 (0.05)	0.3 (0.05)	0.193 (0.04)	0.198 (0.04)	0.082 (0.025)	0.55 (0.05)	0.77 (0.25)	0.69 (0.1)	0.11 (0.025)	0.04 (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	0.19 (0.05)	0.19 (0.05)	0.143 (0.04)	0.145 (0.04)	0.022 J (0.025)	0.15 (0.05)	0.21 J (0.25)	0.19 (0.1)	0.037 (0.025)	0.014 (0.005)
Xylenes (total)	10	12	0.96 (0.06)	1 (0.06)	0.356 (0.02)	0.375 (0.02)	0.47 (0.03)	3.5 (0.06)	5.2 (0.3)	5.55 (0.05)	0.36 (0.03)	0.049 (0.006)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0069 (0.00052)	0.0074 (0.00054)	0.00546 (0.00043)	0.00634 (0.00043)	NA	0.0016 (0.00051)	0.0023 (0.00058)	0.000907 (0.000078)	0.00035 J (0.0005)	0.00014 J (0.00051)
Benzo(a)anthracene	0.0039	--	0.0002 J (0.00052)	0.00022 J (0.00054)	0.000179 (0.000043)	0.00018 (0.000043)	NA	0.00015 J (0.00051)	0.00081 (0.00058)	0.000201 (0.000039)	0.00013 J (0.0005)	ND (0.00051)
Benzo(a)pyrene	0.0002	--	ND (0.00052)	ND (0.00054)	0.0000772 (0.000043)	0.0000825 (0.000043)	NA	ND (0.00051)	0.00035 J (0.00058)	0.000121 (0.000039)	ND (0.0005)	ND (0.00051)
Benzo(b)fluoranthene	0.0012	--	ND (0.00052)	ND (0.00054)	0.000097 (0.000043)	0.000105 (0.000043)	NA	ND (0.00051)	0.00044 J (0.00058)	0.000165 (0.000039)	0.00012 J (0.0005)	ND (0.00051)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00052)	ND (0.00054)	ND (0.000085)	0.0000538 J (0.000085)	NA	ND (0.00051)	0.00016 J (0.00058)	0.0000621 J (0.000078)	ND (0.0005)	ND (0.00051)
Chrysene	0.0019	--	0.00028 J (0.00052)	0.00027 J (0.00054)	0.000189 (0.000085)	0.000207 (0.000085)	NA	0.00019 J (0.00051)	0.00079 (0.00058)	0.000222 (0.000078)	0.00019 J (0.0005)	ND (0.00051)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.037 (0.00052)	0.046 (0.00054)	0.0367 (0.0085)	0.0385 (0.0085)	NA	0.014 (0.00051)	0.01 (0.00058)	0.0096 (0.00078)	0.0013 (0.0005)	0.00092 (0.00051)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	2.9 (0.052)	2.9 (0.054)	2.28 (0.085)	2.41 (0.085)	NA	3.1 (0.051)	2.5 (0.058)	2.29 B (0.078)	0.002 (0.0005)	0.028 (0.00051)
Phenanthrene	1.1	--	0.037 (0.00052)	0.036 (0.00054)	0.0312 (0.0085)	0.0331 (0.0085)	NA	0.013 (0.00051)	0.015 (0.00058)	0.0065 (0.00078)	0.0019 (0.0005)	0.00052 (0.00051)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0027 (0.00052)	0.0027 (0.00054)	0.00194 (0.000085)	0.00209 (0.000085)	NA	0.00086 (0.00051)	0.0024 (0.00058)	0.000818 (0.000078)	0.00057 (0.0005)	ND (0.00051)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.003 (0.00052)	0.003 (0.00052)	0.0025 (0.001)	0.0024 (0.001)	NA	0.0013 (0.00052)	0.0052 (0.00052)	0.0032 (0.001)	0.00031 J (0.00052)	0.00015 J (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-459	S-467	S-467	S-467	S-468	S-468	S-468	S-470_CD	S-470_CD	S-470
Field Sample ID	Groundwater	Groundwater	S-459_20211026	S-467-20210324	S-467_20211026	S-467_20220328	S-468-20210324	S-468_20211026	S-468_20220329	BT-08B-W-37-20210225	BT-08B-W-71-20210308	S-470-20210325
Sample Date	Used Aquifer	Vapor Intrusion	10/26/2021	3/24/2021	10/26/2021	3/28/2022	3/24/2021	10/26/2021	3/29/2022	2/25/2021	3/8/2021	3/25/2021
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0023 (0.001)	0.37 (0.01)	0.5 (0.01)	0.194 (0.0005)	0.41 (0.01)	0.36 (0.005)	0.391 (0.002)	0.075 (0.001)	0.00035 J (0.001)	0.007 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0013 J (0.005)	0.1 (0.005)	0.087 (0.005)	0.115 (0.001)	0.13 (0.005)	0.13 (0.025)	0.139 (0.004)	0.084 (0.005)	0.00042 J (0.005)	ND (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000028)	ND (0.000029)	ND (0.000028)	ND (0.00002)	ND (0.000029)	ND (0.000028)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	0.00062 J (0.001)	0.00065 J (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.004)	ND (0.001)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.0004 J (0.001)	0.078 (0.001)	0.16 (0.001)	0.385 (0.004)	0.013 (0.001)	0.01 (0.005)	0.0106 (0.004)	0.14 (0.001)	0.0023 (0.001)	0.0019 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.12 (0.05)	0.57 (0.05)	0.9 (0.05)	0.52 (0.01)	0.36 (0.05)	ND (0.25)	0.471 (0.04)	3.8 (1)	0.029 J (0.05)	0.016 J (0.05)
Toluene	1	430	ND (0.001)	0.02 (0.001)	0.021 (0.001)	0.0143 (0.001)	0.023 (0.001)	0.017 (0.005)	0.0163 (0.004)	0.16 (0.001)	0.00047 J (0.001)	0.00038 J (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0066 (0.005)	0.064 (0.005)	0.039 (0.005)	0.0092 (0.002)	0.28 (0.05)	0.26 (0.025)	0.215 (0.008)	0.039 (0.005)	ND (0.005)	ND (0.005)
1,3,5-Trimethylbenzene	0.53	4.5	0.0028 J (0.005)	0.022 (0.005)	0.029 (0.005)	0.0089 (0.002)	0.094 (0.005)	0.076 (0.025)	0.0661 (0.008)	0.02 (0.005)	ND (0.005)	ND (0.005)
Xylenes (total)	10	12	ND (0.006)	0.055 (0.006)	0.051 (0.006)	0.0399 (0.001)	0.21 (0.006)	0.17 (0.03)	0.162 (0.004)	0.18 (0.006)	ND (0.006)	ND (0.006)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00011 J (0.00051)	0.0063 (0.00064)	0.0025 (0.00053)	0.00171 (0.000082)	0.016 (0.00055)	0.013 (0.00054)	0.00326 (0.000078)	0.0017 (0.0005)	0.00012 J (0.0005)	ND (0.00051)
Benzo(a)anthracene	0.0039	--	ND (0.00051)	0.00038 J (0.00064)	ND (0.00053)	0.000144 (0.000041)	0.0028 (0.00055)	0.0031 (0.00054)	0.000406 (0.000039)	ND (0.0005)	ND (0.0005)	ND (0.00051)
Benzo(a)pyrene	0.0002	--	ND (0.00051)	0.0002 J (0.00064)	ND (0.00053)	0.0000714 (0.000041)	0.0019 (0.00055)	0.0017 (0.00054)	0.00021 (0.000039)	ND (0.0005)	ND (0.0005)	ND (0.00051)
Benzo(b)fluoranthene	0.0012	--	ND (0.00051)	0.00031 J (0.00064)	ND (0.00053)	0.0000917 (0.000041)	0.002 (0.00055)	0.002 (0.00054)	0.000272 (0.000039)	ND (0.0005)	ND (0.0005)	ND (0.00051)
Benzo(g,h,i)perylene	0.00026	--	ND (0.00051)	ND (0.00064)	ND (0.00053)	ND (0.000082)	0.0006 (0.00055)	0.00065 (0.00054)	0.000106 (0.000078)	ND (0.0005)	ND (0.0005)	ND (0.00051)
Chrysene	0.0019	--	ND (0.00051)	0.00055 J (0.00064)	ND (0.00053)	0.000141 (0.000082)	0.0034 (0.00055)	0.0032 (0.00054)	0.000394 (0.000078)	ND (0.0005)	ND (0.0005)	ND (0.00051)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00078 (0.00051)	0.032 (0.00064)	0.015 (0.00053)	0.0108 (0.00082)	0.067 (0.00055)	0.063 (0.00054)	0.028 (0.0039)	0.012 (0.0005)	0.00036 J (0.0005)	ND (0.00051)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0014 (0.00051)	0.066 (0.00064)	0.086 (0.00053)	0.00858 (0.00082)	3.2 (0.028)	2.4 (0.027)	1.05 (0.02)	0.0076 (0.0005)	0.00074 (0.0005)	0.0015 (0.00051)
Phenanthrene	1.1	--	0.00043 J (0.00051)	0.039 (0.00064)	0.013 (0.00053)	0.013 (0.00082)	0.085 (0.00055)	0.076 (0.00054)	0.0284 (0.0039)	0.0086 (0.0005)	0.00081 (0.0005)	ND (0.00051)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	ND (0.00051)	0.003 (0.00064)	0.00085 (0.00053)	0.000827 (0.000082)	0.012 (0.00055)	0.011 (0.00054)	0.0017 (0.000078)	0.0006 (0.0005)	0.00015 J (0.0005)	ND (0.00051)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.00052)	0.00038 J (0.00052)	0.00045 J (0.00052)	ND (0.001)	ND (0.00052)	ND (0.00052)	ND (0.001)	0.0029 (0.00052)	0.00032 J (0.00052)	ND (0.00052)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-470	S-472	S-472	S-472	S-73	S-73	S-73	S-73	S-73	S-73
Field Sample ID			S-470_20211027	S-472-20210324	S-472_20211029	S-472_20220330_42387	S-73~1/1/1993	S-73~1/1/1994	S-73~12/28/1995	S-73~1/1/1996	S-73~11/19/1997	S-73~11/12/1998
Sample Date			10/27/2021	3/24/2021	10/29/2021	3/30/2022	1/1/1993	1/1/1994	12/28/1995	1/1/1996	11/19/1997	11/12/1998
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0043 (0.001)	0.18 (0.001)	0.19 (0.005)	0.219 (0.005)	0.52	0.9	0.43	0.0056	0.84	0.32
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.005)	0.11 (0.005)	0.16 (0.025)	0.181 (0.01)	NA	NA	NA	NA	NA	NA
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.000028)	ND (0.00002)	NA	NA	NA	NA	NA	NA
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.01)	NA	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.002 (0.001)	0.00079 J (0.001)	ND (0.005)	ND (0.01)	NA	NA	NA	NA	NA	NA
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.028 J (0.05)	0.025 J (0.05)	ND (0.25)	ND (0.1)	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	0.0088 (0.001)	0.0072 (0.005)	0.0079 J (0.01)	0.009	ND (0.25)	0.034	ND (0.0003)	0.049 J	ND (0.01)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.005)	0.49 (0.05)	0.75 (0.025)	0.882 (0.02)	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.005)	0.13 (0.005)	0.21 (0.025)	0.222 (0.02)	NA	NA	NA	NA	NA	NA
Xylenes (total)	10	12	ND (0.006)	0.29 (0.006)	0.48 (0.03)	0.517 (0.01)	0.018	ND (0.5)	0.015 J	ND (0.0006)	0.055 J	0.02
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND,IQ (0.00052)	0.0099 (0.00052)	0.0077 (0.0006)	0.0062 (0.0082)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND,IQ (0.00052)	0.0024 (0.00052)	0.00093 (0.0006)	0.000147 (0.000041)	0.11	0.055	0.029	0.002	0.013	0.007
Benzo(a)pyrene	0.0002	--	ND,IQ (0.00052)	0.0016 (0.00052)	0.00052 J (0.0006)	0.0000577 (0.000041)	0.059 J	0.034	0.015	0.001	0.007	0.006
Benzo(b)fluoranthene	0.0012	--	ND,IQ (0.00052)	0.0018 (0.00052)	0.00057 J (0.0006)	0.0000565 (0.000041)	0.068 J	0.037	0.021	ND (0.001)	0.007	0.005
Benzo(g,h,i)perylene	0.00026	--	ND,IQ (0.00052)	0.00062 (0.00052)	0.0002 J (0.0006)	ND (0.000082)	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	ND,IQ (0.00052)	0.0027 (0.00052)	0.0011 (0.0006)	0.000157 (0.000082)	0.055	0.004 J	0.1	0.077	0.039	0.002
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	ND	0.006	0.004	ND (0.001)	0.001	ND (0.004)
Fluorene	1.9	--	ND,IQ (0.00052)	0.038 (0.00052)	0.041 (0.0006)	0.0504 (0.0082)	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	0.081	ND (0.01)	ND	ND (0.005)	ND (0.01)	ND (0.01)
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND,IQ (0.00052)	5.8 (0.052)	5.5 (0.06)	11.4 B (0.16)	NA	NA	NA	NA	NA	NA
Phenanthrene	1.1	--	0.00011 J,IQ (0.00052)	0.049 (0.00052)	0.041 (0.0006)	0.0368 (0.0082)	NA	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	ND	0.004	0.002	ND (0.001)	0.006	ND (0.003)
Pyrene	0.13	--	0.00014 J,IQ (0.00052)	0.0086 (0.00052)	0.0043 (0.0006)	0.00168 (0.000082)	NA	NA	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	0.119	0.21	0.1	0.09	0.021	ND (0.01)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	0.0228	0.067	0.079	0.064	0.027	0.021
Barium	2	--	NA	NA	NA	NA	0.96	1.3	1.4	1.5	0.73	0.612
Chromium (total)	0.1	--	NA	NA	NA	NA	ND	0.19	0.3	0.32	0.055	ND (0.01)
Cobalt	0.029	--	NA	NA	NA	NA	ND	0.065	0.12	0.12	0.023	ND (0.01)
Lead	0.005	--	ND (0.00052)	0.00043 J (0.00052)	0.00032 J (0.00052)	ND (0.001)	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-73	S-73	S-73	S-73	S-73	S-73	S-73	S-75	S-75	S-75
Field Sample ID	Groundwater	Groundwater	S-73~12/2/1999	S-73~11/16/2000	S-73~11/14/2001	S-73~11/13/2002	S-73~11/12/2003	S-73~10/21/2004	S-73_11_7_2005	S-75_071212	S-75~JB67921	S-75-20141211
Sample Date	Used Aquifer	Vapor Intrusion	12/2/1999	11/16/2000	11/14/2001	11/13/2002	11/12/2003	10/21/2004	11/7/2005	7/12/2012	5/28/2014	12/11/2014
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.4	0.34	0.22	0.098	0.135	0.1	0.053 (0.01)	0.005 (0.002)	0.0089 (0.0005)	0.0099 (0.0005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	NA	NA	NA	NA	0.099	NA	0.061 (0.004)	0.0623 (0.001)	0.0569 (0.001)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	NA	NA	NA	NA	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.00002)	ND (0.00002)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	NA	NA	NA	NA	ND (0.005)	ND (0.01)	ND (0.002)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	NA	ND (0.01)	ND (0.01)	ND (0.001)	0.0016	ND (0.005)	ND (0.01)	0.004 (0.002)	0.014 (0.001)	0.0135 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.02)	ND (0.01)	ND (0.01)	0.002	0.0039	ND (0.005)	ND (0.01)	0.002 (0.002)	0.0037 (0.001)	0.004 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	NA	NA	NA	NA	NA	0.003 J (0.004)	0.0058 (0.002)	0.0041 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	NA	NA	NA	NA	NA	0.01 (0.004)	0.0153 (0.002)	0.0095 (0.002)
Xylenes (total)	10	12	0.031	0.011	0.01	0.007	0.0123	0.014	0.013 (0.01)	0.003 (0.002)	0.0052 (0.001)	0.0059 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	0.011 (0.005)	ND (0.0001)	ND (0.0001)
Benzo(a)anthracene	0.0039	--	0.023	0.006	0.0047	NA	NA	NA	0.0016 (0.0002)	0.001 J (0.005)	0.000515 (0.0001)	0.000526 (0.0001)
Benzo(a)pyrene	0.0002	--	0.015	0.004	0.0029	NA	NA	NA	0.0008 (0.0002)	ND (0.005)	0.000297 (0.0001)	0.000311 (0.0001)
Benzo(b)fluoranthene	0.0012	--	0.013	0.004	0.0037	NA	NA	NA	0.0015 (0.0002)	0.001 J (0.005)	0.000436 (0.0001)	0.000407 (0.0001)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	0.0003 (0.0002)	0.001 J (0.005)	0.00044 (0.0001)	0.000376 (0.0001)
Chrysene	0.0019	--	0.014	0.009	0.031	0.006	0.0052	0.0037 J	0.0016 (0.0002)	0.001 J (0.005)	0.000529 (0.0001)	0.000506 (0.0001)
Dibenz(a,h)anthracene	0.0006	--	ND (0.004)	ND (0.002)	ND (0.002)	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	0.056	0.0409 (0.0002)	0.064 (0.005)	0.0198 (0.001)	0.0209 (0.001)
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.002)	NA	ND (0.0002)	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	NA	NA	NA	NA	ND (0.005)	ND (0.01)	0.023 (0.005)	ND (0.0001)	ND (0.0001)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	0.08	0.0386 (0.0002)	0.11 (0.005)	0.0327 (0.001)	0.04 (0.001)
bis(2-Ethylhexyl)phthalate	0.006	--	0.018	0.007	0.0043	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	0.012	0.0047 (0.0002)	0.01 (0.005)	0.00338 (0.0001)	0.00396 (0.0001)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.155	0.066	0.0438	NA	NA	NA	ND (0.01)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	ND (0.008)	0.013	0.0441	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	0.998	0.6	0.658	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	0.029	0.029	0.0723	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	0.016	0.016	ND (0.05)	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	ND (0.005)	NA	0.0261 (0.001)	0.0067 (0.003)	0.0086 (0.003)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-75	S-75	S-75	S-75	S-76	S-77P	S-77P	S-77P	S-77P	S-77P
Field Sample ID	Used Aquifer	Vapor Intrusion	S-75-20180802	S-75_20190702	DUP-5_20190702	S-75_20191113	S-76-20180802	S-77P~10/12/2004	S77P-042005	S-77P_1242460	S-77P_1250813	S-77P_071012
Sample Date	(TDS <2500)	Screening Values	8/2/2018	7/2/2019	7/2/2019	11/13/2019	8/2/2018	10/12/2004	4/20/2005	4/14/2011	6/7/2011	7/10/2012
Comments					FD							
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	ND (0.06)	0.082 J	NA
Benzene	0.005	0.35	0.00232 SL (0.001)	0.006 (0.001)	0.006 (0.001)	0.039 (0.001)	2.1 SL (0.025)	16	17 (0.5)	5.6	3.9	2 (0.05)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	ND (0.03)	ND (0.03)	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.008)	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.008)	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.0602 SL (0.001)	0.031 (0.005)	0.029 (0.005)	0.014 (0.005)	ND,SL (0.025)	0.093	ND (0.5)	0.06	0.051	0.091 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	0.41	0.36	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND,SL (0.00001)	ND (0.000028)	ND (0.000028)	ND (0.000028)	ND,SL (0.00001)	ND (0.00002)	ND (0.000029)	ND (0.01)	ND (0.01)	ND (0.00003)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	NA
1,2-Dichloroethane	0.005	0.51	ND,SL (0.001)	ND (0.005)	ND (0.005)	ND (0.005)	ND,SL (0.025)	ND (0.02)	ND (0.5)	ND (0.01)	ND (0.01)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	ND (0.008)	ND (0.008)	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.0293 SL (0.001)	0.024 (0.001)	0.022 (0.001)	0.004 (0.001)	ND,SL (0.025)	4.1	10 (0.5)	4	4.5	5.8 (0.05)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	ND (0.03)	ND (0.03)	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	0.22	0.2	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	ND (0.02)	ND (0.02)	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	0.169 SL (0.025)	0.41 (0.025)	0.48 (0.025)	0.043 (0.025)	1.47 SL (0.125)	NA	NA	NA	NA	NA
Toluene	1	430	0.00143 SL (0.001)	0.002 (0.001)	0.002 (0.001)	0.002 (0.001)	0.0525 SL (0.025)	0.068	ND (0.5)	0.035 J	0.03 J	0.041 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	ND (0.01)	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND,SL (0.001)	0.0006 J (0.005)	0.0005 J (0.005)	ND (0.005)	0.194 SL (0.025)	NA	NA	NA	0.096	0.083 (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.00715 SL (0.001)	0.007 (0.005)	0.006 (0.005)	0.0006 J (0.005)	0.683 SL (0.025)	NA	NA	NA	0.056	0.048 (0.01)
Xylenes (total)	10	12	ND,SL (0.003)	0.001 J (0.005)	0.001 J (0.005)	0.001 J (0.003)	0.399 SL (0.075)	0.65	ND (0.5)	0.036 J	0.25	0.27 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND,SL (0.00025)	ND (0.0005)	ND (0.0005)	0.0006 (0.0005)	0.0891 SL (0.0005)	NA	NA	NA	NA	0.017 (0.005)
Benzo(a)anthracene	0.0039	--	0.000698 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.062 SL (0.0005)	NA	NA	NA	NA	0.005 (0.005)
Benzo(a)pyrene	0.0002	--	0.000336 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0332 SL (0.0005)	NA	NA	NA	NA	0.003 J (0.005)
Benzo(b)fluoranthene	0.0012	--	0.000372 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0512 SL (0.0005)	NA	NA	NA	NA	0.004 J (0.005)
Benzo(g,h,i)perylene	0.00026	--	0.000295 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.018 SL (0.0005)	NA	NA	NA	NA	0.001 J (0.005)
Chrysene	0.0019	--	0.00074 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.0472 SL (0.0005)	0.022	ND (0.01)	NA	0.0041	0.007 (0.005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00833 SL (0.00025)	0.003 (0.0005)	0.002 (0.0005)	0.002 (0.0005)	0.202 SL (0.0005)	0.11	0.015 (0.01)	NA	0.015	0.048 (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.00612 SL (0.00125)	0.001 (0.0005)	0.003 (0.0005)	ND (0.0005)	0.87 SL (0.0025)	0.65	0.11 (0.01)	NA	0.17	0.083 (0.005)
Phenanthrene	1.1	--	0.00631 SL (0.00025)	0.003 (0.0005)	0.002 (0.0005)	0.001 (0.0005)	0.345 SL (0.0005)	0.24	0.023 (0.01)	NA	0.02	0.087 (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00397 SL (0.00025)	ND (0.0005)	ND (0.0005)	ND (0.0005)	0.179 SL (0.0005)	0.058	ND (0.01)	NA	ND (0.015)	0.018 (0.005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	0.003 (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00392 B,SL (0.002)	0.0023 J (0.003)	0.0025 J (0.003)	0.00097 (0.0005)	0.0863 SL (0.002)	ND (0.005)	NA	NA	0.0065	0.0023 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-77P	S-77P	S-77P	S-77P	S-77P	S-78	S-78	S-78	S-78	S-79P
Field Sample ID	Groundwater	Groundwater	S-77P~JB67921	S-77P-20141216	S-77P_20180725	S-77P-221221	S-77P-230124	S-78_071012	S-78	S-78-20141212	S-78_20191119	S79P-042005
Sample Date	Used Aquifer	Vapor Intrusion	5/27/2014	12/16/2014	7/25/2018	12/21/2022	1/24/2023	7/10/2012	5/27/2014	12/12/2014	11/19/2019	4/20/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	1.95 (0.025)	1.8 (0.01)	0.222 (0.05)	0.27 (0.002)	0.29 (0.0012)	0.024 (0.001)	0.0066 (0.0005)	0.0062 (0.0005)	0.003 (0.001)	2.4 (0.1)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.104 (0.05)	0.0966 (0.02)	0.128 (0.001)	0.12 (0.002)	0.1 (0.0012)	0.075 (0.002)	0.0429 (0.001)	0.0458 (0.001)	0.077 (0.005)	ND (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00002)	ND (0.00002)	ND (0.00001)	ND (0.00001)	ND (0.00001)	ND (0.00003)	ND (0.00002)	ND (0.00002)	NA	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.05)	ND (0.02)	ND (0.001)	ND (0.002)	ND (0.0012)	ND (0.001)	ND (0.001)	ND (0.001)	NA	ND (0.02)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	5.01 (0.05)	5.02 (0.2)	2.09 (0.05)	0.52 (0.004)	0.33 (0.0025)	0.004 (0.001)	0.0077 (0.001)	0.011 (0.001)	0.007 (0.001)	0.18 (0.02)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0443 J (0.05)	0.0408 (0.02)	0.0235 (0.001)	0.024 (0.003)	0.024 (0.0019)	0.005 (0.001)	0.0025 (0.001)	0.0026 (0.001)	0.003 (0.001)	ND (0.02)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0447 J (0.1)	0.0363 J (0.04)	0.00216 (0.001)	0.002 J (0.01)	0.002 J (0.0062)	0.004 (0.002)	0.00029 J (0.002)	0.00064 J (0.002)	ND (0.005)	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.0307 J (0.1)	0.0238 J (0.04)	0.00298 (0.001)	0.0016 J (0.01)	0.0017 J (0.0062)	0.002 J (0.002)	0.00044 J (0.002)	0.00077 J (0.002)	ND (0.005)	NA
Xylenes (total)	10	12	0.207 (0.05)	0.215 (0.02)	0.057 (0.003)	0.0569 J (0.004)	0.0538 J (0.0025)	0.012 (0.001)	0.0013 (0.001)	0.0016 (0.001)	0.002 J (0.003)	0.029 (0.02)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.000882 (0.0001)	0.000772 (0.00011)	0.00148 (0.00005)	0.0017 (0.0001)	0.001 (0.0001)	0.0003 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.0001)	ND (0.00011)	0.0000774 (0.00005)	0.00007 (0.00005)	0.00004 J (0.00005)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(a)pyrene	0.0002	--	ND (0.0001)	ND (0.00011)	ND (0.00005)	0.00003 J (0.0001)	0.00002 J (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(b)fluoranthene	0.0012	--	ND (0.0001)	ND (0.00011)	ND (0.00005)	0.00003 J (0.00005)	0.00002 J (0.00005)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0001)	ND (0.00011)	ND (0.00005)	0.00002 J (0.0001)	ND (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Chrysene	0.0019	--	0.000106 (0.0001)	0.000114 (0.00011)	0.000112 (0.00005)	0.00005 J (0.0001)	0.00004 J (0.0001)	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.00854 (0.001)	0.00657 (0.0011)	0.0141 (0.00005)	0.016 (0.0001)	0.011 (0.0001)	0.004 (0.0005)	0.00173 (0.0001)	0.00173 (0.0001)	NA	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	0.00002 J (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0331 (0.001)	0.0329 (0.0011)	0.00804 (0.00025)	0.0062 (0.0001)	0.0045 (0.0001)	0.017 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.01)	ND (0.01)
Phenanthrene	1.1	--	0.00426 (0.0001)	0.00516 (0.00011)	0.00674 (0.00005)	0.011 (0.00005)	0.0074 (0.00005)	0.003 (0.0005)	0.000784 (0.0001)	0.000534 (0.0001)	NA	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.000397 (0.0001)	0.000433 (0.00011)	0.000549 (0.00005)	0.00049 (0.0001)	0.00033 (0.0001)	0.0002 J (0.0005)	0.000142 (0.0001)	ND (0.0001)	NA	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0017 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	ND (0.003)	ND (0.003)	ND (0.002)	ND (0.001)	ND (0.001)	0.0024 (0.001)	ND (0.003)	0.0024 J (0.003)	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-79P	S-79P	S-79P	S-80	S-80D	S-80D	S-80D	S-80D	S-80D	S-80D
Field Sample ID	Used Aquifer	Vapor Intrusion	S-79P_071112	S-79P~JB67921	S-79P-20141215	S-80	S80D-041505	S-80D_04062011	S-80D_04062011 FILTERED	S-80D_06282011	S-80D_06282011 FILTERED	S-80D_5-22-12
Sample Date	(TDS <2500)	Screening Values	7/11/2012	5/28/2014	12/15/2014	5/29/2014	4/15/2005	4/6/2011	4/6/2011	6/28/2011	6/28/2011	5/22/2012
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.0008 J (0.001)	0.693 (0.0025)	0.784 (0.0025)	0.384 (0.0025)	ND (0.005)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.013 (0.002)	0.0277 (0.005)	0.028 (0.005)	0.0239 (0.001)	ND (0.005)	ND (0.002)	NA	ND (0.002)	NA	ND (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000028)	ND (0.000029)	NA	ND (0.000029)	NA	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.005)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.016 (0.001)	0.168 (0.005)	0.31 (0.005)	0.03 (0.001)	ND (0.005)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0008 J (0.001)	0.0027 J (0.005)	0.0026 J (0.005)	0.0187 (0.001)	ND (0.005)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.01)	ND (0.01)	0.0013 J (0.002)	NA	ND (0.002)	NA	ND (0.002)	NA	ND (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.01)	ND (0.01)	0.0079 (0.002)	NA	ND (0.002)	NA	ND (0.002)	NA	ND (0.002)
Xylenes (total)	10	12	0.001 (0.001)	ND (0.005)	0.0031 J (0.005)	0.0139 (0.001)	ND (0.005)	ND (0.001)	NA	ND (0.001)	NA	ND (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.005)	ND (0.00011)	0.000411 J- (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.005)	ND (0.00011)	0.000114 J- (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	ND (0.005)	ND (0.00011)	ND,J (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.001 J (0.005)	ND (0.00011)	0.000137 J- (0.0001)	0.000121 (0.0001)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	0.001 J (0.005)	ND (0.00011)	ND,J (0.0001)	ND (0.0001)	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	0.001 J (0.005)	ND (0.00011)	0.000173 J- (0.0001)	ND (0.0001)	ND (0.011)	ND (0.005)	NA	ND (0.005)	NA	ND (0.0005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.005 (0.005)	0.0022 (0.00011)	0.00379 J- (0.0001)	ND (0.0001)	ND (0.011)	ND (0.005)	NA	ND (0.005)	NA	ND (0.0005)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.005)	ND (0.00011)	ND,J (0.0001)	0.000796 (0.0001)	ND (0.011)	ND (0.005)	NA	ND (0.005)	NA	ND (0.0005)
Phenanthrene	1.1	--	0.006 (0.005)	0.00222 (0.00011)	0.00422 J- (0.0001)	ND (0.0001)	ND (0.011)	ND (0.005)	NA	ND (0.005)	NA	ND (0.0005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.001 J (0.005)	0.000208 (0.00011)	0.000407 J- (0.0001)	0.000116 (0.0001)	ND (0.011)	ND (0.005)	NA	ND (0.005)	NA	ND (0.0005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	ND (0.002)	NA	ND (0.002)	NA	ND (0.002)
Cobalt	0.029	--	NA	NA	NA	NA	NA	ND (0.005)	NA	ND (0.005)	NA	ND (0.005)
Lead	0.005	--	NA	NA	NA	NA	ND (0.001)	ND (0.001)	NA	ND (0.001)	NA	0.00017 J (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	11.8 (0.025)	NA	12 (0.025)	NA	10.4 (0.005)
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	ND (0.002)	NA	ND (0.002)	ND (0.002)
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	ND (0.005)	NA	ND (0.005)	ND (0.005)
Lead	0.005	--	0.0108 (0.001)	0.0031 (0.003)	0.0019 J (0.003)	0.0066 (0.003)	NA	NA	ND (0.001)	NA	ND (0.001)	ND (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	11.8 (0.025)	NA	11.9 (0.025)	10.3 (0.005)

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-80D	S-80D	S-80D	S-80D	S-80D	S-80D	S-80D	S-80D	S-81	S-81
Field Sample ID			S-80D_071112	S-80D_081512	S-80D_102612	S-80D_32713	S-80D	S-80D-20141204	S-80D_20210721	S-80D-Dup	S-81~1/1/1993	S-81~1/1/1994
Sample Date			7/11/2012	8/15/2012	10/26/2012	3/27/2013	5/21/2014	12/4/2014	7/21/2021	7/21/2021	1/1/1993	1/1/1994
Comments										FD		
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	5.92	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.0005)	NA	NA	20	9.5
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.001)	NA	NA	NA	NA
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.00002)	NA	NA	NA	NA
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND,J (0.001)	ND (0.001)	NA	NA	NA	NA
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	0.00045 J (0.001)	0.0005 J (0.001)	NA	NA	NA	NA
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	0.064	0.18 J
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.002)	NA	NA	NA	NA
Xylenes (total)	10	12	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	NA	NA	0.6	0.15 J
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	ND	ND (0.01)
Benzo(a)pyrene	0.0002	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	ND	ND (0.01)
Benzo(b)fluoranthene	0.0012	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	ND	ND (0.01)
Benzo(g,h,i)perylene	0.00026	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Chrysene	0.0019	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	ND	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND (0.01)
Fluorene	1.9	--	ND (0.0005)	0.0002 J (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND (0.01)
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.0001 J (0.0005)	0.0001 J (0.0005)	ND (0.005)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Phenanthrene	1.1	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND (0.01)
Pyrene	0.13	--	ND (0.0005)	ND (0.0005)	ND (0.002)	ND (0.0001)	ND (0.0001)	ND (0.0001)	NA	NA	NA	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	0.0000029 (0.0000016)	0.0000032 (0.0000016)	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	0.00027 (0.000016)	0.00025 (0.000016)	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	0.0000038 (0.0000016)	0.0000038 (0.0000016)	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	0.0000054 (0.0000016)	0.0000055 (0.0000016)	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	0.000053 (0.0000016)	0.000054 (0.0000016)	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	0.0000036 (0.0000016)	0.0000038 (0.0000016)	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	ND (0.002)	ND (0.003)	ND (0.006)	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	0.00098 J (0.005)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.000041 J (0.001)	ND (0.003)	ND (0.003)	NA	NA	NA	NA	0.14	0.34
Manganese	0.3	--	NA	10.4 (0.01)	10.5 (0.03)	11.1 (0.03)	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	0.000047 J (0.0002)	ND (0.0002)	ND (0.0002)	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	ND (0.002)	ND (0.003)	ND (0.006)	NA	NA	NA	NA	0.028	0.012
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	0.38	0.59
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND (0.02)
Cobalt	0.029	--	NA	ND (0.005)	ND (0.05)	ND (0.05)	NA	NA	NA	NA	ND	0.058
Lead	0.005	--	0.0015 (0.001)	ND (0.001)	ND (0.003)	0.0017 J (0.003)	ND (0.003)	ND (0.003)	NA	NA	NA	NA
Manganese	0.3	--	NA	10.4 (0.01)	10.2 (0.03)	11.1 (0.03)	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-81	S-81	S-81	S-81	S-81	S-81	S-81	S-81	S-81	S-81
Field Sample ID	Groundwater	Groundwater	S-81~12/28/1995	S-81~1/1/1996	S-81~11/19/1997	S-81~11/12/1998	S-81~12/2/1999	S-81~11/16/2000	S-81~11/14/2001	S-81_022009	S-81_063009	S-81_090809
Sample Date	Used Aquifer	Vapor Intrusion	12/28/1995	1/1/1996	11/19/1997	11/12/1998	12/2/1999	11/16/2000	11/14/2001	2/20/2009	6/30/2009	9/8/2009
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	21	0.13	17	12	4	54	2.1	0.3 (0.005)	0.2 (0.001)	0.14 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	NA	NA	NA	NA	NA	NA	0.19 (0.01)	0.07 (0.002)	0.076 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	NA	NA	NA	NA	NA	NA	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	NA	NA	NA	NA	NA	NA	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	NA	NA	NA	NA	NA	ND (0.1)	0.13	0.11 (0.005)	0.005 (0.001)	0.003 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.3	ND (0.0003)	0.092 J	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.053 (0.005)	0.018 (0.001)	0.016 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	NA	NA	NA	NA	NA	0.098 (0.01)	0.067 (0.002)	0.088 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	NA	NA	NA	NA	NA	0.36 (0.01)	0.072 (0.002)	0.092 (0.002)
Xylenes (total)	10	12	0.47 J	0.0026	0.28	0.094 J	0.23	ND (0.2)	ND (0.2)	0.17 (0.005)	0.12 (0.001)	0.14 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	NA	NA	NA	NA	NA	0.033 (0.001)	NA	0.001 J (0.005)
Benzo(a)anthracene	0.0039	--	ND	0.001	0.001	ND (0.001)	0.002	0.002	0.002	0.0079 (0.00041)	NA	ND (0.005)
Benzo(a)pyrene	0.0002	--	ND	ND (0.001)	ND (0.001)	ND (0.001)	0.001	ND (0.002)	ND (0.002)	0.0033 (0.00041)	NA	ND (0.005)
Benzo(b)fluoranthene	0.0012	--	ND	ND (0.001)	ND (0.001)	ND (0.001)	0.001	ND (0.003)	ND (0.003)	0.0033 (0.0003)	NA	ND (0.005)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	NA	NA	NA	NA	NA	0.0033 (0.002)	NA	ND (0.005)
Chrysene	0.0019	--	ND	0.002	0.002	ND (0.001)	0.003	0.002	0.002	0.015 (0.002)	NA	ND (0.005)
Dibenz(a,h)anthracene	0.0006	--	ND	ND (0.001)	ND (0.001)	ND (0.001)	0.001	ND (0.004)	ND (0.004)	NA	NA	NA
Fluorene	1.9	--	NA	NA	NA	NA	NA	NA	NA	0.058 (0.0041)	NA	0.005 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	--	ND	ND (0.005)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	NA	NA	NA	NA	NA	NA	0.26 (0.02)	0.054 (0.004)	0.075 (0.004)
Phenanthrene	1.1	--	NA	NA	NA	NA	NA	NA	NA	0.11 (0.002)	NA	0.006 (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	0.009 J	0.005	0.008	ND (0.001)	0.008	0.005	0.005	NA	NA	NA
Pyrene	0.13	--	NA	NA	NA	NA	NA	NA	NA	ND (0.11)	NA	0.003 J (0.005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.041	0.08	0.32	0.27	0.25	0.07	0.357	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	0.0145	0.016	0.044	0.038	0.036	0.013	ND (0.008)	NA	NA	NA
Barium	2	--	0.347	0.34	0.56	0.66	0.62	0.396	0.984	NA	NA	NA
Chromium (total)	0.1	--	ND	ND (0.025)	0.11	0.1	0.11	0.02	0.138	NA	NA	NA
Cobalt	0.029	--	ND	ND (0.025)	0.084	0.085	0.094	0.026	0.14	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	0.0129 (0.000001)	0.0038 (0.000001)	0.0039 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer	Non-Residential Groundwater Vapor Intrusion	S-81	S-81	S-81	S-82	S-84	S-84	S-84	S-84P	S-84P	S-84P
Field Sample ID			81_072110	S-81~7/21/2010	S-81-20141216	S-82_11_8_2005	S-84~3/18/2004	S-84~4/19/2005	S84-041905	S-84 P~10/14/2004	S-84 P~4/19/2005	S84P-041905
Sample Date			7/21/2010	7/21/2010	12/16/2014	11/8/2005	3/18/2004	4/19/2005	4/19/2005	10/14/2004	4/19/2005	4/19/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.062 (0.001)	NA	0.0633 (0.005)	19.9 D (0.1)	0.074	NA	0.072 (0.02)	0.066	NA	0.072 (0.02)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.054 (0.002)	NA	0.131 (0.01)	NA	NA	NA	0.16 (0.02)	0.26	NA	0.16 (0.02)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00003)	NA	ND (0.00002)	ND (0.00002)	NA	NA	ND (0.000029)	ND (0.00002)	NA	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.01)	0.489 (0.01)	NA	NA	ND (0.02)	ND (0.005)	NA	ND (0.02)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.84 (0.001)	NA	1.64 (0.01)	3.1 D (0.1)	NA	NA	ND (0.02)	0.011	NA	ND (0.02)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.009 (0.001)	NA	0.0365 (0.01)	0.091 (0.01)	ND (0.01)	NA	ND (0.02)	ND (0.005)	NA	ND (0.02)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.012 (0.002)	NA	0.161 (0.02)	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.042 (0.002)	NA	0.0475 (0.02)	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	10	12	0.024 (0.001)	NA	0.224 (0.01)	0.85 (0.01)	5	NA	4.8 (0.1)	5	NA	4.8 (0.1)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.003 (0.000096)	NA	0.00713 (0.001)	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	0.0039	--	0.00085 (0.000039)	NA	0.0061 (0.001)	0.0007 (0.0003)	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	0.0002	--	0.00043 (0.000039)	NA	0.00268 (0.0001)	ND (0.0003)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.00044 (0.000029)	NA	0.00421 (0.0001)	0.0003 (0.0003)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	0.00026	--	0.00059 (0.00019)	NA	0.00151 (0.0001)	ND (0.0003)	NA	NA	NA	NA	NA	NA
Chrysene	0.0019	--	0.0015 (0.00019)	NA	0.00715 (0.001)	0.0004 (0.0003)	NA	NA	ND (0.01)	ND (0.00014)	NA	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0064 (0.00039)	NA	0.0175 (0.001)	0.0134 (0.0003)	NA	NA	ND (0.01)	ND (0.01)	NA	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	0.00041	NA	ND (0.0003)	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.022 (0.004)	NA	0.0396 (0.001)	0.205 (0.01)	NA	NA	0.42 (0.098)	0.53	NA	0.42 (0.098)
Phenanthrene	1.1	--	0.0093 (0.00019)	NA	0.0339 (0.001)	0.017 (0.0003)	NA	NA	ND (0.01)	ND (0.01)	NA	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0059 (0.00039)	NA	0.0388 (0.001)	0.0019 (0.0003)	NA	NA	ND (0.01)	ND (0.01)	NA	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	ND (0.01)	NA	NA	ND (0.001)	NA	NA	ND (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0032 (0.000001)	NA	0.0223 (0.003)	NA	NA	ND (0.001)	NA	ND (0.005)	ND (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-84P	S-84P	S-84P	S-85	S-85	S-85	S-85	S-85	S-85	S-85
Field Sample ID			S-84P_072612	S-84P	S-84P-20141210	S-85_110508	S-85_022409	S-85_062609	S-85_090909	S-85_112009	85_030810	S-85_050510
Sample Date			7/26/2012	5/22/2014	12/10/2014	11/5/2008	2/24/2009	6/26/2009	9/9/2009	11/20/2009	3/8/2010	5/5/2010
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	ND (0.001)	0.0016 (0.0005)	0.00042 J (0.0005)	0.01 (0.002)	0.012 (0.001)	0.013 (0.001)	0.011 (0.001)	0.008 (0.005)	0.007 (0.001)	0.01 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.14 (0.002)	0.156 (0.001)	0.104 (0.001)	0.097 (0.004)	0.12 (0.002)	0.13 (0.002)	0.14 (0.002)	0.11 (0.01)	0.062 (0.002)	0.096 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00003)	ND (0.000029)	ND (0.000031)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.002 (0.001)	0.0014 (0.001)	0.0984 (0.001)	0.067 (0.002)	0.062 (0.001)	0.062 (0.001)	0.053 (0.001)	0.036 (0.005)	0.012 (0.001)	0.022 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	ND (0.001)	0.00085 J (0.001)	0.00057 J (0.001)	0.003 (0.002)	0.003 (0.001)	0.004 (0.001)	0.003 (0.001)	ND (0.005)	0.001 (0.001)	0.002 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.0005 J (0.002)	0.0048 (0.002)	0.00046 J (0.002)	0.1 (0.004)	0.11 (0.002)	0.026 (0.002)	0.19 (0.002)	0.17 (0.01)	0.11 (0.002)	0.13 (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.002)	0.0375 (0.002)	0.0074 (0.002)	0.17 (0.004)	0.16 (0.002)	0.16 (0.002)	0.29 (0.02)	0.18 (0.01)	0.13 (0.002)	0.15 (0.002)
Xylenes (total)	10	12	ND (0.001)	0.0021 (0.001)	0.00094 J (0.001)	0.23 (0.002)	0.22 (0.001)	0.029 (0.001)	0.31 (0.001)	0.15 (0.005)	0.23 (0.001)	0.24 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.006 (0.0005)	0.000285 (0.0001)	0.000375 (0.0001)	0.017 (0.005)	0.0071 (0.001)	0.0061 (0.00097)	ND (0.047)	0.013 (0.00097)	0.012 (0.00096)	0.0091 (0.00097)
Benzo(a)anthracene	0.0039	--	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.01 (0.005)	0.0032 (0.00041)	0.0016 (0.00039)	ND (0.047)	0.0046 (0.00039)	0.0088 (0.00038)	0.0045 (0.00039)
Benzo(a)pyrene	0.0002	--	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.008 (0.005)	0.0028 (0.00041)	0.0014 (0.00039)	ND (0.047)	0.004 (0.00039)	0.0081 (0.00038)	0.005 (0.00039)
Benzo(b)fluoranthene	0.0012	--	0.002 (0.0005)	ND (0.0001)	ND (0.0001)	0.008 (0.005)	0.0026 (0.00031)	0.0015 (0.00029)	ND (0.047)	0.0038 (0.00029)	0.0091 (0.00029)	0.0045 (0.00029)
Benzo(g,h,i)perylene	0.00026	--	0.001 (0.0005)	ND (0.0001)	ND (0.0001)	0.007 (0.005)	ND (0.0035)	0.0026 (0.0019)	ND (0.047)	0.0039 (0.0019)	0.0087 (0.0019)	0.0046 (0.0019)
Chrysene	0.0019	--	0.003 (0.0005)	ND (0.0001)	ND (0.0001)	0.011 (0.005)	ND (0.0055)	0.00093 J (0.0019)	ND (0.047)	0.0059 (0.0019)	0.013 (0.0019)	0.0073 (0.0019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.008 (0.0005)	0.00174 (0.0001)	0.00153 (0.0001)	NA	0.016 (0.0041)	0.017 (0.0039)	0.02 J (0.047)	0.027 (0.0039)	0.023 (0.0038)	0.022 (0.0039)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.007 (0.0005)	ND (0.0001)	ND (0.0001)	0.12 (0.008)	0.16 (0.004)	0.097 (0.004)	0.18 (0.004)	0.15 (0.02)	0.09 (0.004)	0.12 (0.004)
Phenanthrene	1.1	--	0.013 (0.0005)	0.00112 (0.0001)	0.000228 B (0.0001)	0.066 (0.005)	0.029 (0.0021)	0.025 (0.0019)	0.039 J (0.047)	0.046 (0.0019)	0.041 (0.0019)	0.036 (0.0019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.007 (0.0005)	0.000194 (0.0001)	0.000331 B (0.0001)	0.03 (0.005)	ND (0.027)	0.0062 (0.0039)	0.023 J (0.047)	0.017 (0.0039)	0.04 (0.0038)	0.017 (0.0039)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0023 (0.001)	0.0018 J (0.003)	0.0041 (0.003)	0.0218 (0.000001)	0.0044 (0.000001)	0.0043 (0.000001)	0.0042 (0.000001)	0.0036 (0.000001)	0.0062 (0.000001)	0.0042 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-85	S-85	S-85	S-85	S-85	S-86	S-86	S-86	S-86	S-86
Field Sample ID			85_072210	S-85~7/22/2010	S-85_071912	S-85~JB67747	S-85-20141212	S-86_110508	S-86_022409	S-86_062609	S-86_090809	S-86_050610
Sample Date			7/22/2010	7/22/2010	7/19/2012	5/23/2014	12/12/2014	11/5/2008	2/24/2009	6/26/2009	9/8/2009	5/6/2010
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.004 (0.001)	NA	0.007 (0.001)	0.0069 (0.0025)	0.0036 (0.0005)	0.45 (0.005)	0.065 (0.01)	0.05 (0.001)	0.15 (0.002)	0.092 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.012 (0.002)	NA	0.1 (0.002)	0.11 (0.005)	0.0757 (0.001)	0.033 (0.01)	0.088 (0.02)	0.068 (0.002)	0.054 (0.004)	0.04 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.00003)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.001)	ND,J (0.005)	ND (0.001)	ND (0.005)	ND (0.01)	ND (0.001)	ND (0.002)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.0009 J (0.001)	NA	0.021 (0.001)	0.0619 (0.005)	0.0134 (0.001)	0.035 (0.005)	0.061 (0.01)	0.077 (0.001)	0.058 (0.002)	0.031 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.0007 J (0.001)	NA	0.002 (0.001)	ND (0.005)	0.0019 (0.001)	0.02 (0.005)	0.023 (0.01)	0.019 (0.001)	0.027 (0.002)	0.024 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.14 (0.002)	NA	0.076 (0.002)	0.065 (0.01)	0.0112 (0.002)	0.17 (0.01)	0.6 (0.02)	0.1 (0.002)	0.13 (0.004)	0.2 (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	0.11 (0.002)	NA	0.087 (0.002)	0.0729 (0.01)	0.0204 (0.002)	0.057 (0.01)	0.18 (0.02)	0.033 (0.002)	0.045 (0.004)	0.066 (0.01)
Xylenes (total)	10	12	0.3 (0.001)	NA	0.072 (0.001)	0.0562 (0.005)	0.0284 (0.001)	0.41 (0.005)	0.93 (0.01)	0.21 (0.001)	0.29 (0.002)	0.39 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.012 (0.00095)	NA	0.02 (0.005)	0.00363 (0.0001)	0.0016 (0.0001)	0.007 (0.005)	0.015 (0.0038)	0.0048 (0.00094)	ND (0.005)	0.036 (0.01)
Benzo(a)anthracene	0.0039	--	0.0053 (0.00038)	NA	0.018 (0.005)	0.00294 (0.0001)	0.00142 (0.0001)	0.008 (0.005)	ND (0.007)	ND (0.0017)	ND (0.005)	0.03 (0.004)
Benzo(a)pyrene	0.0002	--	0.0053 (0.00038)	NA	0.011 (0.005)	0.00314 (0.0001)	0.0011 (0.0001)	0.019 (0.005)	0.013 (0.0015)	0.0047 (0.00038)	ND (0.005)	0.042 (0.004)
Benzo(b)fluoranthene	0.0012	--	0.0056 (0.00028)	NA	0.015 (0.005)	0.00321 (0.0001)	0.00138 (0.0001)	ND (0.005)	0.025 (0.0011)	0.0052 (0.00028)	ND (0.005)	0.072 (0.003)
Benzo(g,h,i)perylene	0.00026	--	0.0063 (0.0019)	NA	0.007 (0.005)	0.00216 (0.0001)	0.000758 (0.0001)	0.012 (0.005)	ND (0.045)	0.015 (0.0019)	ND (0.005)	0.093 (0.02)
Chrysene	0.0019	--	0.0083 (0.0019)	NA	0.014 (0.005)	0.00275 (0.0001)	0.00129 (0.0001)	0.022 (0.005)	ND (0.071)	ND (0.006)	0.001 J (0.005)	0.12 (0.02)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.022 (0.0038)	NA	0.046 (0.005)	0.0112 (0.001)	0.00698 (0.001)	NA	0.031 (0.015)	0.013 (0.0038)	0.004 J (0.005)	0.047 (0.04)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	0.0051	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.04 (0.004)	NA	0.039 (0.005)	ND (0.0001)	ND (0.0001)	ND (0.02)	ND (0.04)	ND (0.004)	0.005 J (0.008)	0.009 J (0.02)
Phenanthrene	1.1	--	0.041 (0.0019)	NA	0.076 (0.005)	0.017 (0.001)	0.009 (0.001)	0.019 (0.005)	0.041 (0.0076)	0.015 (0.0019)	0.003 J (0.005)	0.061 (0.02)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.019 (0.0038)	NA	0.051 (0.005)	0.0121 (0.001)	0.00499 (0.0001)	0.03 (0.005)	ND (0.049)	0.0097 (0.0038)	0.002 J (0.005)	0.075 (0.04)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0023 (0.000001)	NA	0.0634 (0.001)	0.0107 (0.003)	0.0256 (0.003)	0.00096 J (0.000001)	0.00097 J (0.000001)	0.001 (0.000001)	0.0011 (0.000001)	0.00062 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-86 86_072210 7/22/2010	S-86 S-86~7/22/2010 7/22/2010	S-87I S-87I 5/20/2014	S-87I S-87I-20141205 12/5/2014	S-87I S-87I_20180619 6/19/2018	S-87I S-87I_20190617 6/17/2019	S-87I S-87I_20191028 10/28/2019	S-87I S-87I_20210506_410-39001-1 5/6/2021	S-87I S-87I_20220404_42610 4/4/2022	S-88 S88-042105 4/21/2005
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.067 (0.001)	NA	0.00096 (0.0005)	0.00034 J (0.0005)	ND (0.001)	0.0002 J (0.001)	ND (0.005)	0.0019 J (0.005)	ND (0.0005)	0.028 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.041 (0.002)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	ND (0.025)	ND (0.025)	ND (0.001)	0.012 (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	NA	ND (0.00002)	ND (0.00002)	ND,HT (0.00001)	ND (0.000028)	ND (0.000028)	ND (0.000028)	ND (0.00002)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	NA	ND (0.001)	ND (0.001)	0.0105 (0.001)	0.003 J (0.005)	ND (0.025)	ND (0.005)	0.0034 (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.024 (0.001)	NA	0.99 (0.05)	1.08 (0.05)	0.937 (0.5)	0.38 (0.001)	0.28 (0.005)	0.25 (0.005)	0.27 (0.01)	0.59 (0.05)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	229 (25)	180 (13)	150 (13)	180 (25)	226 (10)	NA
Toluene	1	430	0.02 (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.005)	0.0045 J (0.005)	ND (0.001)	0.005 (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.12 (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.005)	ND (0.025)	ND (0.025)	ND (0.002)	NA
1,3,5-Trimethylbenzene	0.53	4.5	0.042 (0.002)	NA	ND (0.002)	ND (0.002)	ND (0.001)	ND (0.005)	ND (0.025)	ND (0.025)	ND (0.002)	NA
Xylenes (total)	10	12	0.25 (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.003)	ND (0.005)	ND (0.015)	ND (0.03)	ND (0.001)	ND (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.0017 (0.00096)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	NA
Benzo(a)anthracene	0.0039	--	ND (0.0006)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00004)	NA
Benzo(a)pyrene	0.0002	--	0.001 (0.00038)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00004)	NA
Benzo(b)fluoranthene	0.0012	--	0.0023 (0.00029)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00004)	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.0042)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	NA
Chrysene	0.0019	--	ND (0.0019)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	0.018 (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.0053 (0.0038)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	ND (0.0033)	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.007 (0.004)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	ND (0.01)
Phenanthrene	1.1	--	0.0044 (0.0019)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.0023 J (0.0038)	NA	ND (0.0001)	ND (0.0001)	NA	ND (0.0005)	ND (0.0005)	ND (0.00054)	ND (0.00008)	0.017 (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.0015 (0.001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.00077 J (0.000001)	NA	0.0031 (0.003)	0.0022 J (0.003)	NA	ND (0.003)	ND (0.0005)	ND (0.00052)	ND (0.001)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-88	S-88	S-88	S-88	S-88	S-88	S-88	S-88	S-88	S-88
Field Sample ID	Groundwater	Groundwater	S-88~12/5/2006	S-88~12/14/2007	S-88_110708	S-88_022409	S-88_062609	S-88_090809	S-88_112009	88_030810	S-88_050510	88_072210
Sample Date	Used Aquifer	Vapor Intrusion	12/5/2006	12/14/2007	11/7/2008	2/24/2009	6/26/2009	9/8/2009	11/20/2009	3/8/2010	5/5/2010	7/22/2010
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.022	0.005	0.029 (0.001)	0.03 (0.001)	0.029 (0.001)	0.035 (0.001)	0.012 (0.002)	0.017 (0.001)	0.008 (0.002)	0.019 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.024	0.013	0.029 (0.002)	0.027 (0.002)	0.048 (0.002)	0.042 (0.002)	0.016 (0.004)	0.029 (0.002)	0.015 (0.004)	0.038 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.0000099)	ND (0.0000095)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.001)	ND (0.002)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.081	NA	0.07 (0.001)	0.069 (0.001)	0.092 (0.001)	0.077 (0.001)	0.047 (0.002)	0.1 (0.001)	0.17 (0.002)	0.1 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.006	0.002	0.008 (0.001)	0.008 (0.001)	0.011 (0.001)	0.024 (0.001)	0.004 (0.002)	0.008 (0.001)	0.003 (0.002)	0.008 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	NA	ND (0.002)	0.013 (0.002)	0.0008 J (0.002)	0.007 (0.002)	0.002 J (0.004)	0.0005 J (0.002)	ND (0.004)	0.0009 J (0.002)
1,3,5-Trimethylbenzene	0.53	4.5	NA	NA	0.0005 J (0.002)	0.009 (0.002)	0.001 J (0.002)	0.007 (0.002)	0.002 J (0.004)	0.001 J (0.002)	ND (0.004)	0.0008 J (0.002)
Xylenes (total)	10	12	0.001 J	ND (0.0005)	0.003 (0.001)	0.027 (0.001)	0.006 (0.001)	0.028 (0.001)	0.003 (0.002)	0.004 (0.001)	0.001 J (0.002)	0.006 (0.001)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	NA	0.003 J (0.005)	0.0037 (0.00096)	0.0012 (0.000096)	ND (0.005)	0.00098 J (0.0011)	0.0007 J (0.00095)	0.083 (0.02)	0.0038 (0.00095)
Benzo(a)anthracene	0.0039	--	NA	NA	0.003 J (0.005)	0.0023 (0.00038)	0.00025 (0.000039)	ND (0.005)	0.00045 (0.00042)	0.00054 (0.00038)	0.09 (0.008)	ND (0.0028)
Benzo(a)pyrene	0.0002	--	NA	NA	0.002 J (0.005)	0.0022 (0.00038)	0.0002 (0.000039)	ND (0.005)	0.00089 (0.00042)	0.00083 (0.00038)	0.16 (0.008)	0.0043 (0.00038)
Benzo(b)fluoranthene	0.0012	--	NA	NA	0.003 J (0.005)	0.0034 (0.00029)	0.0002 (0.000029)	ND (0.005)	0.0013 (0.00032)	0.0017 (0.00028)	0.25 (0.006)	0.0091 (0.00028)
Benzo(g,h,i)perylene	0.00026	--	NA	NA	0.002 J (0.005)	ND (0.006)	0.0004 (0.00019)	ND (0.005)	0.0019 J (0.0021)	ND (0.0023)	0.33 (0.04)	ND (0.02)
Chrysene	0.0019	--	0.003 J	0.005 J	0.006 (0.005)	ND (0.009)	0.0004 (0.00019)	ND (0.005)	0.0018 J (0.0021)	0.0025 (0.0019)	0.36 (0.04)	ND (0.0097)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.008	0.002 J	NA	0.0053 (0.0038)	0.0044 (0.00039)	0.003 J (0.005)	0.0031 J (0.0042)	0.0027 J (0.0038)	0.16 (0.08)	0.0092 (0.0038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.001)	ND (0.001)	ND (0.004)	ND (0.004)	ND (0.004)	0.007 (0.004)	ND (0.008)	ND (0.004)	ND (0.008)	ND (0.004)
Phenanthrene	1.1	--	0.01	0.003 J	0.011 (0.005)	0.011 (0.0019)	0.0051 (0.00019)	0.003 J (0.005)	0.0032 (0.0021)	0.0024 (0.0019)	0.24 (0.04)	0.011 (0.0019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.01	0.006	0.007 (0.005)	ND (0.016)	ND (0.0009)	ND (0.005)	0.0016 J (0.0042)	0.0018 J (0.0038)	0.35 (0.08)	0.013 (0.0038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0013	0.0011	0.0031 (0.000001)	0.0021 (0.000001)	0.0021 (0.000001)	0.0018 (0.000001)	0.0015 (0.000001)	0.0179 (0.000001)	2.06 (0.000005)	0.00098 J (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-88	S-88	S-88	S-88	S-88A	S-88A	S-89	S-89	S-89	S-89
Field Sample ID	Groundwater	Groundwater	S-88~7/22/2010	S-88_071912	S-88~JB67921	S-88-20141212	S-88A~JB68176	S-88A-20141212	S-89_110508	S-89~11/7/2008	S-89_022409	S-89_063009
Sample Date	Used Aquifer	Vapor Intrusion	7/22/2010	7/19/2012	5/28/2014	12/12/2014	5/30/2014	12/12/2014	11/5/2008	11/7/2008	2/24/2009	6/30/2009
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	NA	0.011 (0.001)	0.0151 (0.0025)	0.0118 (0.0005)	0.0152 (0.0005)	0.0061 (0.0005)	0.016 (0.001)	0.016	0.011 (0.001)	0.034 (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	0.027 (0.002)	0.0421 (0.005)	0.0346 (0.001)	0.0664 (0.001)	0.0986 (0.001)	0.057 (0.002)	0.057	0.059 (0.002)	0.06 (0.01)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.0000098)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	ND (0.001)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.001)	ND (0.0005)	ND (0.001)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	NA	0.34 (0.001)	0.186 (0.005)	0.422 (0.05)	0.0373 (0.001)	0.0227 (0.001)	0.043 (0.001)	0.043	0.041 (0.001)	0.038 (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	NA	0.004 (0.001)	0.0071 (0.005)	0.0051 (0.001)	0.0037 (0.001)	0.0051 (0.001)	0.002 (0.001)	0.002	0.003 (0.001)	ND (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	ND (0.002)	ND (0.01)	0.00028 J (0.002)	0.0099 (0.002)	0.127 (0.002)	0.009 (0.002)	0.009	0.086 (0.002)	0.094 (0.01)
1,3,5-Trimethylbenzene	0.53	4.5	NA	ND (0.002)	ND (0.01)	ND (0.002)	0.0145 (0.002)	0.127 (0.002)	0.008 (0.002)	0.008	0.06 (0.002)	0.065 (0.01)
Xylenes (total)	10	12	NA	0.004 (0.001)	0.0044 J (0.005)	0.0041 (0.001)	0.0137 (0.001)	0.118 (0.001)	0.02 (0.001)	0.02	0.087 (0.001)	0.04 (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.0007 (0.0005)	0.00136 (0.0001)	0.000366 (0.0001)	0.0093 (0.001)	0.00296 (0.0001)	0.002 J (0.005)	0.002 J	0.018 (0.0019)	NA
Benzo(a)anthracene	0.0039	--	NA	0.0002 J (0.0005)	0.00237 (0.0001)	ND (0.0001)	0.00614 (0.001)	0.00249 (0.0001)	ND (0.005)	ND (0.001)	ND (0.005)	NA
Benzo(a)pyrene	0.0002	--	NA	0.0002 J (0.0005)	0.002 (0.0001)	ND (0.0001)	0.0056 (0.001)	0.00172 (0.0001)	ND (0.005)	ND (0.001)	0.0033 (0.00077)	NA
Benzo(b)fluoranthene	0.0012	--	NA	0.0003 J (0.0005)	0.00229 (0.0001)	ND (0.0001)	0.00586 (0.001)	0.00215 (0.0001)	ND (0.005)	ND (0.001)	0.0039 (0.00058)	NA
Benzo(g,h,i)perylene	0.00026	--	NA	0.0001 J (0.0005)	0.001 (0.0001)	ND (0.0001)	0.00403 (0.0001)	0.000843 (0.0001)	ND (0.005)	ND (0.001)	ND (0.0065)	NA
Chrysene	0.0019	--	NA	0.0005 (0.0005)	0.00406 (0.0001)	0.000164 (0.0001)	0.00752 (0.001)	0.00267 (0.0001)	0.002 J (0.005)	0.002 J	ND (0.014)	NA
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	0.003 (0.0005)	0.00471 (0.0001)	0.00213 (0.0001)	0.0158 (0.001)	0.00631 (0.001)	NA	NA	0.032 (0.0077)	NA
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.013)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.0001)	ND (0.0001)	0.004 J (0.004)	0.004 J	0.022 (0.004)	0.031 (0.02)
Phenanthrene	1.1	--	NA	0.002 (0.0005)	0.00439 (0.0001)	0.00173 (0.0001)	0.0304 (0.001)	0.0118 (0.001)	0.005 (0.005)	0.005	0.06 (0.0038)	NA
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	0.0008 (0.0005)	0.00377 (0.0001)	0.00035 (0.0001)	0.0224 (0.001)	0.0088 (0.001)	0.003 J (0.005)	0.003 J	ND (0.085)	NA
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0426 (0.001)	ND (0.003)	0.0027 J (0.003)	0.0388 (0.003)	0.0646 (0.003)	0.0035 (0.000001)	0.0035	0.0013 (0.000001)	0.0014 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater	Non-Residential Groundwater	S-89	S-89	S-89	S-89	S-98	S-98	S-98	S-98	S-98	S-98
Field Sample ID	Used Aquifer	Vapor Intrusion	S-89_090909	S-89_112009	89_030910	S-89_050610	S-98~3/17/2004	S-98~10/12/2004	S98-042205	S-98_022309	S-98_050610	98_072110
Sample Date	(TDS <2500)	Screening Values	9/9/2009	11/20/2009	3/9/2010	5/6/2010	3/17/2004	10/12/2004	4/22/2005	2/23/2009	5/6/2010	7/21/2010
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	0.019 (0.001)	0.024 (0.005)	0.21 (0.002)	0.1 (0.005)	0.77	0.67	0.58 (0.025)	2 (0.01)	0.17 (0.01)	0.05 (0.001)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.093 (0.002)	0.083 (0.01)	0.037 (0.004)	0.055 (0.01)	NA	0.024	0.037 (0.025)	0.14 (0.02)	0.027 (0.02)	0.046 (0.002)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.00003)	ND (0.000029)	ND (0.000029)	ND (0.000029)	NA	ND (0.00002)	ND (0.000029)	ND (0.00003)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.001)	ND (0.005)	ND (0.002)	ND (0.005)	NA	ND (0.005)	ND (0.025)	ND (0.01)	ND (0.01)	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	0.039 (0.001)	0.034 (0.005)	0.029 (0.002)	0.038 (0.005)	NA	ND (0.005)	ND (0.025)	0.01 (0.01)	0.042 (0.01)	0.025 (0.001)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.002 (0.001)	ND (0.005)	0.002 J (0.002)	ND (0.005)	0.053	0.011	ND (0.025)	0.078 (0.01)	0.007 J (0.01)	0.009 (0.001)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	0.086 (0.002)	0.045 (0.01)	0.22 (0.004)	0.23 (0.01)	NA	NA	NA	2.3 (0.4)	0.48 (0.02)	1.1 (0.02)
1,3,5-Trimethylbenzene	0.53	4.5	0.054 (0.002)	0.027 (0.01)	0.15 (0.004)	0.14 (0.01)	NA	NA	NA	1.1 (0.02)	0.15 (0.02)	0.31 (0.02)
Xylenes (total)	10	12	0.087 (0.001)	0.037 (0.005)	0.2 (0.002)	0.15 (0.005)	5.6	0.33	1 (0.025)	7.8 (0.2)	0.48 (0.01)	1.7 (0.01)
Semivolatile Organic Compounds												
Anthracene	0.066	--	ND (0.005)	ND (0.018)	ND (0.18)	0.16 (0.01)	NA	ND (0.001)	NA	0.022 (0.0019)	ND (0.002)	ND (0.0015)
Benzo(a)anthracene	0.0039	--	0.002 J (0.005)	0.0033 (0.0004)	0.042 (0.0039)	0.06 (0.004)	NA	ND (0.001)	NA	ND (0.0045)	0.00042 (0.000038)	0.00021 (0.000038)
Benzo(a)pyrene	0.0002	--	0.001 J (0.005)	0.0025 (0.0004)	0.027 (0.0039)	0.052 (0.004)	NA	ND (0.001)	NA	0.0023 (0.00076)	0.00028 (0.000038)	0.00011 (0.000038)
Benzo(b)fluoranthene	0.0012	--	0.002 J (0.005)	0.0027 (0.0003)	0.04 (0.0029)	0.054 (0.003)	NA	ND (0.001)	NA	0.002 (0.00057)	0.00022 (0.000028)	0.000099 (0.000028)
Benzo(g,h,i)perylene	0.00026	--	ND (0.005)	0.0024 (0.002)	ND (0.023)	0.049 (0.02)	NA	ND (0.001)	NA	0.0028 J (0.0038)	0.00041 (0.00019)	0.00015 J (0.00019)
Chrysene	0.0019	--	ND (0.005)	0.01 (0.002)	0.12 (0.02)	0.16 (0.02)	NA	ND (0.00014)	ND (0.01)	ND (0.011)	0.0016 (0.00019)	0.00064 (0.00019)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.016 (0.005)	0.034 (0.004)	0.33 (0.039)	0.21 (0.04)	NA	ND (0.01)	ND (0.01)	0.059 (0.0076)	0.0034 (0.00038)	0.004 (0.00038)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	0.02 (0.004)	0.012 J (0.02)	0.06 (0.008)	0.053 (0.02)	NA	0.053	0.11 (0.019)	0.8 (0.04)	0.068 (0.04)	0.16 (0.004)
Phenanthrene	1.1	--	0.022 (0.005)	0.059 (0.002)	0.62 (0.02)	0.19 (0.02)	NA	ND (0.01)	ND (0.01)	0.091 (0.0038)	0.0066 (0.00019)	0.0045 (0.00019)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.008 (0.005)	ND (0.069)	ND (0.95)	0.75 (0.04)	NA	ND (0.01)	ND (0.01)	ND (0.11)	ND (0.0099)	ND (0.00038)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	0.0039 (0.001)	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0028 (0.000001)	0.0019 (0.000001)	0.0019 (0.000001)	0.0015 (0.000001)	NA	ND (0.005)	NA	0.0049 (0.000001)	0.0035 (0.000001)	0.0023 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-98	S-98	S-98	S-98	S-99	S-99	S-99	S-99	S-99	S-99
Field Sample ID			S-98~7/21/2010	S-98_071012	S-98~JB68336	S-98-20141215	S-99~10/12/2004	S99-042205	S-99_110608	S-99_022309	S-99_062909	S-99_090909
Sample Date			7/21/2010	7/10/2012	6/3/2014	12/15/2014	10/12/2004	4/22/2005	11/6/2008	2/23/2009	6/29/2009	9/9/2009
Comments												
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	NA	0.43 (0.02)	0.143 (0.0005)	1.39 (0.013)	0.15	0.2 (0.005)	0.046 (0.005)	0.055 (0.001)	0.034 (0.001)	0.024 (0.002)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	NA	0.038 J (0.04)	0.0246 (0.001)	0.0495 (0.005)	0.072	0.081 (0.005)	0.03 (0.01)	0.065 (0.002)	0.099 (0.002)	0.087 (0.004)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.00003)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	NA	ND (0.02)	ND (0.001)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.005)	ND (0.001)	ND (0.001)	ND (0.002)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	NA	0.12 (0.02)	0.0023 (0.001)	0.151 (0.005)	ND (0.005)	0.017 (0.005)	0.036 (0.005)	0.019 (0.001)	0.025 (0.001)	0.019 (0.002)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	NA	0.016 J (0.02)	0.0034 (0.001)	0.0347 (0.005)	0.025	0.023 (0.005)	0.014 (0.005)	0.02 (0.001)	0.031 (0.001)	0.022 (0.002)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	NA	0.92 (0.04)	0.59 (0.02)	0.848 (0.01)	NA	NA	ND (0.01)	ND (0.002)	ND (0.002)	ND (0.004)
1,3,5-Trimethylbenzene	0.53	4.5	NA	0.47 (0.04)	0.142 (0.002)	0.234 (0.01)	NA	NA	ND (0.01)	0.001 J (0.002)	0.002 J (0.002)	0.002 J (0.004)
Xylenes (total)	10	12	NA	1.8 (0.02)	0.814 (0.01)	1.35 (0.005)	0.025	0.019 (0.005)	0.014 (0.005)	0.02 (0.001)	0.031 (0.001)	0.026 (0.002)
Semivolatile Organic Compounds												
Anthracene	0.066	--	NA	0.001 J (0.002)	0.00138 (0.0001)	ND (0.0001)	NA	NA	ND (0.005)	0.00069 (0.000095)	NA	ND (0.005)
Benzo(a)anthracene	0.0039	--	NA	0.001 J (0.002)	0.00108 (0.0001)	0.000203 (0.0001)	NA	NA	ND (0.005)	0.000062 (0.000038)	NA	ND (0.005)
Benzo(a)pyrene	0.0002	--	NA	0.0007 J (0.002)	0.00073 (0.0001)	0.00012 (0.0001)	NA	NA	ND (0.005)	0.000072 (0.000038)	NA	ND (0.005)
Benzo(b)fluoranthene	0.0012	--	NA	0.0008 J (0.002)	0.000916 (0.0001)	0.00013 (0.0001)	NA	NA	ND (0.005)	0.000076 (0.000028)	NA	ND (0.005)
Benzo(g,h,i)perylene	0.00026	--	NA	0.0005 J (0.002)	0.00117 (0.0001)	0.000128 (0.0001)	NA	NA	ND (0.005)	ND (0.00019)	NA	ND (0.005)
Chrysene	0.0019	--	NA	0.0009 J (0.002)	0.00102 (0.0001)	0.000215 (0.0001)	ND (0.00014)	ND (0.01)	ND (0.005)	ND (0.00019)	NA	ND (0.005)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	NA	0.005 (0.002)	ND (0.0001)	0.00108 (0.0001)	ND (0.01)	ND (0.01)	NA	0.0054 (0.00038)	NA	0.003 J (0.005)
Indeno(1,2,3-cd)pyrene	0.0023	--	ND (0.000038)	NA	NA	NA	NA	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	NA	0.086 (0.002)	0.0854 (0.001)	0.107 (0.002)	ND (0.005)	ND (0.01)	ND (0.02)	ND (0.004)	ND (0.004)	ND (0.008)
Phenanthrene	1.1	--	NA	0.007 (0.002)	0.00308 (0.0001)	0.00149 (0.0001)	ND (0.01)	ND (0.01)	0.004 J (0.005)	0.0037 (0.00019)	NA	0.004 J (0.005)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	NA	0.005 (0.002)	0.00301 (0.0001)	0.000671 (0.0001)	ND (0.01)	ND (0.01)	0.001 J (0.005)	ND (0.00038)	NA	ND (0.005)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	0.0015 (0.001)	NA	NA	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	0.0075 (0.001)	0.005 (0.003)	0.0068 (0.003)	ND (0.005)	NA	0.0016 (0.000001)	0.0012 (0.000001)	0.0014 (0.000001)	0.0015 (0.000001)
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential	Non-Residential	S-99	S-99	S-99	S-99	S-99	S-99	S-99	S-99	SG-7	SG-7
Field Sample ID	Groundwater	Groundwater	S-99_112009	99_030910	S-99_050610	99_072110	S-99~7/21/2010	S-99_071712	S-99~JB68336	S-99-20141209	SG7-GW-042605	SG7-GW-042605_941186
Sample Date	Used Aquifer	Vapor Intrusion	11/20/2009	3/9/2010	5/6/2010	7/21/2010	7/21/2010	7/10/2012	6/3/2014	12/9/2014	4/26/2005	4/26/2005
Comments	(TDS <2500)	Screening Values										
Water Quality												
pH [SU]	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Volatile Organic Compounds												
Acetone	88	470000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	0.005	0.35	<u>0.022 (0.01)</u>	<u>0.022 (0.001)</u>	<u>0.03 (0.01)</u>	<u>0.017 (0.001)</u>	NA	0.005 (0.001)	0.0019 (0.0005)	0.004 (0.001)	ND (0.005)	ND (0.005)
2-Butanone	4	49000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Butylbenzene	4.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert-Butylbenzene	9.7	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chlorobenzene	0.1	9.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloroform	0.08	0.18	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chloromethane	0.03	0.81	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cumene	3.5	24	0.09 (0.02)	0.06 (0.002)	0.082 (0.02)	0.089 (0.002)	NA	0.077 (0.002)	0.0772 (0.001)	0.0776 (0.002)	ND (0.005)	ND (0.005)
Cyclohexane	53	53	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
p-Cymene	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.000029)	ND (0.000029)	ND (0.00003)	ND (0.000029)	NA	ND (0.000029)	ND (0.00002)	ND (0.00002)	ND (0.000029)	ND (0.000029)
1,1-Dichloroethane	0.16	1.6	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	0.005	0.51	ND (0.01)	ND (0.001)	ND (0.01)	ND (0.001)	NA	ND (0.001)	ND (0.001)	ND (0.002)	ND (0.005)	ND (0.005)
cis-1,2-Dichloroethene	0.07	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	0.7	0.86	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	0.02	96	<u>0.021 (0.01)</u>	0.008 (0.001)	0.008 J (0.01)	0.01 (0.001)	NA	0.005 (0.001)	0.0032 (0.001)	0.0026 (0.002)	ND (0.005)	ND (0.005)
4-Methyl-2-pentanone	7.8	13000	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylcyclohexane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Methylene Chloride	0.005	95	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Propylbenzene	8.8	52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Styrene	0.1	220	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
tert Butyl alcohol	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	1	430	0.025 (0.01)	0.016 (0.001)	0.023 (0.01)	0.022 (0.001)	NA	0.022 (0.001)	0.0218 (0.001)	0.028 (0.002)	ND (0.005)	ND (0.005)
Trichloroethene	0.005	0.11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.02)	ND (0.002)	ND (0.02)	0.0007 J (0.002)	NA	0.001 J (0.002)	0.00083 J (0.002)	0.00072 J (0.004)	NA	NA
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.02)	0.001 J (0.002)	ND (0.02)	0.002 J (0.002)	NA	0.002 J (0.002)	0.0015 J (0.002)	0.0012 J (0.004)	NA	NA
Xylenes (total)	10	12	0.026 (0.01)	0.018 (0.001)	0.027 (0.01)	0.033 (0.001)	NA	0.028 (0.001)	0.0315 (0.001)	0.0284 (0.002)	ND (0.005)	ND (0.005)
Semivolatile Organic Compounds												
Anthracene	0.066	--	0.00069 (0.000095)	ND (0.00095)	0.00072 (0.000095)	0.00087 (0.000095)	NA	0.0009 (0.0005)	0.000378 (0.0001)	0.000352 (0.0001)	NA	NA
Benzo(a)anthracene	0.0039	--	0.00003 J (0.000038)	0.00015 J (0.00038)	0.000054 (0.000038)	0.000097 (0.000038)	NA	0.0002 J (0.0005)	ND (0.0001)	0.000136 B (0.0001)	NA	NA
Benzo(a)pyrene	0.0002	--	0.000024 J (0.000038)	0.00014 J (0.00038)	0.000033 J (0.000038)	0.000066 (0.000038)	NA	0.0001 J (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Benzo(b)fluoranthene	0.0012	--	0.000017 J (0.000028)	0.00022 J (0.00028)	0.000042 (0.000029)	0.000089 (0.000028)	NA	0.0002 J (0.0005)	ND (0.0001)	0.000136 (0.0001)	NA	NA
Benzo(g,h,i)perylene	0.00026	--	ND (0.00019)	ND (0.0019)	ND (0.00019)	ND (0.00019)	NA	ND (0.0005)	ND (0.0001)	ND (0.0001)	NA	NA
Chrysene	0.0019	--	ND (0.00019)	ND (0.0019)	0.000092 J (0.00019)	0.00017 J (0.00019)	NA	0.0003 J (0.0005)	ND (0.0001)	0.000155 (0.0001)	ND (0.01)	ND (0.01)
Dibenz(a,h)anthracene	0.0006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Fluorene	1.9	--	0.005 (0.00038)	0.0047 (0.0038)	0.0044 (0.00038)	0.0046 (0.00038)	NA	0.003 (0.0005)	0.00178 (0.0001)	0.00189 (0.0001)	ND (0.01)	ND (0.01)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA	NA	NA	NA	ND (0.00014)	NA	NA	NA	NA	NA
Isooctane	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	0.1	1.3	ND (0.04)	ND (0.004)	ND (0.04)	ND (0.004)	NA	0.001 (0.0005)	ND (0.0001)	ND (0.0001)	ND (0.01)	ND (0.01)
Phenanthrene	1.1	--	0.0033 (0.00019)	0.0038 (0.0019)	0.0038 (0.00019)	0.0041 (0.00019)	NA	0.004 (0.0005)	0.00148 (0.0001)	0.00175 B (0.0001)	ND (0.01)	ND (0.01)
bis(2-Ethylhexyl)phthalate	0.006	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pyrene	0.13	--	0.00018 J (0.00038)	ND (0.0038)	0.00041 (0.00038)	0.0005 (0.00038)	NA	0.0009 (0.0005)	0.000281 (0.0001)	0.00037 B (0.0001)	ND (0.01)	ND (0.01)
Per- and Polyfluoroalkyl Substances												
Perfluorobutane Sulfonate	1.9	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluoroheptanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorohexanesulfonic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorononanoic acid	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctanoic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Pesticides												
Orthophosphate	--	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metals												
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.01)	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	0.002	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	0.01	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	2	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium (total)	0.1	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	0.029	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	0.005	--	0.0015 (0.000001)	0.0012 (0.000001)	0.0014 (0.000001)	0.0014 (0.000001)	NA	0.0019 (0.001)	0.0029 J (0.003)	0.0021 J (0.003)	NA	NA
Manganese	0.3	--	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Table D2
Historical Groundwater Sampling Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS <2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	SG-7 SG-7_1250813 6/6/2011
Water Quality			
pH [SU]	--	--	NA
Volatile Organic Compounds			
Acetone	88	470000	ND (0.006)
Benzene	0.005	0.35	ND (0.0005)
2-Butanone	4	49000	ND (0.003)
Butylbenzene	4.9	--	NA
sec-Butylbenzene	9.7	--	NA
tert-Butylbenzene	9.7	--	NA
Chlorobenzene	0.1	9.6	ND (0.0008)
Chloroform	0.08	0.18	ND (0.0008)
Chloromethane	0.03	0.81	NA
Cumene	3.5	24	ND (0.001)
Cyclohexane	53	53	ND (0.002)
p-Cymene	--	--	NA
1,2-Dibromoethane	0.00005	0.044	ND (0.001)
1,1-Dichloroethane	0.16	1.6	ND (0.001)
1,2-Dichloroethane	0.005	0.51	ND (0.001)
cis-1,2-Dichloroethene	0.07	--	ND (0.0008)
Ethyl Benzene	0.7	0.86	NA
Methyl tert-butyl ether	0.02	96	ND (0.0005)
4-Methyl-2-pentanone	7.8	13000	ND (0.003)
Methylcyclohexane	--	--	ND (0.001)
Methylene Chloride	0.005	95	ND (0.002)
Propylbenzene	8.8	52	NA
Styrene	0.1	220	NA
tert Butyl alcohol	--	--	NA
Toluene	1	430	ND (0.0007)
Trichloroethene	0.005	0.11	ND (0.001)
1,2,4-Trimethylbenzene	0.53	6.4	ND (0.001)
1,3,5-Trimethylbenzene	0.53	4.5	ND (0.001)
Xylenes (total)	10	12	ND (0.0008)
Semivolatile Organic Compounds			
Anthracene	0.066	--	NA
Benzo(a)anthracene	0.0039	--	NA
Benzo(a)pyrene	0.0002	--	NA
Benzo(b)fluoranthene	0.0012	--	NA
Benzo(g,h,i)perylene	0.00026	--	NA
Chrysene	0.0019	--	ND (0.0008)
Dibenz(a,h)anthracene	0.0006	--	NA
Fluorene	1.9	--	ND (0.001)
Indeno(1,2,3-cd)pyrene	0.0023	--	NA
Isooctane	--	--	NA
Naphthalene	0.1	1.3	ND (0.01)
Phenanthrene	1.1	--	ND (0.0008)
bis(2-Ethylhexyl)phthalate	0.006	--	NA
Pyrene	0.13	--	ND (0.001)
Per- and Polyfluoroalkyl Substances			
Perfluorobutane Sulfonate	1.9	--	NA
Perfluoroheptanoic acid	--	--	NA
Perfluorohexanesulfonic acid	--	--	NA
Perfluorononanoic acid	--	--	NA
Perfluorooctanoic Acid	0.00007	--	NA
Perfluorooctane Sulfonic Acid	0.00007	--	NA
Pesticides			
Orthophosphate	--	--	NA
Metals			
Arsenic	0.01	--	NA
Cobalt	0.029	--	NA
Lead	0.005	--	NA
Manganese	0.3	--	NA
Mercury	0.002	--	NA
Arsenic	0.01	--	NA
Barium	2	--	NA
Chromium (total)	0.1	--	NA
Cobalt	0.029	--	NA
Lead	0.005	--	ND (0.00008)
Manganese	0.3	--	NA

Notes:
1 All concentrations reported in mg/L (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.
3 D, H, HT, IQ, OE, SL, and XQ are unknown qualifiers.
4 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS <2500).
5 Grey shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - Analyte found in sample and associated blank.

Appendix E

Release Notification

REPSG
React Environmental
Professional Services Group, Inc.

June 15, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Notification of Release Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC's Point Breeze site.

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

Enclosures: PADEP Notification of Release Form (Point Breeze)
cc:
Robert Armstrong (Northstar)
Gary Bowman (Northstar)
Charles Barksdale (Hilco)
George Toth (Hilco)
Stephanie Eggert (Hilco)
Joe Jeray (Hilco)
Kris Satterthwaite (JD2 Environmental)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☒ Initial
☐ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 **Counties:** Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 **Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 **Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 **Counties:** Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 **Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 **Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name	Phila Ref Point Breeze
Facility I.D. Number	51-33620
Street Address (P.O. Box not acceptable)	3144 W. Passyunk Avenue
City	Philadelphia
State	PA
Zip Code	19141 - 5299
County	Philadelphia
Municipality	Philadelphia
Contact Person	Gary Bowman
Telephone Number	(610) 636 - 4574

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name	Philadelphia Energy Solutions Refining and Marketing, LLC
Address	3144 W. Passyunk Avenue
City	Philadelphia
State	PA
Zip Code	19141 - 5299
Telephone Number	(610) 636 - 4574
Operator Name	Gary Bowman
Telephone Number	(610) 636 - 4574

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I [S]	[C]
Leaded Gasoline	☐		☐	☐
Unleaded Gasoline	☐		☐	☐
Aviation Gasoline	☐		☐	☐
Kerosene	☐		☐	☐
Jet Fuel	☐		☐	☐
Diesel Fuel	☐		☐	☐
New Motor Oil	☐		☐	☐
Used Motor Oil	☐		☐	☐
Fuel Oil No. 1	☐		☐	☐
Fuel Oil No. 2	☐		☐	☐
Fuel Oil No. 4	☐		☐	☐
Fuel Oil No. 5	☐		☐	☐
Fuel Oil No. 6	☐		☐	☐
Other (Specify) 15MV1 / Distillate	☒	U k, n o w, n	☒	☒
Unknown	☐		☐	☐

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 06 / 10 / 2021 (m / d / y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:

Date: 06 / 10 / 2021 (m / d / y) Office Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:

Date: ___ / ___ / ___ (m / d / y) Municipality Philadelphia

Date: ___ / ___ / ___ (m / d / y) Municipality ______

Source (Mark All That Apply ☒):	
Tank (DEP Assigned Nos. 004A)	☐
Piping System (Aboveground Regulated)	☐
Piping System (Underground Regulated)	☒
Piping System (Non-Regulated)	☐
Dispenser/Dispensing Equipment	☐
Spill Prevention Equipment	☐
Submersible Turbine Pump Head/Fittings	☐
Containment/Sump Failure	☐
Other (Specify)	☐
Unknown	☐

Cause (Mark All That Apply ☒):	
Faulty Installation	☐
Corrosion	☐
Physical/Mechanical Failure	☐
Spill During Delivery	☐
Overfill at Delivery	☐
Vehicle Gas Tank Overfill	☐
Product Delivery Hose Rupture	☐
Accident/Natural Disaster	☐
Other (Specify)	☐
Unknown	☐

How Discovered (Mark All That Apply ☒):	
During Closure	☒
Lining Installation	☐
Routine Leak Detection	☐
Third Party Inspection	☐
Tightness Testing Activities	☐
Visible Product or Odor Reports	☒
Water in Tank	☐
Construction	☐
Upgrade/Repair	☐
Supply Well Sample Results	☐
Monitoring Well Sample Results	☐
Property Transfer	☐
Other (Specify)	☐
Unknown	☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):	
Soil	☒
Sediment	☐
Surface Water	☒
Ground Water	☐
Bedrock	☐
Water Supplies	☐
Vapors/Product in Buildings	☐
Vapors/Product in Sewer/Utility Lines	☐
Ecological Receptors	☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☒	☐	☐	☐
Free Product Recovered	☐	☐	☒	☐
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) ______	☐	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 06 / 10 / 2021 (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

☒ Unusual Level of Vapors
☐ Erratic Behavior of Product Dispensing Equipment
☐ Release Detection Results Indicate a Release
☐ Discovery of Holes in the Storage Tank
☐ Containment Sump Test Failure
☐ Spill Prevention Equipment Test Failure
☐ Other (Specify) _____

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 06 / 10 / 2021 (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

☒ Product Stained or Product Saturated Soil or Backfill
☐ Ponded Product
☒ Free Product or Sheen on Ponded Water
☐ Free Product or Sheen on the Ground Water Surface
☐ Free Product or Sheen on Surface Water
☐ Other (Specify) ______

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½" x 11" sheets of paper, if necessary.

Hydrocarbon vapors were detected within the tank containment dike in the area immediately adjacent to the north side of demolished PES Tank # PB-83 (PADEP Tank # 004A).

A hydrocarbon sheen was also observed on the ponded water in the same area of Tank PB-83.

The ponded water was removed via vacuum truck upon discovery on 6/10/2021 and the next day 6/11/2021.

In addition, facility personell indicated a release was discovered and reported to the PADEP in 2013 related to a leak in tank PB-83 underground piping.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Gary Bowman, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

06 / 10 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, Kristian Satterthwaite, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Kristian Satterthwaite
Signature of Certified Inspector

06 / 10 / 2021
Date

5081
Inspector Certification Number

1557
Company Certification Number

July 15, 2021

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on July 13, 2021 that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-27 (019A), PB-28 (020A), PB-29 (021A), and PB-33 (002A). A prior notification was submitted for tank 004A in this same tank group (Tank Group 02). The previous incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

Kevin L. Long

Kevin Long
Principal Consultant

Nicholas J. Scala

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PAEP Notification of Release Form (Tank Group 02)

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP)
Ralph DiPietro (Philadelphia L & I)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☐ Initial
☒ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 **Counties:** Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 **Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 **Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 **Counties:** Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 **Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 **Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Field	Value
Facility Name	Philadelphia Refinery Point Breeze
Facility I.D. Number	51-33620
Street Address (P.O. Box not acceptable)	3144 W. Passyunk Avenue
City	Philadelphia
State	PA
Zip Code	19141 - 5299
County	Philadelphia
Municipality	Philadelphia
Contact Person	Anne Garr
Telephone Number	(312) 796 - 6564

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Field	Value
Owner Name	Philadelphia Energy Solutions Refining and Marketing LLC
Address	111 S. Wacker Dr, Suite 3000
City	Chicago
State	IL
Zip Code	60606 -
Telephone Number	(312) 796 - 6564
Operator Name	Anne Garr
Telephone Number	(312) 796 - 6564

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S]	Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I
Leaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unleaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Aviation Gasoline	☐		☐ [S]	☐ [C]
Kerosene	☐		☐ [S]	☐ [C]
Jet Fuel	☐		☐ [S]	☐ [C]
Diesel Fuel	☐		☐ [S]	☐ [C]
New Motor Oil	☐		☐ [S]	☐ [C]
Used Motor Oil	☐		☐ [S]	☐ [C]
Fuel Oil No. 1	☐		☐ [S]	☐ [C]
Fuel Oil No. 2	☐		☐ [S]	☐ [C]
Fuel Oil No. 4	☐		☐ [S]	☐ [C]
Fuel Oil No. 5	☐		☐ [S]	☐ [C]
Fuel Oil No. 6	☐		☐ [S]	☐ [C]
Other (Specify) Alkylate/Heavy Reformate	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unknown	☐		☐ [S]	☐ [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 07 / 13 / 2021 (m / d / y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:

Date: 07 / 13 / 2021 (m / d / y) Office Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:

Date: 07 / 13 / 2021 (m / d / y) Municipality Philadelphia

Date: ___ / ___ / ___ (m / d / y) Municipality ___

Source (Mark All That Apply ☒):

- Tank (DEP Assigned Nos. 019A, 020A, 021A, 002A) ☒
- Piping System (Aboveground Regulated) ☒
- Piping System (Underground Regulated) ☐
- Piping System (Non-Regulated) ☐
- Dispenser/Dispensing Equipment ☐
- Spill Prevention Equipment ☐
- Submersible Turbine Pump Head/Fittings ☐
- Containment/Sump Failure ☐
- Other (Specify) ☐
- Unknown ☐

Cause (Mark All That Apply ☒):

- Faulty Installation ☐
- Corrosion ☐
- Physical/Mechanical Failure ☐
- Spill During Delivery ☐
- Overfill at Delivery ☐
- Vehicle Gas Tank Overfill ☐
- Product Delivery Hose Rupture ☐
- Accident/Natural Disaster ☐
- Other (Specify) ☐
- Unknown ☐

How Discovered (Mark All That Apply ☒):

- During Closure ☐
- Lining Installation ☐
- Routine Leak Detection ☐
- Third Party Inspection ☐
- Tightness Testing Activities ☐
- Visible Product or Odor Reports ☐
- Water in Tank ☐
- Construction ☐
- Upgrade/Repair ☐
- Supply Well Sample Results ☐
- Monitoring Well Sample Results ☐
- Property Transfer ☐
- Other (Specify) Site Assessment Sampling ☒
- Unknown ☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):

- Soil ☒
- Sediment ☐
- Surface Water ☐
- Ground Water ☐
- Bedrock ☐
- Water Supplies ☐
- Vapors/Product in Buildings ☐
- Vapors/Product in Sewer/Utility Lines ☐
- Ecological Receptors ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☒
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) Site Characterization	☒	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 07 / 13 / 2021 (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

☐ Unusual Level of Vapors
☐ Erratic Behavior of Product Dispensing Equipment
☐ Release Detection Results Indicate a Release
☐ Discovery of Holes in the Storage Tank
☐ Containment Sump Test Failure
☐ Spill Prevention Equipment Test Failure
☒ Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 07 / 13 / 2021 (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

☐ Product Stained or Product Saturated Soil or Backfill
☐ Ponded Product
☐ Free Product or Sheen on Ponded Water
☐ Free Product or Sheen on the Ground Water Surface
☐ Free Product or Sheen on Surface Water
☒ Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½” x 11” sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 02 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene, ethyl benzene, methyl tert-butyl ether, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, xylenes, naphthalene, and lead. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.

This notification is related to exceedances identified in sampling associated with tanks 019A, 020A, 021A, 002A. A prior notification was submitted for tank 004A in this same tank group (Tank Group 02). The previous incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

7 / 14 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

terraphase engineering
celebrating 10 years

August 5, 2021

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 3, 2021 that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-34 (022A), PE-35 (023A), PB-40 (026A), PB-42 (027A), PB-84 (029A), PB-128 (032A) and PB-129 (033A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

Kevin L. Long

Kevin Long
Principal Consultant

Nicholas J. Scala

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP – lstrobridge@pa.gov)
Ralph DiPietro (Philadelphia L & I - ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☐ Initial
☒ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	**North-central Region**	**Northeast Region**
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907
Counties: Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	**Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	**Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961
Counties: Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	**Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	**Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name: Philadelphia Refinery Point Breeze
Facility I.D. Number: 51-33620
Street Address (P.O. Box not acceptable): 3144 W. Passyunk Avenue
City: Philadelphia State: PA Zip Code: 19141 - 5299
County: Philadelphia Municipality: Philadelphia
Contact Person: Anne Garr Telephone Number: (312) 796 - 6564

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name: Philadelphia Energy Solutions Refining and Marketing LLC
Address: 111 S. Wacker Dr, Suite 3000
City: Chicago State: IL Zip Code: 60606 -
Telephone Number: (312) 796 - 6564
Operator Name: Anne Garr Telephone Number: (312) 796 - 6564

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S]	Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I
Leaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unleaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Aviation Gasoline	☐		☐ [S]	☐ [C]
Kerosene	☐		☐ [S]	☐ [C]
Jet Fuel	☐		☐ [S]	☐ [C]
Diesel Fuel	☒	U N, K N O, W N	☐ [S]	☒ [C]
New Motor Oil	☐		☐ [S]	☐ [C]
Used Motor Oil	☐		☐ [S]	☐ [C]
Fuel Oil No. 1	☐		☐ [S]	☐ [C]
Fuel Oil No. 2	☒	U N, K N O, W N	☐ [S]	☒ [C]
Fuel Oil No. 4	☐		☐ [S]	☐ [C]
Fuel Oil No. 5	☐		☐ [S]	☐ [C]
Fuel Oil No. 6	☐		☐ [S]	☐ [C]
Other (Specify) Heavy Reformate	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unknown	☐		☐ [S]	☐ [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 08 / 03 / 2021 (m / d / y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:
Date: 08 / 03 / 2021 (m / d / y) Office: Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:
Date: ___ / ___ / ___ (m / d / y) Municipality: Philadelphia
Date: ___ / ___ / ___ (m / d / y) Municipality: ______

Source (Mark All That Apply ☒):

- Tank (DEP Assigned Nos. 022A, 023A, 026A, 027A, 029A, 032A, 033A) ☒
- Piping System (Aboveground Regulated) ☒
- Piping System (Underground Regulated) ☐
- Piping System (Non-Regulated) ☐
- Dispenser/Dispensing Equipment ☐
- Spill Prevention Equipment ☐
- Submersible Turbine Pump Head/Fittings ☐
- Containment/Sump Failure ☐
- Other (Specify) ______ ☐
- Unknown ☐

Cause (Mark All That Apply ☒):

- Faulty Installation ☐
- Corrosion ☐
- Physical/Mechanical Failure ☐
- Spill During Delivery ☐
- Overfill at Delivery ☐
- Vehicle Gas Tank Overfill ☐
- Product Delivery Hose Rupture ☐
- Accident/Natural Disaster ☐
- Other (Specify) ______ ☐
- Unknown ☐

How Discovered (Mark All That Apply ☒):

- During Closure ☒
- Lining Installation ☐
- Routine Leak Detection ☐
- Third Party Inspection ☐
- Tightness Testing Activities ☐
- Visible Product or Odor Reports ☐
- Water in Tank ☐
- Construction ☐
- Upgrade/Repair ☐
- Supply Well Sample Results ☐
- Monitoring Well Sample Results ☐
- Property Transfer ☐
- Other (Specify) Site Assessment Sampling ☒
- Unknown ☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):

- Soil ☒
- Sediment ☐
- Surface Water ☐
- Ground Water ☐
- Bedrock ☐
- Water Supplies ☐
- Vapors/Product in Buildings ☐
- Vapors/Product in Sewer/Utility Lines ☐
- Ecological Receptors ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☒
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) Site Characterization	☒	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 08 / 03 / 2021 (m d y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

☐ Unusual Level of Vapors
☐ Erratic Behavior of Product Dispensing Equipment
☐ Release Detection Results Indicate a Release
☐ Discovery of Holes in the Storage Tank
☐ Containment Sump Test Failure
☐ Spill Prevention Equipment Test Failure
☒ Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 08 / 03 / 2021 (m d y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

☐ Product Stained or Product Saturated Soil or Backfill
☐ Ponded Product
☐ Free Product or Sheen on Ponded Water
☐ Free Product or Sheen on the Ground Water Surface
☐ Free Product or Sheen on Surface Water
☒ Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½” x 11” sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 02 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene, ethyl benzene, naphthalene, toluene, 1,2,4-trimethylbenzene, xylenes, and lead. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.

This notification is a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

08 / 04 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

terraphase
engineering
celebrating 10 years

August 16, 2021

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 12, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the following ASTs: PB-38 (003A), PE-339 (025A), and PB-85 (030A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

Kevin L. Long

Kevin Long
Principal Consultant

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

cc: Anne Garr (agarr@hilcoglobal.com)
Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Gary Bowman (gbowman@NorthStar.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP – lstrobridge@pa.gov)
Ralph DiPietro (Philadelphia L & I - ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☐ Initial
☒ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

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INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 **Counties:** Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 **Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 **Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 **Counties:** Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 **Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 **Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name: Philadelphia Refinery Point Breeze
Facility I.D. Number: 51-33620
Street Address (P.O. Box not acceptable): 3144 W. Passyunk Avenue
City: Philadelphia State: PA Zip Code: 19141 - 5299
County: Philadelphia Municipality: Philadelphia
Contact Person: Anne Garr Telephone Number: (312) 796 - 6564

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name: Philadelphia Energy Solutions Refining and Marketing LLC
Address: 111 S. Wacker Dr, Suite 3000
City: Chicago State: IL Zip Code: 60606 -
Telephone Number: (312) 796 - 6564
Operator Name: Anne Garr Telephone Number: (312) 796 - 6564

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I [S]	[C]
Leaded Gasoline	☒	UN,KNO,WN	☐	☒
Unleaded Gasoline	☒	UN,KNO,WN	☐	☒
Aviation Gasoline	☐		☐	☐
Kerosene	☐		☐	☐
Jet Fuel	☐		☐	☐
Diesel Fuel	☒	UN,KNO,WN	☐	☒
New Motor Oil	☐		☐	☐
Used Motor Oil	☐		☐	☐
Fuel Oil No. 1	☐		☐	☐
Fuel Oil No. 2	☒	UN,KNO,WN	☐	☒
Fuel Oil No. 4	☐		☐	☐
Fuel Oil No. 5	☐		☐	☐
Fuel Oil No. 6	☐		☐	☐
Other (Specify)	☐		☐	☐
Unknown	☐		☐	☐

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 08 / 12 / 2021 (m/d/y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:
Date: 08 / 12 / 2021 (m/d/y) Office: Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:
Date: 08 / 16 / 2021 (m/d/y) Municipality: Philadelphia
Date: ___ / ___ / ___ (m/d/y) Municipality: ___

Source (Mark All That Apply ☒):

- Tank (DEP Assigned Nos. 003A, 025A, 030A) ☒
- Piping System (Aboveground Regulated) ☒
- Piping System (Underground Regulated) ☐
- Piping System (Non-Regulated) ☐
- Dispenser/Dispensing Equipment ☐
- Spill Prevention Equipment ☐
- Submersible Turbine Pump Head/Fittings ☐
- Containment/Sump Failure ☐
- Other (Specify) ___ ☐
- Unknown ☐

Cause (Mark All That Apply ☒):

- Faulty Installation ☐
- Corrosion ☐
- Physical/Mechanical Failure ☐
- Spill During Delivery ☐
- Overfill at Delivery ☐
- Vehicle Gas Tank Overfill ☐
- Product Delivery Hose Rupture ☐
- Accident/Natural Disaster ☐
- Other (Specify) ___ ☐
- Unknown ☐

How Discovered (Mark All That Apply ☒):

- During Closure ☒
- Lining Installation ☐
- Routine Leak Detection ☐
- Third Party Inspection ☐
- Tightness Testing Activities ☐
- Visible Product or Odor Reports ☐
- Water in Tank ☐
- Construction ☐
- Upgrade/Repair ☐
- Supply Well Sample Results ☐
- Monitoring Well Sample Results ☐
- Property Transfer ☐
- Other (Specify) Site Assessment Sampling ☒
- Unknown ☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):

- Soil ☒
- Sediment ☐
- Surface Water ☐
- Ground Water ☐
- Bedrock ☐
- Water Supplies ☐
- Vapors/Product in Buildings ☐
- Vapors/Product in Sewer/Utility Lines ☐
- Ecological Receptors ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☒
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) Site Characterization	☒	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 08 / 12 / 2021 (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

- ☐ Unusual Level of Vapors
- ☐ Erratic Behavior of Product Dispensing Equipment
- ☐ Release Detection Results Indicate a Release
- ☐ Discovery of Holes in the Storage Tank
- ☐ Containment Sump Test Failure
- ☐ Spill Prevention Equipment Test Failure
- ☒ Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 08 / 12 / 2021 (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

- ☐ Product Stained or Product Saturated Soil or Backfill
- ☐ Ponded Product
- ☐ Free Product or Sheen on Ponded Water
- ☐ Free Product or Sheen on the Ground Water Surface
- ☐ Free Product or Sheen on Surface Water
- ☒ Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½” x 11” sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 02 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene, ethyl benzene, naphthalene, toluene, 1,2,4-trimethylbenzene, and lead. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.

This notification is a follow-up to the previous incicent reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

8 / 12 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)
C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

August 24, 2021

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on August 20, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the tank PB-37 (024A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

Kevin L. Long

Kevin Long
Principal Consultant

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

cc: Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP – lstrobridge@pa.gov)
Ralph DiPietro (Philadelphia L & I - ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☐ Initial
☒ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 **Counties:** Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 **Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 **Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 **Counties:** Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 **Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 **Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name: Philadelphia Refinery Point Breeze
Facility I.D. Number: 51-33620
Street Address (P.O. Box not acceptable): 3144 W. Passyunk Avenue
City: Philadelphia State: PA Zip Code: 19141 - 5299
County: Philadelphia Municipality: Philadelphia
Contact Person: Anne Garr Telephone Number: (312) 796 - 6564

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name: Philadelphia Energy Solutions Refining and Marketing LLC
Address: 111 S. Wacker Dr, Suite 3000
City: Chicago State: IL Zip Code: 60606 -
Telephone Number: (312) 796 - 6564
Operator Name: Anne Garr Telephone Number: (312) 796 - 6564

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S] or Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I [S]	[C]
Leaded Gasoline	☒	U N, K N O, W N	☐	☒
Unleaded Gasoline	☒	U N, K N O, W N	☐	☒
Aviation Gasoline	☐		☐	☐
Kerosene	☐		☐	☐
Jet Fuel	☐		☐	☐
Diesel Fuel	☐		☐	☐
New Motor Oil	☐		☐	☐
Used Motor Oil	☐		☐	☐
Fuel Oil No. 1	☐		☐	☐
Fuel Oil No. 2	☐		☐	☐
Fuel Oil No. 4	☐		☐	☐
Fuel Oil No. 5	☐		☐	☐
Fuel Oil No. 6	☐		☐	☐
Other (Specify) ____	☐		☐	☐
Unknown	☐		☐	☐

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 08 / 20 / 2021 (m / d / y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:
Date: 08 / 20 / 2021 (m / d / y) Office: Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:
Date: ___ / ___ / ___ (m / d / y) Municipality: Philadelphia
Date: ___ / ___ / ___ (m / d / y) Municipality: ____

Source (Mark All That Apply ☒):
- Tank (DEP Assigned Nos. 024A) ☒
- Piping System (Aboveground Regulated) ☒
- Piping System (Underground Regulated) ☐
- Piping System (Non-Regulated) ☐
- Dispenser/Dispensing Equipment ☐
- Spill Prevention Equipment ☐
- Submersible Turbine Pump Head/Fittings ☐
- Containment/Sump Failure ☐
- Other (Specify) ____ ☐
- Unknown ☐

Cause (Mark All That Apply ☒):
- Faulty Installation ☐
- Corrosion ☐
- Physical/Mechanical Failure ☐
- Spill During Delivery ☐
- Overfill at Delivery ☐
- Vehicle Gas Tank Overfill ☐
- Product Delivery Hose Rupture ☐
- Accident/Natural Disaster ☐
- Other (Specify) ____ ☐
- Unknown ☐

How Discovered (Mark All That Apply ☒):
- During Closure ☒
- Lining Installation ☐
- Routine Leak Detection ☐
- Third Party Inspection ☐
- Tightness Testing Activities ☐
- Visible Product or Odor Reports ☐
- Water in Tank ☐
- Construction ☐
- Upgrade/Repair ☐
- Supply Well Sample Results ☐
- Monitoring Well Sample Results ☐
- Property Transfer ☐
- Other (Specify) Site Assessment Sampling ☒
- Unknown ☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):
- Soil ☒
- Sediment ☐
- Surface Water ☐
- Ground Water ☐
- Bedrock ☐
- Water Supplies ☐
- Vapors/Product in Buildings ☐
- Vapors/Product in Sewer/Utility Lines ☐
- Ecological Receptors ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☒
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) Site Characterization	☒	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 08 / 20 / 2021 (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

- ☐ Unusual Level of Vapors
- ☐ Erratic Behavior of Product Dispensing Equipment
- ☐ Release Detection Results Indicate a Release
- ☐ Discovery of Holes in the Storage Tank
- ☐ Containment Sump Test Failure
- ☐ Spill Prevention Equipment Test Failure
- ☒ Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 08 / 20 / 2021 (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

- ☐ Product Stained or Product Saturated Soil or Backfill
- ☐ Ponded Product
- ☐ Free Product or Sheen on Ponded Water
- ☐ Free Product or Sheen on the Ground Water Surface
- ☐ Free Product or Sheen on Surface Water
- ☒ Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½” x 11” sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 02 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene and lead. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.

This notification is a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

08 / 23 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, ______________________, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

terraphase engineering

November 2, 2021

Mr. Ron Estel
Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, PA 19401

sent via UPS – Delivery Confirmation

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC
PADEP Notification of Release Form – Tank Group 02
PADEP Facility ID #51-33620 – Point Breeze Refinery
Incident No. 56377
3144 W. Passyunk Avenue, Philadelphia, PA 19141

Dear Mr. Estel:

Enclosed please find a copy of the Pennsylvania Department of Environmental Protection's (PADEP) Notification of Release Form for the Philadelphia Energy Solutions Refining and Marketing, LLC (PESRM) Point Breeze Refinery. The PADEP was notified via telephone on October 27, 2021, that Aboveground Storage Tank (AST) Site Assessment sampling, performed in Tank Group 02, identified constituents in soil at concentrations greater than the applicable PADEP Medium Specific Concentrations (MSCs). Specifically, concentrations greater than applicable MSCs were identified at the tank PB-36 (087A) and PB-204 (041A). Prior notifications were submitted for tanks in this same tank group (Tank Group 02). The initial incident reported in Tank Group 02 was assigned Incident #56377. Pursuant to discussions with our PADEP case team (Ron Estel, Rich Staron, and Lisa Strobridge), this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

Please contact me at kevin.long@terraphase.com / 609-236-8171 x93 or Nick Scala at nick.scala@terraphase.com / 609-236-8171 x92 with any questions.

Sincerely,

for Terraphase Engineering Inc.

Kevin L. Long

Kevin Long
Principal Consultant

Nicholas J. Scala

Nicholas Scala, PG, LSRP
Principal Geologist

KL/NS:cs

Enclosure: PADEP Notification of Release Form (Tank Group 02)

cc: Joseph Jeray (jjeray@hilcoglobal.com)
Stephanie Eggert (seggert@hilcoglobal.com)
Charles Barksdale (cbarksdale@hilcoglobal.com)
Bob Armstrong (rarmstrong@NorthStar.com)
Lisa Strobridge (PADEP – lstrobridge@pa.gov)
Ralph DiPietro (Philadelphia L & I - ralph.dipietro@phila.gov)

NOTIFICATION OF RELEASE *(Owners and Operators)*

FACILITY I.D. NUMBER 51 - 33620

☐ Initial
☒ Follow-Up

NOTIFICATION OF CONTAMINATION *(Certified Installers and Inspectors)*

INFORMATION FOR OWNERS AND OPERATORS (O/O)

The Storage Tank Program's Corrective Action Process (CAP) regulations establish requirements for owners and operators of storage tank systems and storage tank facilities to report confirmed releases and, in certain cases, suspected releases.

Suspected Release Reporting: Upon the completion of a suspected release investigation from which it could not be determined whether a release has occurred, the owner or operator must, within 15 days of the indication of the suspected release, complete and submit this form to the appropriate regional office of the Department (Subsection 245.304(c)(2)).

Confirmed Release Reporting: The owner or operator must notify the appropriate regional office of the Department by telephone as soon as practicable, but no later than 24 hours, after the confirmation of a release (Subsections 245.305(a) and (b)). Within 15 days of that telephone notification, the owner or operator must complete and submit this form to the appropriate regional office of the Department, to each municipality in which the release occurred, and to each municipality where that release has impacted environmental media or water supplies, buildings, or sewer or other utility lines (Subsections 245.305(c) and (e)). And if new impacts to environmental media or water supplies, buildings, or sewer or other utility lines are discovered after that initial written notification, the owner or operator must, within 15 days of the discovery of the new impact, complete and submit this form to the Department and to each impacted municipality (Subsections 245.305(d) and (e)).

INFORMATION FOR CERTIFIED INSTALLERS AND INSPECTORS (I/I)

In accordance with the Storage Tank Program's certification regulations, certified installers and inspectors must complete and submit this form to the Department within 48 hours of observing any of the following while performing services as a certified installer or inspector: a release of a regulated substance; suspected or confirmed contamination of soil, surface or groundwater from regulated substances; or a regulated substance in a containment structure or facility (Subsections 245.132(a)(4) and 245.132(a)(6)).

INSTRUCTIONS

Record the storage tank facility I.D. number at the top right-hand corner of each page of this form.

Owners and Operators (O/O): Indicate if this is an initial or follow-up notification by marking the appropriate box found in the top right-hand corner of this page.

- To report a Suspected Release, complete all information in Sections I, II, IIIA, IIIC, VI, VIII and IX.
- To report a Confirmed Release, complete all information in Sections I, II, IIIA, IIIB, IIIC, IV, V, VIII and IX.

Certified Installers and Inspectors (I/I): Complete all information in Sections I, II, IIIA, IIIC, VI or VII, VIII, and IX. Attach a copy of the failed, valid tightness test results, if applicable.

PLEASE SEND COMPLETED ORIGINAL FORM TO:
PA Department of Environmental Protection
Environmental Cleanup and Brownfields Program
Storage Tank Section
(and the appropriate address below, depending on where the FACILITY is located)

Northwest Region	North-central Region	Northeast Region
230 Chestnut Street Meadville, PA 16335-3481 PHONE: 814-332-6945 / 800-373-3398 FAX: 814-332-6121 **Counties:** Armstrong, Butler, Clarion, Crawford, Elk, Erie, Forest, Indiana, Jefferson, Lawrence, McKean, Mercer, Venango, Warren	208 W. Third Street, Suite 101 Williamsport, PA 17701 PHONE: 570-327-3636 FAX: 570-327-3420 **Counties:** Bradford, Cameron, Centre, Clearfield, Clinton, Columbia, Lycoming, Montour, Northumberland, Potter, Snyder, Sullivan, Tioga, Union	2 Public Square Wilkes-Barre, PA 18701-1915 PHONE: 570-826-2511 FAX: 570-820-4907 **Counties:** Carbon, Lackawanna, Lehigh Luzerne, Monroe, Northampton, Pike Schuylkill, Susquehanna, Wayne, Wyoming
Southwest Region	**South-central Region**	**Southeast Region**
400 Waterfront Drive Pittsburgh, PA 15222 PHONE: 412-442-4000 FAX: 412-442-4194 **Counties:** Allegheny, Beaver, Cambria, Fayette, Greene, Somerset, Washington, Westmoreland	909 Elmerton Avenue Harrisburg, PA 17110 PHONE: 717-705-4705 / 800-541-2050 FAX: 717-705-4830 **Counties:** Adams, Bedford, Berks, Blair, Cumberland, Dauphin, Franklin, Fulton, Huntingdon, Juniata, Lancaster, Lebanon, Mifflin, Perry, York	2 East Main Street Norristown, PA 19401 PHONE: 484-250-5900 FAX: 484-250-5961 **Counties:** Bucks, Chester, Delaware, Montgomery, Philadelphia

I. FACILITY INFORMATION (Both O/O and I/I)

Facility Name: Philadelphia Refinery Point Breeze
Facility I.D. Number: 51-33620
Street Address (P.O. Box not acceptable): 3144 W. Passyunk Avenue
City: Philadelphia State: PA Zip Code: 19141 - 5299
County: Philadelphia Municipality: Philadelphia
Contact Person: Anne R. Garr Telephone Number: (312) 796 - 6564

II. OWNER/OPERATOR INFORMATION (Both O/O and I/I)

Owner Name: Philadelphia Energy Solutions Refining and Marketing LLC
Address: 111 S. Wacker Dr, Suite 3000
City: Chicago State: IL Zip Code: 60606 -
Telephone Number: (312) 796 - 6564
Operator Name: Anne Garr Telephone Number: (312) 796 - 6564

III. REGULATED SUBSTANCE INFORMATION

A. Type of Product(s) Involved (Mark All That Apply ☒): Both O/O and I/I		B. Quantity (Gallons) of Product(s) Released: O/O Only	C. Contamination Suspected [S]	Confirmed [C] (Mark All That Apply ☒): Both O/O and I/I
Leaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unleaded Gasoline	☒	U N, K N O, W N	☐ [S]	☒ [C]
Aviation Gasoline	☐		☐ [S]	☐ [C]
Kerosene	☐		☐ [S]	☐ [C]
Jet Fuel	☐		☐ [S]	☐ [C]
Diesel Fuel	☐		☐ [S]	☐ [C]
New Motor Oil	☐		☐ [S]	☐ [C]
Used Motor Oil	☐		☐ [S]	☐ [C]
Fuel Oil No. 1	☐		☐ [S]	☐ [C]
Fuel Oil No. 2	☐		☐ [S]	☐ [C]
Fuel Oil No. 4	☐		☐ [S]	☐ [C]
Fuel Oil No. 5	☐		☐ [S]	☐ [C]
Fuel Oil No. 6	☐		☐ [S]	☐ [C]
Other (Specify) Recovered Oil	☒	U N, K N O, W N	☐ [S]	☒ [C]
Unknown	☐		☐ [S]	☐ [C]

IV. CONFIRMED RELEASE INFORMATION (O/O Only)

Date Release was Confirmed: 10 / 27 / 2021 (m / d / y)

Date Owner/Operator Verbally Notified Appropriate Regional Office of Confirmed Release and Office Notified:
Date: 10 / 27 / 2021 (m / d / y) Office: Southeast Region

Date Owner/Operator Sent Copy of this Written Notification to Local Municipality(ies) and Name of Municipality(ies) Notified:
Date: 11 / 2 / 2021 (m / d / y) Municipality: Philadelphia
Date: ___ / ___ / ___ (m / d / y) Municipality: ___

Source (Mark All That Apply ☒):

- Tank (DEP Assigned Nos. 041A & 087A) ☒
- Piping System (Aboveground Regulated) ☒
- Piping System (Underground Regulated) ☐
- Piping System (Non-Regulated) ☐
- Dispenser/Dispensing Equipment ☐
- Spill Prevention Equipment ☐
- Submersible Turbine Pump Head/Fittings ☐
- Containment/Sump Failure ☐
- Other (Specify) ___ ☐
- Unknown ☐

Cause (Mark All That Apply ☒):

- Faulty Installation ☐
- Corrosion ☐
- Physical/Mechanical Failure ☐
- Spill During Delivery ☐
- Overfill at Delivery ☐
- Vehicle Gas Tank Overfill ☐
- Product Delivery Hose Rupture ☐
- Accident/Natural Disaster ☐
- Other (Specify) ___ ☐
- Unknown ☐

How Discovered (Mark All That Apply ☒):

- During Closure ☒
- Lining Installation ☐
- Routine Leak Detection ☐
- Third Party Inspection ☐
- Tightness Testing Activities ☐
- Visible Product or Odor Reports ☐
- Water in Tank ☐
- Construction ☐
- Upgrade/Repair ☐
- Supply Well Sample Results ☐
- Monitoring Well Sample Results ☐
- Property Transfer ☐
- Other (Specify) Site Assessment Sampling ☒
- Unknown ☐

Environmental Media Affected and Impacts (Mark All That Apply ☒):

- Soil ☒
- Sediment ☐
- Surface Water ☐
- Ground Water ☐
- Bedrock ☐
- Water Supplies ☐
- Vapors/Product in Buildings ☐
- Vapors/Product in Sewer/Utility Lines ☐
- Ecological Receptors ☐

V. INTERIM REMEDIAL ACTIONS (O/O Only)

Indicate the Interim Remedial Actions Planned, Initiated or Completed (Mark All That Apply ☒):

	Planned	Initiated	Completed	Not Applicable
Regulated Substance Removed from Storage Tanks	☐	☐	☒	☐
Fire, Explosion and Safety Hazards Mitigated	☐	☐	☒	☐
Contaminated Soil Excavated	☐	☐	☐	☐
Free Product Recovered	☐	☐	☐	☒
Water Supplies Identified and Sampled	☐	☐	☐	☒
Temporary Water Supplies Provided	☐	☐	☐	☒
Other (Specify) Site Characterization	☒	☐	☐	☐

VI. SUSPECTED RELEASE / CONTAMINATION INFORMATION (Both O/O and I/I)

Date the Indication of a Suspected Release / Contamination was Observed: 10 / 27 / 2021 (m / d / y)

Indication of Suspected Release / Contamination (Mark All That Apply ☒):

- ☐ Unusual Level of Vapors
- ☐ Erratic Behavior of Product Dispensing Equipment
- ☐ Release Detection Results Indicate a Release
- ☐ Discovery of Holes in the Storage Tank
- ☐ Containment Sump Test Failure
- ☐ Spill Prevention Equipment Test Failure
- ☒ Other (Specify) Site Assessment Sampling Results

VII. CONFIRMED CONTAMINATION INFORMATION (I/I Only)

Date the Confirmed Contamination was Observed: 10 / 27 / 2021 (m / d / y)

Extent of Confirmed Contamination (Mark All That Apply ☒):

- ☐ Product Stained or Product Saturated Soil or Backfill
- ☐ Ponded Product
- ☐ Free Product or Sheen on Ponded Water
- ☐ Free Product or Sheen on the Ground Water Surface
- ☐ Free Product or Sheen on Surface Water
- ☒ Other (Specify) Site Assessment Sampling Results

VIII. ADDITIONAL INFORMATION (Both O/O and I/I)

Provide any additional, relevant, available information concerning the release or contamination. If reporting a confirmed release, include specific details about the source and cause of the release, the affected environmental media, and any impacts to water supplies, buildings, or sewer or other utility lines. Owners or Operators reporting a suspected release should describe what procedures were followed to investigate the indication(s) of the suspected release noted in Section VI. Provide both DEP-assigned and owner/operator-assigned tank number(s), where applicable. Use additional 8½” x 11” sheets of paper, if necessary.

Work is being performed at the Site in accordance with the Aboveground Storage Tank Closure Work Plan (AST Work Plan) (Terraphase 2021). The PADEP approved the AST Work Plan on April 23, 2021. Pursuant to the AST Work Plan, Site Assessment sampling is being performed in Tank Groups. This notification is provided to PADEP to report that the Site Assessment sampling performed in Tank Group 02 has identified chemical concentrations in soil at levels above applicable Statewide Health Medium Specific Concentrations (MSCs). The following chemicals were detected in soil samples at concentrations greater than the applicable MSCs: benzene, 1,2-dibromoethane ethyl benzene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, naphthalene and lead. Site characterization will be performed to understand the nature and extent of these concentrations above MSCs and to further assess whether these conditions actually reflect a release to the environment from these ASTs.

This notification is a follow-up to the previous incident reported in Tank Group 02 (Incident #56377). Pursuant to discussions with our PADEP case team, this and any subsequent notifications required in Tank Group 02 will be combined with the incident number #56377.

IX. CERTIFICATION (Both O/O and I/I)

OWNER OR OPERATOR CERTIFICATION

I, Anne R. Garr, Assistant Secretary, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the owner or operator of the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Owner or Operator

11 / 02 / 2021
Date

CERTIFIED INSTALLER CERTIFICATION

I, ______, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified installer who performed tank handling activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Installer

/ /
Date

Installer Certification Number

Company Certification Number

CERTIFIED INSPECTOR CERTIFICATION

I, ______, hereby certify, under penalty of law as provided in 18 Pa.
(Print Name)

C.S.A. §4904 (relating to unsworn falsification to authorities) that I am the certified inspector who performed inspection activities at the above referenced storage tank facility and that the information provided by me in this notification is true, accurate and complete to the best of my knowledge and belief.

Signature of Certified Inspector

/ /
Date

Inspector Certification Number

Company Certification Number

Appendix F

Tank Registration Amendment Forms

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
51-33620 **Facility ID #**	Client ID#
	Site ID#
	Account #
	Auth ID#
Phila Ref Point Breeze **Facility Name**	APS ID#
	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

☐ Register Tanks(s) to be Used*
☐ Register Tank(s) to be Temporarily Out of Use
☐ Register Tank(s) to be Removed
☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

☐ Changed Owner Information
☐ Changed Contact Information
☐ Changed Facility Information
☐ Changed Facility Operator Information
☐ Changed to Currently In Use Tank(s)*
☐ Added Tank(s) to Existing Facility*
☐ Changed to Temporarily Out of Use Tank(s)
☒ Changed to Permanently Closed Tank(s)/Removed
☐ Changed Product
☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID# 298341
Client Type/Code
Fee Kind (check one if applicable) ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northtar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State

Site Location Line 1	Site Location Line 2	
Site Location Last Line – City	State	ZIP+4
Detailed Written Directions to Site		

Site Contact Last Name	First Name	MI	Suffix

Site Contact Title			Site Contact Firm	
Mailing Address Line 1			Mailing Address Line 2	
Address Last Line – City			State	ZIP+4
Phone	Ext	FAX	E-mail Address	

NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)
Site to Client Relationship	

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature	**Title**	**Date**

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
001A	T	R	F	1/1/1959	12/31/20	2,284,800	Ethanol			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 001A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	**Title**	**Date**
	President	01/12/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
E-mail Address				
Gbowman@northtar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
001 A	Kristian Satterthwaite		5081	AFR	!557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

September 28, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	003A	PB 38	P-512	9/3/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID# 298341
Client Type/Code
Fee Kind (check one if applicable) ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name: Philadelphia Energy Solutions Refining and Marketing, LLC
Employer ID# (EIN):
Dun & Bradstreet ID#:

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	

Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 West Passyunk Avenue	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19145	USA

Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P.	Sr.

Client Contact Title	**Phone**	**Ext**
President	610-636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State

Site Location Line 1	Site Location Line 2	
Site Location Last Line – City	State	ZIP+4
Detailed Written Directions to Site		

Site Contact Last Name	First Name	MI	Suffix

Site Contact Title		Site Contact Firm	
Mailing Address Line 1		Mailing Address Line 2	
Address Last Line – City		State	ZIP+4
Phone	Ext	FAX	E-mail Address

NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)
Site to Client Relationship	

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	**Facility Name**	**Facility Kind**
Facility Location Line 1 (if different than Site Location)	**Facility Location Line 2**	
Facility Location Last Line - City	**State**	**ZIP+4**

Latitude/Longitude Point of Origin	**Latitude**			**Longitude**		
	Degrees	**Minutes**	**Seconds**	**Degrees**	**Minutes**	**Seconds**

Horizontal Accuracy Measure	Feet --or-- Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984
Horizontal Collection Method Code	
Reference Point Code	
Altitude	Feet --or-- Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)
Altitude (Vertical) Location Datum Collection Method Code	
Geometric Type Code	
Data Collection Date	
Source Map Scale Number	Inch(es) = Feet
--or--	Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#		**Client Type / Code**		
Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
Address Last Line – City	**State**	**ZIP+4**		**Country**
Client Contact Last Name	**First Name**	**MI**		**Suffix**
Client Contact Title		**Phone**		**Ext**
E-mail Address				**FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name ______________________

Employer ID# (EIN) or SSN ______________________

Mailing Address Line 1 ______________________

Mailing Address Line 2 ______________________

Address Last Line - City ____________ **State** ____________ **ZIP+4** ____________

Previous Facility ID# ______________________

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

______________________ ______________________ ______________

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
003A	T	R	F	01/01/1955	09/03/2021	3,410,400	GAS			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ___________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ___________________________	☐	☐	☐	☐	☐	☐

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Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ___________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 003A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	9/23/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
NorthStar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
2250 East Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President			610-636-4574	
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
003A	Kristian Satterthwaite	API 650	5081	AFR	1557	Kristian Satterthwaite	9/27/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	**Client Type/Code**	**Fee Kind** (check one if applicable)		
298341		☐ **Volunteer Fire Co/EMS Org**	☐ **State Govt**	☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**		
3144 W. Passyunk Ave			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19141-5299	USA
Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P	Sr
Client Contact Title		**Phone**	**Ext**
President		610 636-4574	
E-mail Address			**FAX**
Gbowman@northtar.com			

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
019A	T	R	F	1/1/1976	01/15/2021	3,410,400	Gasoline Componentsl			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 019A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	**Title**	**Date**
	President	1/15/21

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**		
250 E. Adams Avenue			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19124	USA
Contact Title		**Phone**	**Ext.**
President			
E-mail Address			
Gbowman@northtar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
019 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Original Submission

Submission date: 1/27/21

Errors Highlighted in Yellow

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
028A	T	R	F	1/1/1958	01/25/2021	3,410,400	Alkyate			
030A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Revised Submittal

This copy of the original paperwork has been corrected and is attached in its entirety

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

January 27, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	020A	PB 28	P-503	1/25/2021

This AST (Tank #020A) was a 3,410,400-gallon tank which formerly stored Alkyate. The tank was removed 1/25/2021.

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY	
Client ID#	
Site ID#	
Account #	
Auth ID#	
APS ID#	
Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Facility Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☐ Changed Product
- ☐ Changed Contact Information
- ☐ Changed Facility Operator Information
- ☐ Added Tank(s) to Existing Facility*
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ Volunteer Fire Co/EMS Org ☐ State Govt ☐ Fed Govt

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**	**Dun & Bradstreet ID#**	
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northtar.com				

III. SITE INFORMATION

DEP Site ID# | Site Name

EPA ID# | Estimated Number of Employees to be Present at Site

Description of Site

County Name | Municipality | ☐ City ☐ Boro ☐ Twp | State

County Name | Municipality | ☐ City ☐ Boro ☐ Twp | State

Site Location Line 1 | Site Location Line 2

Site Location Last Line – City | State | ZIP+4

Detailed Written Directions to Site

Site Contact Last Name | First Name | MI | Suffix

Site Contact Title | Site Contact Firm

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4

Phone | Ext | FAX | E-mail Address

NAICS Codes (Two- & Three-Digit Codes – List All That Apply) | 6-Digit Code (Optional)

Site to Client Relationship

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name | Employer ID# (EIN) | Dun & Bradstreet ID#

Individual Last Name | First Name | MI | Suffix | SSN

Additional Individual Last Name | First Name | MI | Suffix | SSN

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4 | Country

Property Owner Contact Last Name | First Name | MI | Suffix

Property Owner Contact Title | Phone | Ext

E-mail Address | FAX

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID# | **Facility Name** | **Facility Kind**

Facility Location Line 1 (if different than Site Location) | **Facility Location Line 2**

Facility Location Last Line - City | **State** | **ZIP+4**

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure Feet --or-- Meters

Horizontal Reference Datum Code
☐ North American Datum of 1927
☐ North American Datum of 1983
☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet --or-- Meters

Altitude Datum Name
☐ The National Geodetic Vertical Datum of 1929
☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet
--or-- Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID# | **Client Type / Code**

Organization Name or Registered Fictitious Name | **Employer ID# (EIN)** | **Dun & Bradstreet ID#**

Individual Last Name | **First Name** | **MI** | **Suffix** | **SSN**

Additional Individual Last Name | **First Name** | **MI** | **Suffix** | **SSN**

Mailing Address Line 1 | **Mailing Address Line 2**

Address Last Line – City | **State** | **ZIP+4** | **Country**

Client Contact Last Name | **First Name** | **MI** | **Suffix**

Client Contact Title | **Phone** | **Ext**

E-mail Address | **FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ All Tanks Changed Ownership at the Facility

☐ Some Tanks Changed Ownership at the Facility (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City State ZIP+4

Previous Facility ID#

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ Yes ☐ No ☐ N/A

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature Title Date

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
020A	T	R	F	1/1/1958	01/25/2021	3,410,400	Alkyate			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: ______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: ______________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: ______________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
	020A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	President **Title**	01/26/2021 **Date**

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President				
E-mail Address				
Gbowman@northtar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
020 A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	1/27/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Original Submission

Submission date: 2/22/21

Errors Highlighted in Yellow

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
021 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Revised Submittal

This copy of the original paperwork has been corrected and is attached in its entirety

REPSG
React Environmental
Professional Services Group, Inc.

February 22, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tank Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Forms to change the status to permanently closed for two (2) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	021 A	PB 29	P-504	2/9/2021
Point Breeze Refinery	51-33620	085A	PB 664	P-564 A	2/9/2021

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

Enclosures: JD2 letter
Storage Tank Registration Forms (Point Breeze)

cc:
Robert Armstrong (Northstar)
Paul Masser (Northstar)
Kris Satterthwaite (JD2 Environmental)
Kassahun Sellassie (AMS)
Thomas Barsley (AMS)
Edward Wiener (AMS)

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

February 15, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	021A	PB 29	P-504	2/9/2021

This AST (Tank #021A) was a 2,935,800-gallon tank which formerly stored heavy reformate. The tank was removed 2/9/2021.

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY
Client ID#
Site ID#
Account #
Auth ID#
APS ID#
Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID# 298341
Client Type/Code
Fee Kind (check one if applicable) ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name: Philadelphia Energy Solutions Refining and Marketing, LLC
Employer ID# (EIN)
Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr	

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
3144 W. Passyunk Ave	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19141-5299	USA

Client Contact Last Name	First Name	MI	Suffix
Bowman	Gary	P	Sr

Client Contact Title	Phone	Ext
President	610 636-4574	

E-mail Address	FAX
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID# | Site Name

EPA ID# | Estimated Number of Employees to be Present at Site

Description of Site

County Name | Municipality | City ☐ | Boro ☐ | Twp ☐ | State

County Name | Municipality | City ☐ | Boro ☐ | Twp ☐ | State

Site Location Line 1 | Site Location Line 2

Site Location Last Line – City | State | ZIP+4

Detailed Written Directions to Site

Site Contact Last Name | First Name | MI | Suffix

Site Contact Title | Site Contact Firm

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4

Phone | Ext | FAX | E-mail Address

NAICS Codes (Two- & Three-Digit Codes – List All That Apply) | 6-Digit Code (Optional)

Site to Client Relationship

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name | Employer ID# (EIN) | Dun & Bradstreet ID#

Individual Last Name | First Name | MI | Suffix | SSN

Additional Individual Last Name | First Name | MI | Suffix | SSN

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4 | Country

Property Owner Contact Last Name | First Name | MI | Suffix

Property Owner Contact Title | Phone | Ext

E-mail Address | FAX

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure — Feet --or-- Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude — Feet --or-- Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number — Inch(es) = Feet

--or-- Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ Same as Owner Identified in Section II. ☐ Different than Owner Identified in Section II; identified below.

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name ____________________

Employer ID# (EIN) or SSN ____________________

Mailing Address Line 1 ____________________

Mailing Address Line 2 ____________________

Address Last Line - City ____________ **State** ________ **ZIP+4** ________

Previous Facility ID# ____________________

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name ____________________

____________________ ____________________ ____________

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
021A	T	R	F	1/1/1955	02/09/2021	2,935,800	Heavy Reformate			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: ____________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ____________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ____________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 021A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	2/9/2021

Information & Invoices should be sent to:

- ☒ **Tank Owner Contact**
- ☒ **Site Contact**
- ☒ **Facility Operator**
- ☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name: NorthStar Contracting Group, Inc.
Employer ID# (EIN):
Dun & Bradstreet ID#:

Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P	Sr	

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1: 2250 E. Adams Avenue
Mailing Address Line 2:

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19124	USA

Contact Title: President
Phone:
Ext.:

E-mail Address: Gbowman@northstar.com

Client to Site (Facility) Relationship:

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
021 A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	2/?/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY	
Client ID#	
Site ID#	
Account #	
Auth ID#	
APS ID#	
Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	**Facility Name**	**Facility Kind**

Facility Location Line 1 (if different than Site Location)	**Facility Location Line 2**

Facility Location Last Line - City	**State**	**ZIP+4**

Latitude/Longitude Point of Origin	**Latitude**			**Longitude**		
	Degrees	**Minutes**	**Seconds**	**Degrees**	**Minutes**	**Seconds**

Horizontal Accuracy Measure	Feet *--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984	
Horizontal Collection Method Code		
Reference Point Code		
Altitude	Feet *--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)	
Altitude (Vertical) Location Datum Collection Method Code		
Geometric Type Code		
Data Collection Date		
Source Map Scale Number	Inch(es) =	Feet
--or--	Centimeter(s) =	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	**Client Type / Code**			
Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
Address Last Line – City	**State**	**ZIP+4**		**Country**
Client Contact Last Name	**First Name**	**MI**		**Suffix**
Client Contact Title		**Phone**		**Ext**
E-mail Address				**FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name	
Employer ID# (EIN) or SSN	
Mailing Address Line 1	
Mailing Address Line 2	
Address Last Line - City	**State** **ZIP+4**
Previous Facility ID#	

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
022A	T	R	F	1/1/1957	03/31/2021	3,285,996	Gasoline			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 022A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

	President	4/21/2021
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☐ **Tank Owner Contact**
☐ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President				
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
022 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY	
Client ID#	
Site ID#	
Account #	
Auth ID#	
APS ID#	
Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name					
EPA ID#	Estimated Number of Employees to be Present at Site					
Description of Site						
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
Site Location Line 1		Site Location Line 2				
Site Location Last Line – City		State	ZIP+4			
Detailed Written Directions to Site						
Site Contact Last Name	First Name	MI	Suffix			
Site Contact Title		Site Contact Firm				
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line – City		State	ZIP+4			
Phone	Ext	FAX	E-mail Address			
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)			
Site to Client Relationship						

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	--*or*--	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	--*or*--	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			
Source Map Scale Number	Inch(es)	=	Feet
--*or*--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
023A	T	R	F	1/1/1959	03/31/2021	3,410,400	Gasoline			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 023A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name **Gary Bowman**

[signature]	**President**	**4/21/2021**
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☐ **Tank Owner Contact**
☐ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President				
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a “Tank Modification Report” form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
023 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer’s specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#	**Client Type/Code**	**Fee Kind** (check one if applicable)		
298341		☐ **Volunteer Fire Co/EMS Org**	☐ **State Govt**	☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**		
3144 W. Passyunk Ave			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19141-5299	USA
Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P	Sr
Client Contact Title		**Phone**	**Ext**
President		610 636-4574	
E-mail Address			**FAX**
Gbowman@northstar.com			

III. SITE INFORMATION

DEP Site ID#	Site Name					
EPA ID#	Estimated Number of Employees to be Present at Site					
Description of Site						
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
Site Location Line 1		Site Location Line 2				
Site Location Last Line – City		State	ZIP+4			
Detailed Written Directions to Site						
Site Contact Last Name	First Name	MI	Suffix			
Site Contact Title		Site Contact Firm				
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line – City		State	ZIP+4			
Phone	Ext	FAX	E-mail Address			
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)			
Site to Client Relationship						

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code			
Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**	**Dun & Bradstreet ID#**	
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Client Contact Title		**Phone**	**Ext**	
E-mail Address			**FAX**	

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name ________________

Employer ID# (EIN) or SSN ________________

Mailing Address Line 1 ________________

Mailing Address Line 2 ________________

Address Last Line - City ________ **State** ________ **ZIP+4** ________

Previous Facility ID# ________________

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature	**Title**	**Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
026A	T	R	F	1/1/1958	03/29/2021	5,527,200	Gasoline			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 026A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name **Gary Bowman**

[signature]	**President**	**4/20/2021**
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☐ **Tank Owner Contact**
☐ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19124	USA	
Contact Title		**Phone**	**Ext.**	
President				
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

<u>This section must be completed by the certified tank handler(s)</u> who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
026 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

<u>This section must be completed by the DEP Certified Tank Inspector(s)</u> who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

☐ Register Tanks(s) to be Used*
☐ Register Tank(s) to be Temporarily Out of Use
☐ Register Tank(s) to be Removed
☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

☐ Changed Owner Information
☐ Changed Contact Information
☐ Changed Facility Information
☐ Changed Facility Operator Information
☐ Changed to Currently In Use Tank(s)*
☐ Added Tank(s) to Existing Facility*
☐ Changed to Temporarily Out of Use Tank(s)
☒ Changed to Permanently Closed Tank(s)/Removed
☐ Changed Product
☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	--or--	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	--or--	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature	**Title**	**Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
030A	T	R	F	1/1/1955	04/15/2021	1,806,000	Distillate			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	**Tank #** 030A	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
[signature]	President	4/22/2021

Information & Invoices should be sent to:

☐ **Tank Owner Contact**
☐ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name			Employer ID# (EIN)		Dun & Bradstreet ID#
Northstar Contracting Group, Inc.					
Individual Last Name	**First Name**		**MI**	**Suffix**	**SSN**
Bowman	Gary		P	Sr	
Additional Individual Last Name	**First Name**		**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**				
250 E. Adams Avenue					
Address Last Line – City		**State**	**ZIP+4**		**Country**
Philadelphia		PA	19124		USA
Contact Title			**Phone**		**Ext.**
President					
E-mail Address					
Gbowman@northstar.com					
Client to Site (Facility) Relationship					

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a “Tank Modification Report” form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
030 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer’s specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure Feet *--or--* Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet *--or--* Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet

--or-- Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name	
Employer ID# (EIN) or SSN	
Mailing Address Line 1	
Mailing Address Line 2	
Address Last Line - City	**State** **ZIP+4**
Previous Facility ID#	

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
032A	T	R	F	1/1/1971	03/11/2021	6,447,000	Gasoline Components			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 032A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	3/11/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2		
250 E. Adams Avenue			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19124	USA
Contact Title		**Phone**	**Ext.**
President			
E-mail Address			
Gbowman@northstar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
032 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 W. Passyunk Ave	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19141-5299	USA

Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P	Sr

Client Contact Title	**Phone**	**Ext**
President	610 636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name ____________________

Employer ID# (EIN) or SSN ____________________

Mailing Address Line 1 ____________________

Mailing Address Line 2 ____________________

Address Last Line - City __________ **State** __________ **ZIP+4** __________

Previous Facility ID# ____________________

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature	**Title**	**Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
033A	T	R	F	1/1/1971	03/18/2021	6,447,000	Heavy Reformate			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ____________________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
	033A					
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	3/18/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2		
250 E. Adams Avenue			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19124	USA
Contact Title		**Phone**	**Ext.**
President			
E-mail Address			
Gbowman@northstar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

<u>This section must be completed by the certified tank handler(s)</u> who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
033 A	Kristian Satterthwaite		5081	AFR	1557		

XI. INSPECTOR CERTIFICATION

<u>This section must be completed by the DEP Certified Tank Inspector(s)</u> who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

September 28, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tank (AST):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	087A	PB 36	P-510	9/7/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY
Client ID#
Site ID#
Account #
Auth ID#
APS ID#
Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name: Philadelphia Energy Solutions Refining and Marketing, LLC
Employer ID# (EIN):
Dun & Bradstreet ID#:

Individual Last Name	First Name	MI	Suffix	SSN
Bowman	Gary	P.	Sr.	

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2
3144 West Passyunk Avenue	

Address Last Line – City	State	ZIP+4	Country
Philadelphia	PA	19145	USA

Client Contact Last Name	First Name	MI	Suffix
Bowman	Gary	P.	Sr.

Client Contact Title	Phone	Ext
President	610-636-4574	

E-mail Address	FAX
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1		Site Location Line 2			
Site Location Last Line – City		State	ZIP+4		
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title		Site Contact Firm			
Mailing Address Line 1		Mailing Address Line 2			
Address Last Line – City		State	ZIP+4		
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)		
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			
Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country
Client Contact Last Name	**First Name**	**MI**	**Suffix**

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
087A	T	R	F	04/16/2015	09/07/2021	3,410,400	Gasoline			
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ___________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 087A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name **Gary Bowman**

	President	9/23/2021
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
2250 East Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President			610-636-4574	
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

2630-PM-BECB0514 Rev. 6/2019
Form

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
087A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	9/27/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

September 28, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	041A	PB 204	P-547	9/1/2021
Point Breeze Refinery	51-33620	016A	PB 78	N/A	9/1/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY	
Client ID#	
Site ID#	
Account #	
Auth ID#	
APS ID#	
Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	

Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 West Passyunk Avenue	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19145	USA

Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P.	Sr.

Client Contact Title	**Phone**	**Ext**
President	610-636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet --*or*-- Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984
Horizontal Collection Method Code	
Reference Point Code	
Altitude	Feet --*or*-- Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)
Altitude (Vertical) Location Datum Collection Method Code	
Geometric Type Code	
Data Collection Date	
Source Map Scale Number	Inch(es) = Feet
--*or*--	Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext
E-mail Address		**FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name	
Employer ID# (EIN) or SSN	
Mailing Address Line 1	
Mailing Address Line 2	
Address Last Line - City	**State** **ZIP+4**
Previous Facility ID#	

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
016A	T	R	M	Unknown	09/01/2021	11,928		Corrosion Inhibitor		
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE						
Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.						
Items 2 & 3 below apply to large ASTs and all USTs	**Tank #** 016A	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
[signature]	President	9/23/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
NorthStar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**		
2250 East Adams Avenue			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19124	USA
Contact Title		**Phone**	**Ext.**
President		610-636-4574	
E-mail Address			
Gbowman@northstar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
016A	Kristian Satterthwaite	API 650	5081	AFR	1557	Kristian Satterthwaite	9/27/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

☐ Register Tanks(s) to be Used*
☐ Register Tank(s) to be Temporarily Out of Use
☐ Register Tank(s) to be Removed
☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

☐ Changed Owner Information
☐ Changed Contact Information
☐ Changed Facility Information
☐ Changed Facility Operator Information
☐ Changed to Currently In Use Tank(s)*
☐ Added Tank(s) to Existing Facility*
☐ Changed to Temporarily Out of Use Tank(s)
☒ Changed to Permanently Closed Tank(s)/Removed
☐ Changed Product
☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 West Passyunk Avenue	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19145	USA
Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P.	Sr.

Client Contact Title	**Phone**	**Ext**
President	610-636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			
Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name	
Employer ID# (EIN) or SSN	
Mailing Address Line 1	
Mailing Address Line 2	
Address Last Line - City	**State** **ZIP+4**
Previous Facility ID#	

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
041A	T	R	F	01/01/1931	09/01/2021	340,200		Recovered Oil		
A										
A										
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: ______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: ______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 041A	Tank #	Tank #	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☐	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☐	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	**Title**	**Date**
	President	9/23/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
NorthStar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
2250 East Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President			610-636-4574	
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
041A	Kristian Satterthwaite	API 650	5081	AFR	1557	Kristian Satterthwaite	9/27/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

REPSG
React Environmental
Professional Services Group, Inc.

August 26, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tank Registration/Permitting Application Form
PADEP Facility ID #51-33620 – Point Breeze Refinery

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Forms to change the status to permanently closed for thirteen (13) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	017A	PB 12V 11	N/A	7/13/2021
Point Breeze Refinery	51-33620	062A	PB 9V 14	N/A	7/13/2021
Point Breeze Refinery	51-33620	083A	PB 12V 12	N/A	7/13/2021
Point Breeze Refinery	51-33620	084A	PB 8Z 102	N/A	7/13/2021
Point Breeze Refinery	51-33620	082A	PB 16V 122	N/A	7/14/2021
Point Breeze Refinery	51-33620	060A	PB 9V 2	N/A	7/14/2021
Point Breeze Refinery	51-33620	079A	PB 11V 9	N/A	7/17/2021
Point Breeze Refinery	51-33620	089A	PB 89	N/A	7/21/2021
Point Breeze Refinery	51-33620	071A	PB 7316	N/A	7/23/2021
Point Breeze Refinery	51-33620	014A	PB 3V 37	N/A	7/23/2021
Point Breeze Refinery	51-33620	081A	PB 18T 1011	N/A	7/27/2021
Point Breeze Refinery	51-33620	067A	PB 1V 120	N/A	7/30/2021
Point Breeze Refinery	51-33620	068A	PB 2V 20	N/A	7/30/2021

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

Enclosures: JD2 letter
Storage Tank Registration Forms (Point Breeze)

cc:

Robert Armstrong (Northstar)	Kris Satterthwaite (JD2 Environmental)
Gary Bowman (Northstar)	Thomas Barsley (AMS)
Kassahun Sellassie (AMS)	Edward Wiener (AMS)
Charles Barksdale (Hilco)	Mike Leonardo (Hilco)

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

August 26, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	017A	PB 12V 11	N/A	7/13/2021
Point Breeze Refinery	51-33620	062A	PB 9V 14	N/A	7/13/2021
Point Breeze Refinery	51-33620	083A	PB 12V 12	N/A	7/13/2021
Point Breeze Refinery	51-33620	084A	PB 8Z 102	N/A	7/13/2021
Point Breeze Refinery	51-33620	082A	PB 16V 122	N/A	7/14/2021
Point Breeze Refinery	51-33620	060A	PB 9V 2	N/A	7/14/2021
Point Breeze Refinery	51-33620	079A	PB 11V 9	N/A	7/17/2021
Point Breeze Refinery	51-33620	089A	PB 89	N/A	7/21/2021
Point Breeze Refinery	51-33620	071A	PB 7316	N/A	7/23/2021
Point Breeze Refinery	51-33620	014A	PB 3V 37	N/A	7/23/2021
Point Breeze Refinery	51-33620	081A	PB 18T 1011	N/A	7/27/2021
Point Breeze Refinery	51-33620	067A	PB 1V 120	N/A	7/30/2021
Point Breeze Refinery	51-33620	068A	PB 2V 20	N/A	7/30/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,
JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist, PADEP Inspector #5081

KS:wc
Attachment
cc: REPSG

2630-PM-BECB0514 Form Rev. 6/2019

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY
Client ID#
Site ID#
Account #
Auth ID#
APS ID#
Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Facility Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☐ Changed Product
- ☐ Changed Contact Information
- ☐ Changed Facility Operator Information
- ☐ Added Tank(s) to Existing Facility*
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID# 298341
Client Type/Code
Fee Kind (check one if applicable) ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name: Philadelphia Energy Solutions Refining and Marketing, LLC
Employer ID# (EIN)
Dun & Bradstreet ID#

Individual Last Name: Bowman | **First Name:** Gary | **MI:** P | **Suffix:** Sr. | **SSN**

Additional Individual Last Name | **First Name** | **MI** | **Suffix** | **SSN**

Mailing Address Line 1: 3144 West Passyunk Avenue
Mailing Address Line 2

Address Last Line – City: Philadelphia | **State:** PA | **ZIP+4:** 19145 | **Country:** USA

Client Contact Last Name: Bowman | **First Name:** Gary | **MI:** P | **Suffix:** Sr.

Client Contact Title: President | **Phone:** 610-636-4574 | **Ext**

E-mail Address: gbowman@northstar.com | **FAX**

III. SITE INFORMATION

DEP Site ID# | Site Name

EPA ID# | Estimated Number of Employees to be Present at Site

Description of Site

County Name | Municipality | City ☐ | Boro ☐ | Twp ☐ | State

County Name | Municipality | City ☐ | Boro ☐ | Twp ☐ | State

Site Location Line 1 | Site Location Line 2

Site Location Last Line – City | State | ZIP+4

Detailed Written Directions to Site

Site Contact Last Name | First Name | MI | Suffix

Site Contact Title | Site Contact Firm

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4

Phone | Ext | FAX | E-mail Address

NAICS Codes (Two- & Three-Digit Codes – List All That Apply) | 6-Digit Code (Optional)

Site to Client Relationship

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name | Employer ID# (EIN) | Dun & Bradstreet ID#

Individual Last Name | First Name | MI | Suffix | SSN

Additional Individual Last Name | First Name | MI | Suffix | SSN

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4 | Country

Property Owner Contact Last Name | First Name | MI | Suffix

Property Owner Contact Title | Phone | Ext

E-mail Address | FAX

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure   Feet   --or--   Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude   Feet   --or--   Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number   Inch(es) =   Feet
--or--   Centimeter(s) =   Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ Same as Owner Identified in Section II.   ☐ Different than Owner Identified in Section II; identified below.

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name				
Employer ID# (EIN) or SSN				
Mailing Address Line 1				
Mailing Address Line 2				
Address Last Line - City		**State**		**ZIP+4**
Previous Facility ID#				

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
017A	C	R	M	04/01/2003	7/13/2021	475	HZSUB	Methanol		
062A	C	R	M	01/01/1968	7/13/2021	3,000	HZSUB	Methanol		
083A	C	R	M	10/15/2008	7/13/2021	1,600	NMO	Lube Oil		
084A	C	R	M	01/01/1971	7/13/2021	3,000	HZSUB	Corrosion Inhibitor		
082A	C	R	M	05/13/2005	7/14/2021	1,600	NMO	Lube Oil		
060A	C	R	M	01/01/1967	7/14/2021	12,000	HZSUB	Caustic		
079A	C	R	M	04/01/2003	7/17/2021	7,518	DCI6A	Corrosion Inhibitor		
089A	C	R	M	03/25/2014	7/21/2021	2,500	HZSUB	Sodium Hypochlorite		
071A	C	R	M	01/01/1972	7/23/2021	4,042	HZSUB	Acid, Phosphoric		
014A	C	R	M	01/01/1983	7/23/2021	2,000	HZSUB	Methanol		

(TANK LISTING CONTINUED NEXT PAGE)

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
081A	C	R	M	07/01/1995	7/27/2021	2,000	HZSUB	Methanol		
067A	C	R	M	01/01/1966	7/30/2021	12,580	HZSUB	Amine		
068A	C	R	M	01/01/1982	7/30/2021	2,000	OTHER	Lube Oil		

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

2630-PM-BECB0514 Rev. 6/2019
Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: ____________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ____________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ____________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 017A	Tank # 062A	Tank # 083A	Tank # 084A	Tank # 082A	Tank # 060A	Tank # 079A	Tank # 089A
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☒	☒	☒	☒	☒	☒
3. Closure document kept on file by owner.	☒	☒	☒	☒	☒	☒	☒	☒

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 071A	Tank # 014A	Tank # 081A	Tank # 067A	Tank # 068A	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☒	☒	☒	☐	☐
3. Closure document kept on file by owner.	☒	☒	☒	☒	☒	☐	☐

2630-PM-BECB0514 Rev. 6/2019
Form

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	8/26/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
NorthStar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
2250 East Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President			610-636-4574	
E-mail Address				
gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
017A	Kristian Satterthwaite	UL 142	5081	AMR	1557	Kristian Satterthwaite	8/26/21
062A	Kristian Satterthwaite	UNK	5081	AMR	1557	Kristian Satterthwaite	8/26/21
083A	Kristian Satterthwaite	UL 142	5081	AMR	1557	Kristian Satterthwaite	8/26/21
084A	Kristian Satterthwaite	UNK	5081	AMR	1557	Kristian Satterthwaite	8/26/21
082A	Kristian Satterthwaite	UL 142	5081	AMR	1557	Kristian Satterthwaite	8/26/21
060A	Kristian Satterthwaite	UNK	5081	AMR	1557	Kristian Satterthwaite	8/26/21
079A	Kristian Satterthwaite	UL 142	5081	AMR	1557	Kristian Satterthwaite	8/26/21
						Kristian Satterthwaite	8/26/21

(TANKS CONTINUED NEXT PAGE)

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
089A	Kristian Satterthwaite	ASTM 1998D	5081	AMR	1557	[illegible]	8/26/21
071A	Kristian Satterthwaite	UNK	5081	AMR	1557	[illegible]	8/26/21
014A	Kristian Satterthwaite	UL 142	5081	AMR	1557	[illegible]	8/26/21
081A	Kristian Satterthwaite	UL 142	5081	AMR	1557	[illegible]	8/26/21
067A	Kristian Satterthwaite	UNK	5081	AMR	1557	[illegible]	8/26/21
068A	Kristian Satterthwaite	ASTM 1998D	5081	AMR	1557	[illegible]	8/26/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

September 30, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	018A	PB 14V 11	N/A	8/18/2021
Point Breeze Refinery	51-33620	061A	PB 14V 403	N/A	8/18/2021
Point Breeze Refinery	51-33620	078A	PB 3126	N/A	8/18/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
51-33620	Client ID#
Facility ID #	Site ID#
	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID# 298341 | **Client Type/Code** | **Fee Kind** (check one if applicable) ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC		

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 West Passyunk Avenue	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19145	USA
Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P.	Sr.

Client Contact Title	**Phone**	**Ext**
President	610-636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#		
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title	Phone	Ext		
E-mail Address	FAX			

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	**Facility Name**	**Facility Kind**

Facility Location Line 1 (if different than Site Location)	**Facility Location Line 2**

Facility Location Last Line - City	**State**	**ZIP+4**

Latitude/Longitude Point of Origin	**Latitude**			**Longitude**		
	Degrees	**Minutes**	**Seconds**	**Degrees**	**Minutes**	**Seconds**

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	**Client Type / Code**

Organization Name or Registered Fictitious Name	**Employer ID# (EIN)**	**Dun & Bradstreet ID#**

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**

Address Last Line – City	**State**	**ZIP+4**	**Country**

Client Contact Last Name	**First Name**	**MI**	**Suffix**

Client Contact Title	**Phone**	**Ext**

E-mail Address	**FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature	**Title**	**Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
018A	T	R	M	01/01/2000	08/18/2021	3,000	OTHER	Amine		
061A	T	R	M	03/22/2000	08/18/2021	700	HZSUB	Methanol		
078A	T	R	M	UNK	08/18/2021	4,500	OTHER	Light Naphtha		
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 018A	Tank # 061A	Tank # 078A	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☒	☐	☐	☐
3. Closure document kept on file by owner.	☒	☒	☒	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	Title	Date
	President	9/29/2021

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☒ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
NorthStar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P.	Sr.	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
2250 East Adams Avenue				
Address Last Line – City		**State**	**ZIP+4**	**Country**
Philadelphia		PA	19124	USA
Contact Title			**Phone**	**Ext.**
President			610-636-4574	
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
018A	Kristian Satterthwaite	API 650	5081	AMR	1557	Kristian Satterthwaite	9/30/21
061A	Kristian Satterthwaite	API 650	5081	AMR	1557	Kristian Satterthwaite	9/30/21
078A	Kristian Satterthwaite	API 650	5081	AMR	1557	Kristian Satterthwaite	9/30/21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

REPSG
React Environmental
Professional Services Group, Inc.

July 12, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tank Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration Forms to change the status to permanently closed for three (3) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	024A	PB 129	P-511 (PB)	06/25/2021
Point Breeze Refinery	51-33620	007A	PB 190	P545 (PB)	07/02/2021
Point Breeze Refinery	51-33620	075A	PB 21T 3109	n/a	07/02/2021

If you have any questions, please do not hesitate to contact me at 215-852-9226.

Respectfully Submitted,
React Environmental Professional Services Group, Inc.

Jerry F. Naples, Jr.
Principal

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

Office: 215.729.3220
Fax: 215.729.1557
www.repsg.com

Enclosures: JD2 letter
Storage Tank Registration Forms (Point Breeze)

cc:

Robert Armstrong (Northstar)	Kris Satterthwaite (JD2 Environmental)
Gary Bowman (Northstar)	Thomas Barsley (AMS)
Kassahun Sellassie (AMS)	Edward Wiener (AMS)
Charles Barksdale (Hilco)	Mike Leonardo (Hilco)

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

July 6, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	024A	PB 37	--	6/25/2021
Point Breeze Refinery	51-33620	007A	PB 190	--	7/02/2021
Point Breeze Refinery	51-33620	075A	PB 21T 3109	--	7/02/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

David J. Piercey
Vice President
PADEP Inspector #1620

DJP:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID#	Site Name				
EPA ID#	Estimated Number of Employees to be Present at Site				
Description of Site					
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
County Name	Municipality	City ☐	Boro ☐	Twp ☐	State
Site Location Line 1	Site Location Line 2				
Site Location Last Line – City	State	ZIP+4			
Detailed Written Directions to Site					
Site Contact Last Name	First Name	MI	Suffix		
Site Contact Title	Site Contact Firm				
Mailing Address Line 1	Mailing Address Line 2				
Address Last Line – City	State	ZIP+4			
Phone	Ext	FAX	E-mail Address		
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)	6-Digit Code (Optional)				
Site to Client Relationship					

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			

Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN

Additional Individual Last Name	First Name	MI	Suffix	SSN

Mailing Address Line 1	Mailing Address Line 2

Address Last Line – City	State	ZIP+4	Country

Client Contact Last Name	First Name	MI	Suffix

Client Contact Title	Phone	Ext

E-mail Address	FAX

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name			
Employer ID# (EIN) or SSN			
Mailing Address Line 1			
Mailing Address Line 2			
Address Last Line - City		**State**	**ZIP+4**
Previous Facility ID#			

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
024A	T	R	F	1/1/1994	06/25/2021	3,200,400	Gas Compnets			
007A	T	R	F	1/1/1950	07/02/2021	5,817,000	Heavy Naptha			
075A	C	R	M	9/15/2000	07/02/2021	500	Methanol			
A										
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 024A	Tank # 007A	Tank # 075A	Tank #	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☐	☐	☐	☐
3. Closure document kept on file by owner.	☒	☒	☐	☐	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name **Gary Bowman**

[signature]	**President**	07/02/2021
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City	**State**	**ZIP+4**		**Country**
Philadelphia	PA	19124		USA
Contact Title		**Phone**		**Ext.**
President				
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
024A	David Piercey	API 650	1620	AFR	1557	[signature]	7-6-21
007A	David Piercey	API 650	1620	AFR	1557	[signature]	7-6-21
0075A	David Piercey	UL 142	1620	AMR	1557	[signature]	7-6-21

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

June 21, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	027A	PB 42	P-515	6/09/2021
Point Breeze Refinery	51-33620	004A	PB 83	P-518	6/10/2021
Point Breeze Refinery	51-33620	085A	PB 1224	N/A	6/11/2021
Point Breeze Refinery	51-33620	025A	PB 39	P-513	6/16/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

51-33620
Facility ID #

Phila Ref Point Breeze
Facility Name

DEP USE ONLY	
Client ID#	
Site ID#	
Account #	
Auth ID#	
APS ID#	
Master Auth ID#	

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Contact Information
- ☐ Changed Facility Information
- ☐ Changed Facility Operator Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Added Tank(s) to Existing Facility*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed Product
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ **Volunteer Fire Co/EMS Org** ☐ **State Govt** ☐ **Fed Govt**

Organization Name or Registered Fictitious Name: Philadelphia Energy Solutions Refining and Marketing, LLC
Employer ID# (EIN):
Dun & Bradstreet ID#:

Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	

Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**
3144 W. Passyunk Ave	

Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19141-5299	USA

Client Contact Last Name	**First Name**	**MI**	**Suffix**
Bowman	Gary	P	Sr

Client Contact Title	**Phone**	**Ext**
President	610 636-4574	

E-mail Address	**FAX**
Gbowman@northstar.com	

III. SITE INFORMATION

DEP Site ID#	Site Name					
EPA ID#	Estimated Number of Employees to be Present at Site					
Description of Site						
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
County Name	Municipality		City ☐	Boro ☐	Twp ☐	State
Site Location Line 1		Site Location Line 2				
Site Location Last Line – City		State	ZIP+4			
Detailed Written Directions to Site						
Site Contact Last Name	First Name	MI	Suffix			
Site Contact Title		Site Contact Firm				
Mailing Address Line 1		Mailing Address Line 2				
Address Last Line – City		State	ZIP+4			
Phone	Ext	FAX	E-mail Address			
NAICS Codes (Two- & Three-Digit Codes – List All That Apply)			6-Digit Code (Optional)			
Site to Client Relationship						

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	First Name	MI	Suffix	SSN
Mailing Address Line 1	Mailing Address Line 2			
Address Last Line – City	State	ZIP+4	Country	
Property Owner Contact Last Name	First Name	MI	Suffix	
Property Owner Contact Title		Phone	Ext	
E-mail Address			FAX	

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID#	Facility Name	Facility Kind

Facility Location Line 1 (if different than Site Location)	Facility Location Line 2

Facility Location Last Line - City	State	ZIP+4

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure	Feet	*--or--*	Meters
Horizontal Reference Datum Code	☐ North American Datum of 1927 ☐ North American Datum of 1983 ☐ World Geodetic System of 1984		
Horizontal Collection Method Code			
Reference Point Code			
Altitude	Feet	*--or--*	Meters
Altitude Datum Name	☐ The National Geodetic Vertical Datum of 1929 ☐ The North American Vertical Datum of 1988 (NAVD88)		
Altitude (Vertical) Location Datum Collection Method Code			
Geometric Type Code			
Data Collection Date			
Source Map Scale Number	Inch(es)	=	Feet
--or--	Centimeter(s)	=	Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID#	Client Type / Code

Organization Name or Registered Fictitious Name	Employer ID# (EIN)	Dun & Bradstreet ID#

Individual Last Name	First Name	MI	Suffix	SSN
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	Mailing Address Line 2		
Address Last Line – City	**State**	**ZIP+4**	**Country**
Client Contact Last Name	**First Name**	**MI**	**Suffix**
Client Contact Title		**Phone**	**Ext**
E-mail Address			**FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name	
Employer ID# (EIN) or SSN	
Mailing Address Line 1	
Mailing Address Line 2	
Address Last Line - City	**State** **ZIP+4**
Previous Facility ID#	

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

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Form

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.
Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place
Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
027A	T	R	F	01/01/1958	06/09/2021	2,818,200	#2 Fuel Oil			
004A	T	R	F	01/01/1950	06/10/2021	3,288,600	Distillate			
085A	T	R	F	01/01/2012	06/11/2021	6,006	Pour Depressant			
025A	T	R	F	01/01/1955	06/16/2021	3,410,400	Gasoline			
A										
A										
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ______________________________	☐	☐	☐	☐	☐	☐

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Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: _______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: _______________________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ____________	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ____________	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 027A	Tank # 004A	Tank # 085A	Tank # 025A	Tank #	Tank #
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☒	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☒	☒	☐	☐
3. Closure document kept on file by owner.	☒	☒	☒	☒	☐	☐

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name **Gary Bowman**

	President	6/18/2021
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**

Mailing Address Line 1	**Mailing Address Line 2**		
250 E. Adams Avenue			
Address Last Line – City	**State**	**ZIP+4**	**Country**
Philadelphia	PA	19124	USA
Contact Title		**Phone**	**Ext.**
President			
E-mail Address			
Gbowman@northstar.com			
Client to Site (Facility) Relationship			

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
027A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
004A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
085A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
025A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Original Submission

Submission date:

6/21/21

Errors Highlighted in Yellow

REPSG
React Environmental
Professional Services Group, Inc.

June 21, 2021

Pennsylvania Department of Environmental Protection
Southeast Regional Office
Division of Storage Tanks
2 East Main Street
Norristown, Pennsylvania 19401
Attn: Mr. Ron Estel
restel@pa.gov

Re: Philadelphia Energy Solutions Refining and Marketing, LLC (PES)
PADEP Storage Tanks Registration/ Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Mr. Estel:

On behalf of our client, Northstar, enclosed please find JD2 Environmental, Inc.'s (JD2's) submittal of the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tank Registration/ Permitting Application Forms to change the status to permanently closed for ten (10) tanks located at the Philadelphia Energy Solutions Refining and Marketing, LLC site.

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	056A	PB 882	P-600 (PB)	5/20/2021
Point Breeze Refinery	51-33620	002A	PB 33	P-507 (PB)	5/21/2021
Point Breeze Refinery	51-33620	029A	PB 84	P-519 (PB)	5/26/2021
Point Breeze Refinery	51-33620	938A	PB 178	P-541 (PB)	5/27/2021
Point Breeze Refinery	51-33620	039A	PB 179	P-542 (PB)	6/04/2021
Point Breeze Refinery	51-33620	028A	PB 43	P-516 (PB)	6/07/2021
Point Breeze Refinery	51-33620	027A	PB 42	P-515 (PB)	6/09/2021
Point Breeze Refinery	51-33620	004A	PB 83	P-518 (PB)	6/10/2021
Point Breeze Refinery	51-33620	085A	PB 1224	N/A	6/11/2021
Point Breeze Refinery	51-33620	025A	PB 39	P-513 (PB)	6/16/2021

P.O. Box 5377
6901 Kingsessing Avenue, Suite 201
Philadelphia, PA 19142-0377

Office: 215.729.3220
Fax: 215.729.1557
www.repsg.com

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

June 21, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	056A	PB 882	P-600	5/20/2021
Point Breeze Refinery	51-33620	002A	PB 33	P-507	5/21/2021
Point Breeze Refinery	51-33620	029A	PB 84	P-519	5/26/2021
Point Breeze Refinery	51-33620	938A	PB 178	P-541	5/27/2021
Point Breeze Refinery	51-33620	039A	PB 179	P-542	6/04/2021
Point Breeze Refinery	51-33620	028A	PB 43	P-516	6/07/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.

Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
056A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
002A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
029A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
938A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
039A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
028A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Revised Submittal

This copy of the original paperwork has been corrected and is attached in its entirety

JD2 Environmental Inc.
800 East Washington Street • West Chester, PA 19380 • 610.430.8151 • 610.430.8016 Fax • www.jd2env.com

June 21, 2021

VIA EMAIL (ELECTRONIC SUBMISSION)

Pennsylvania Department of Environmental Protection
Central Office - Division of Storage Tanks
Rachel Carson State Office Building
400 Market Street
Harrisburg, Pennsylvania 17101

Subject: **Philadelphia Energy Solutions Refining and Marketing, LLC (PES)**
PADEP Storage Tanks Registration/Permitting Application Form
PADEP Facility ID #51-33620 - Point Breeze Refinery

Dear PADEP:

On behalf of our client, JD2 Environmental, Inc. (JD2) is attaching the Pennsylvania Department of Environmental Protection's (PADEP's) Storage Tanks Registration/Permitting Application Form for the removal of the following aboveground storage tanks (ASTs):

Facility Name	PADEP Facility ID #	PADEP Tank ID #	Owner Tank ID #	AMS Tank ID #	Removal Date
Point Breeze Refinery	51-33620	056A	PB 882	P-600	5/20/2021
Point Breeze Refinery	51-33620	002A	PB 33	P-507	5/21/2021
Point Breeze Refinery	51-33620	029A	PB 84	P-519	5/26/2021
Point Breeze Refinery	51-33620	038A	PB 178	P-541	5/27/2021
Point Breeze Refinery	51-33620	039A	PB 179	P-542	6/04/2021
Point Breeze Refinery	51-33620	028A	PB 43	P-516	6/07/2021

If you have any questions regarding this submittal, please do not hesitate to contact me at (610) 430-8151.

Sincerely yours,

JD2 ENVIRONMENTAL, INC.
Kristian Satterthwaite

Kristian Satterthwaite
Environmental Scientist
PADEP Inspector #5081

KS:wc
Attachment

cc: REPSG

2630-PM-BECB0514 Rev. 6/2019
Form

pennsylvania
DEPARTMENT OF ENVIRONMENTAL PROTECTION

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION
BUREAU OF ENVIRONMENTAL CLEANUP AND BROWNFIELDS

STORAGE TANKS REGISTRATION / PERMITTING APPLICATION FORM

Before completing this form, read the step-by-step instructions provided in this application package.

	DEP USE ONLY
	Client ID#
51-33620	Site ID#
Facility ID #	Account #
	Auth ID#
Phila Ref Point Breeze	APS ID#
Facility Name	Master Auth ID#

I. PURPOSE OF SUBMITTAL

INITIAL (Applies to First-Time Facility Registration)

- ☐ Register Tanks(s) to be Used*
- ☐ Register Tank(s) to be Removed
- ☐ Register Tank(s) to be Temporarily Out of Use
- ☐ Register Tank(s) to be Closed in Place

AMENDED (Applies to Currently Registered Tank(s) or Existing Facility)

- ☐ Changed Owner Information
- ☐ Changed Facility Information
- ☐ Changed to Currently In Use Tank(s)*
- ☐ Changed to Temporarily Out of Use Tank(s)
- ☐ Changed Product
- ☐ Changed Contact Information
- ☐ Changed Facility Operator Information
- ☐ Added Tank(s) to Existing Facility*
- ☒ Changed to Permanently Closed Tank(s)/Removed
- ☐ Changed to Exempt Tank(s)

CHANGE OF OWNERSHIP

- ☐ Tanks Changed Ownership and Remain at Same Facility*

* **For Underground Storage Tanks (UST), attach the UST Operator Training Documentation Form (2630-PM-BECB0514a) and copies of the Class A and Class B operator training certificates.**

II. CURRENT OR NEW TANK OWNER / CLIENT INFORMATION

DEP Client ID#: 298341
Client Type/Code:
Fee Kind (check one if applicable): ☐ Volunteer Fire Co/EMS Org ☐ State Govt ☐ Fed Govt

Organization Name or Registered Fictitious Name		Employer ID# (EIN)		Dun & Bradstreet ID#
Philadelphia Energy Solutions Refining and Marketing, LLC				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
3144 W. Passyunk Ave				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19141-5299	USA	
Client Contact Last Name	**First Name**	**MI**	**Suffix**	
Bowman	Gary	P	Sr	
Client Contact Title		**Phone**	**Ext**	
President		610 636-4574		
E-mail Address			**FAX**	
Gbowman@northstar.com				

III. SITE INFORMATION

DEP Site ID# | Site Name

EPA ID# | Estimated Number of Employees to be Present at Site

Description of Site

County Name | Municipality | ☐ City ☐ Boro ☐ Twp | State

County Name | Municipality | ☐ City ☐ Boro ☐ Twp | State

Site Location Line 1 | Site Location Line 2

Site Location Last Line – City | State | ZIP+4

Detailed Written Directions to Site

Site Contact Last Name | First Name | MI | Suffix

Site Contact Title | Site Contact Firm

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4

Phone | Ext | FAX | E-mail Address

NAICS Codes (Two- & Three-Digit Codes – List All That Apply) | 6-Digit Code (Optional)

Site to Client Relationship

IIIa. PROPERTY OWNER INFORMATION

☐ Same as Tank Owner Identified in Section II. ☐ Different than Tank Owner Identified in Section II; identified below.

Organization Name or Registered Fictitious Name | Employer ID# (EIN) | Dun & Bradstreet ID#

Individual Last Name | First Name | MI | Suffix | SSN

Additional Individual Last Name | First Name | MI | Suffix | SSN

Mailing Address Line 1 | Mailing Address Line 2

Address Last Line – City | State | ZIP+4 | Country

Property Owner Contact Last Name | First Name | MI | Suffix

Property Owner Contact Title | Phone | Ext

E-mail Address | FAX

IV. FACILITY INFORMATION

DEP Storage Tank Facility ID# **Facility Name** **Facility Kind**

Facility Location Line 1 (if different than Site Location) **Facility Location Line 2**

Facility Location Last Line - City **State** **ZIP+4**

Latitude/Longitude Point of Origin	Latitude			Longitude		
	Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

Horizontal Accuracy Measure Feet --or-- Meters

Horizontal Reference Datum Code
- ☐ North American Datum of 1927
- ☐ North American Datum of 1983
- ☐ World Geodetic System of 1984

Horizontal Collection Method Code

Reference Point Code

Altitude Feet --or-- Meters

Altitude Datum Name
- ☐ The National Geodetic Vertical Datum of 1929
- ☐ The North American Vertical Datum of 1988 (NAVD88)

Altitude (Vertical) Location Datum Collection Method Code

Geometric Type Code

Data Collection Date

Source Map Scale Number Inch(es) = Feet

--or-- Centimeter(s) = Meters

Flammable & Combustible Liquid Permit # (if applicable)

State or Municipality that Issued the Permit

FACILITY OPERATOR INFORMATION

☐ **Same as Owner Identified in Section II.** ☐ **Different than Owner Identified in Section II; identified below.**

DEP Client ID# **Client Type / Code**

Organization Name or Registered Fictitious Name **Employer ID# (EIN)** **Dun & Bradstreet ID#**

Individual Last Name **First Name** **MI** **Suffix** **SSN**

Additional Individual Last Name **First Name** **MI** **Suffix** **SSN**

Mailing Address Line 1 **Mailing Address Line 2**

Address Last Line – City **State** **ZIP+4** **Country**

Client Contact Last Name **First Name** **MI** **Suffix**

Client Contact Title **Phone** **Ext**

E-mail Address **FAX**

V. CHANGE OF OWNERSHIP INFORMATION

☐ **All Tanks Changed Ownership at the Facility**

☐ **Some Tanks Changed Ownership at the Facility** (List all applicable tank numbers in Section VI.)

OWNERSHIP CHANGE TO - Client information is noted in Section II.

OWNERSHIP CHANGE FROM (previous owner information)

Name

Employer ID# (EIN) or SSN

Mailing Address Line 1

Mailing Address Line 2

Address Last Line - City **State** **ZIP+4**

Previous Facility ID#

DATE OF SALE/TRANSFER	

SIGNATURE & CERTIFICATION OF PREVIOUS OWNER

Previous owner's signature is not available. As required, the "new" owner has attached a deed of transfer or other proof of ownership to this application. ☐ **Yes** ☐ **No** ☐ **N/A**

I have reviewed this form for submission to the Department. I certify under penalty of law as provided in 18 PA. C.S.A. §4903 (relating to false swearing) and 18 PA. C.S.A. §4904 (relating to unsworn falsification to authorities), that I have the authority to sign this Section for the transfer of permit or registration for the storage tanks listed herein. Further, I certify that all information provided in Section V is true, accurate and complete to the best of my knowledge and belief.

Type or Print Previous Owner Name

Previous Owner Signature **Title** **Date**

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VI. STORAGE DESCRIPTION

Type or print legibly each regulated storage tank at this facility under your ownership.

Status Codes: C-Currently in Use T-Temporarily Out of Use E-Exempt R-Removed P-Closed In Place

Type Codes: M-Manufactured F-Field Constructed

A. ABOVEGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code
056A	T	R	F	01/01/1959	05/20/2021	8,421,000	Crude			
002A	T	R	F	01/01/1956	05/21/2021	2,935,800	Gasoline			
029A	T	R	F	01/01/1950	05/26/2021	3,288,208	Distillate			
038A	T	R	F	01/01/1974	05/27/2021	6,346,200	Heavy Naphtha			
039A	T	R	F	01/01/1974	06/04/2021	4,620,000	Light Naphtha			
028A	T	R	F	01/01/1955	06/07/2021	3,385,200	Distillate			
A										
A										
A										
A										

B. UNDERGROUND TANKS. List all new tanks. If amending information, list only those tanks being amended. Copy this page if more lines are needed.

Tank#	Prev Status	New Status	Type	Install Date (Mo/Day/Yr)	Change of Status Date (Mo/Day/Yr)	Capacity (Gallons)	Substance Code (Currently or Last Stored)	CERCLA Name (If Hazardous Substance) Substance Name (If Other Petroleum Substance or Petroleum Based Mixture)	CAS# (If Hazardous Substance)	Exempt Reference Code

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VII. ABOVEGROUND & UNDERGROUND NEW TANK INSTALLATION INFORMATION

The DEP Certified Installer should complete this section. New tanks listed in Section VI must also be listed in this Section. Write the Tank Number(s) and place an ☒ in the appropriate box for each component that was installed.

Tank Construction & Corrosion Protection (1)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
Tank Manufacturer:						
Model:						
A. Unprotected Steel (Single Wall)	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Steel (Galvanic)	☐	☐	☐	☐	☐	☐
C. Cathodically Protected Steel (Impressed Current)	☐	☐	☐	☐	☐	☐
D. Unprotected Steel (Double Wall)	☐	☐	☐	☐	☐	☐
E. Fiberglass (Single Wall)	☐	☐	☐	☐	☐	☐
F. Fiberglass (Double Wall)	☐	☐	☐	☐	☐	☐
G. Steel w/Plastic or Fiberglass Jacket or Double Wall Act 100	☐	☐	☐	☐	☐	☐
H. Steel With FRP Coating (Act 100 or Equivalent)	☐	☐	☐	☐	☐	☐
I. Steel with Lined Interior	☐	☐	☐	☐	☐	☐
J. Concrete	☐	☐	☐	☐	☐	☐
O. Cathodically Protected Double Wall Steel (Galvanic)	☐	☐	☐	☐	☐	☐
P. Cathodically Protected Steel with Liner	☐	☐	☐	☐	☐	☐
Q. Double Bottom (ASTs Only)	☐	☐	☐	☐	☐	☐
R. Molded Plastic Form (ASTs Only)	☐	☐	☐	☐	☐	☐
S. Stainless Steel	☐	☐	☐	☐	☐	☐
T. Aluminum	☐	☐	☐	☐	☐	☐
U. Fire Protected Double Wall AST	☐	☐	☐	☐	☐	☐
V. Steel with Plastic or Fiberglass Jacket or Double Wall Act 100 with Anodes	☐	☐	☐	☐	☐	☐
W. Steel with FRP Coating (Act 100 or Equivalent) with Anodes	☐	☐	☐	☐	☐	☐
X. Molded Plastic Form (Double Wall) (AST's Only)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Underground Piping Construction & Corrosion Protection – Single/Inner Wall (28)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Primary (Inner) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
99. Other: ________	☐	☐	☐	☐	☐	☐

Underground Piping Construction & Corrosion Protection – Outer Wall (29)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
Secondary (Outer) Piping Manufacturer:						
Model:						
A. Bare Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
D. Fiberglass	☐	☐	☐	☐	☐	☐
E. Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
G. No Dispensing Piping	☐	☐	☐	☐	☐	☐
L. Poly-encased Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ________	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Aboveground Piping Construction & Corrosion Protection (3)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Carbon Steel	☐	☐	☐	☐	☐	☐
B. Cathodically Protected Metallic	☐	☐	☐	☐	☐	☐
C. Copper	☐	☐	☐	☐	☐	☐
D. Single Wall Fiberglass	☐	☐	☐	☐	☐	☐
E. Single Wall Flexible (Non-Metallic)	☐	☐	☐	☐	☐	☐
F. PVC	☐	☐	☐	☐	☐	☐
G. None	☐	☐	☐	☐	☐	☐
I. Double Wall - Metallic Primary	☐	☐	☐	☐	☐	☐
J. Double Wall - Rigid (FRP) Primary	☐	☐	☐	☐	☐	☐
K. Double Wall - Flexible Primary	☐	☐	☐	☐	☐	☐
L. Stainless Steel	☐	☐	☐	☐	☐	☐
99. Other: ____________	☐	☐	☐	☐	☐	☐

Product Delivery System (4)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Suction: Check valve at pump	☐	☐	☐	☐	☐	☐
B. Suction: Check valve at tank	☐	☐	☐	☐	☐	☐
C. Pressure	☐	☐	☐	☐	☐	☐
D. Gravity fed	☐	☐	☐	☐	☐	☐
E. None	☐	☐	☐	☐	☐	☐

Spill Prevention (6)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
S. Permanently installed and liquid tight (single-walled)	☐	☐	☐	☐	☐	☐
D. Permanently installed and liquid tight (double-walled)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Overfill Prevention (7)	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Overfill alarm	☐	☐	☐	☐	☐	☐
E. Fill in less than 25 gallons (exempt)	☐	☐	☐	☐	☐	☐
N. None (AST only)	☐	☐	☐	☐	☐	☐
S. Drop tube shutoff device	☐	☐	☐	☐	☐	☐
Y. Yes (AST only) Type: ______________	☐	☐	☐	☐	☐	☐

Emergency Containment (16) ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ______________	☐	☐	☐	☐	☐	☐
Y. Yes (includes double-walled tanks with required appurtenances)	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Secondary Containment (17) Single Wall ASTs only	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
N. No - Explain: ______________	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐
V. Underground vault	☐	☐	☐	☐	☐	☐

Stage I Vapor Recovery (19) USTs and ASTs when applicable	Tank #	Tank #	Tank #	Tank #	Tank #	Tank #
A. Coaxial	☐	☐	☐	☐	☐	☐
B. 2 Point	☐	☐	☐	☐	☐	☐
N. None or incomplete	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

Tank-top Containment Sumps Present (Product Piping Only) (21) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some penetrations and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. At all penetrations and liquid tight	☐	☐	☐	☐	☐	☐

Under-dispenser Containment Present (22) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. None – Explain: ______	☐	☐	☐	☐	☐	☐
S. At some dispensers and liquid tight – Explain: ______	☐	☐	☐	☐	☐	☐
A. Under all dispensers and liquid tight	☐	☐	☐	☐	☐	☐

Line Leak Detector Shuts Off Pump (23) USTs only	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Tank Supplies Emergency Generator (25)	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**	**Tank #**
N. No	☐	☐	☐	☐	☐	☐
Y. Yes	☐	☐	☐	☐	☐	☐

Facility ID# 51-33620 Facility Name Phila Ref Point Breeze

VIII. ABOVEGROUND & UNDERGROUND TANK INFORMATION FOR PERMANENT CLOSURE

Write the Tank Number(s) and place an ☒ in the appropriate box for each tank that was removed or closed in place.

Items 2 & 3 below apply to large ASTs and all USTs	Tank # 056A	Tank # 002A	Tank # 029A	Tank # 038A	Tank # 039A	Tank # 028A
1. Contamination suspected or observed and notification of contamination form was submitted to the appropriate DEP regional office.	☐	☐	☐	☐	☐	☐
2. Closure document submitted to the appropriate DEP regional office.	☒	☒	☒	☒	☒	☒
3. Closure document kept on file by owner.	☒	☒	☒	☒	☒	☒

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. This registration is conditioned upon compliance with provisions of the Storage Tank and Spill Prevention Act of 1989, all applicable regulations, and with the requirements for obtaining and maintaining a permit required under this Act. I certify my responsibility for assuring the following permit requirements:

- Storage tank systems are in compliance with applicable administrative, technical and operational requirements as specified in Subchapter E for underground tanks or Subchapter F or G for aboveground tanks.
- Tank handling and inspection activities are performed by an individual possessing DEP certification in the appropriate category as required in Subchapters A and B.
- Underground storage tanks meet the applicable financial responsibility requirements of Subchapter H (relating to financial responsibility requirements).
- A Spill Prevention Response (SPR) Plan must be submitted to the appropriate DEP regional office for facilities that have aboveground storage tanks where the total capacity of all aboveground tanks is greater than 21,000 gallons.
- Other state and local permits required for operation of the tank system have been attained.

My signature represents to the Department that I own the storage tank(s) and am aware of the responsibilities and potential liabilities as an "owner" arising under the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I am also advised that statements made on this registration is made subject to the penalties of 18 PA. C.S.A. Section 4904 relating to unsworn falsification to authorities.

Type or Print Owner Name Gary Bowman

Owner Signature	President	6/18/2021
Owner Signature	**Title**	**Date**

Information & Invoices should be sent to:

☒ **Tank Owner Contact**
☒ **Site Contact**
☐ **Facility Operator**
☐ **Other Responsible Party Identified Below**

Organization Name or Registered Fictitious Name		**Employer ID# (EIN)**		**Dun & Bradstreet ID#**
Northstar Contracting Group, Inc.				
Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Bowman	Gary	P	Sr	
Additional Individual Last Name	**First Name**	**MI**	**Suffix**	**SSN**
Mailing Address Line 1	**Mailing Address Line 2**			
250 E. Adams Avenue				
Address Last Line – City	**State**	**ZIP+4**	**Country**	
Philadelphia	PA	19124	USA	
Contact Title		**Phone**	**Ext.**	
President				
E-mail Address				
Gbowman@northstar.com				
Client to Site (Facility) Relationship				

X. INSTALLER / REMOVER CERTIFICATION

This section must be completed by the certified tank handler(s) who is responsible for the installation or removal from service of the aboveground and underground storage tank systems listed in Section VI. Tank modification activity must be submitted on a "Tank Modification Report" form.

SIGNATURE & CERTIFICATION OF INSTALLER(S) / REMOVER(S)

As the certified tank handler responsible for the tank handling activities in the category or categories listed, I certify that all tank handling activities were conducted in compliance with the design, installation and operation standards of the Storage Tank and Spill Prevention Act of 1989 and all applicable regulations. I also certify, under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided therein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Installer/Remover Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Installer/Remover Signature	Date
056A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
002A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
029A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
038A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
039A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021
028A	Kristian Satterthwaite		5081	AFR	1557	Kristian Satterthwaite	6/18/2021

XI. INSPECTOR CERTIFICATION

This section must be completed by the DEP Certified Tank Inspector(s) who is responsible for verifying the installation standards for field constructed tanks and aboveground tanks greater than 21,000 gallons listed in Section VI. (Type or Print legibly) A DEP Certified Inspector may also be responsible for inspecting existing ASTs which are entering regulated service for the first time with no tank handling activities.

SIGNATURE & CERTIFICATION OF INSPECTOR(S)

As the certified tank inspector responsible for verifying tank handling activities and construction standards, I certify that the tank(s) listed below are constructed to appropriate industry standards and, if applicable, to manufacturer's specifications; that the tank(s) have been tested as required by industry standards; and that the tank(s) meet or exceed applicable design and operating standards; and are in compliance with the requirements of the Storage Tank and Spill Prevention Act of 1989, and all applicable regulations. I also certify under penalty of law as provided in 18 PA C.S.A. 4904 (relating to unsworn falsification to authorities), that the information provided herein is true, accurate and complete to the best of my knowledge and belief.

Tank#	Inspector Name	Construction Standard	Individual Certification#	Certification Category	Company Certification#	Inspector Signature	Date

XII. SITE SPECIFIC INSTALLATION PERMIT NUMBER

If a site-specific permit was required for a new tank installation, write the tank number(s) and permit number(s) in the appropriate box.

Site-Specific Installation Permit	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#	Tank#

Appendix G

Laboratory Reports and LNAPL Forensics

ChemQuants™
ENVIRONMENTAL FORENSICS

Client: Terraphase Engineering, Inc.

ATTN: Michael McDonald

Project#: 0290

Project name: Former PES Refinery

Laboratory#: L2271579, 2300359, 2307344

Interpreter™

July 3, 2023

Michael McDonald
Terraphase Engineering, Inc.
1100 E. Hector St.
Conshohocken, PA 19428

CQ Project: #0290
Project Name: Former PES Refinery, Philadelphia, PA

Introduction

I am the principal at ChemQuants, LLC, an environmental forensics firm in Santa Barbara, California. I received a bachelor's degree in Chemistry, a second bachelor's degree in Environmental Science, and a Master's in Analytical Chemistry from Florida International University. My professional experience has focused on oil spill environmental forensics. My specialties include petroleum release investigations on coastal waterways, subsurface environments at petroleum terminals and fueling stations, and "big environmental data" chemometrics and data visualization. Besides being chair at a scientific conference, I have authored numerous publications and presentations to my peers.

ChemQuants, LLC. was hired by Terraphase Engineering, Inc. to review the chemistry data reports in the tables below. I was asked to provide expert opinions regarding environmental forensics concerning twelve product samples. The samples that were investigated are in the table below.

Analytical Chemistry

The samples were analyzed at Alpha Analytical, Inc. (Mansfield, MA). The tables contain sample ID information, Laboratory ID information, ChemQuants project ID, sample matrix, and chemical methods[1].

Alpha Analytical

1) *Saturated Hydrocarbons by GC/FID / EPA 8015D*
2) *Alkylated PAHs & Petroleum Biomarkers w/ Full Scan TICs by GC/MS / EPA 8270D-SIM(M)*
3) *C5-C12 PIANO w/ Oxygenates and additives quantification and fingerprinting by GC/MS / EPA 8260B (Mod.)*
4) *Organic Lead by GC/MS / EPA 8270D-SIM*
5) *Density (subcontracted)*

[1] Douglas, G.D., Emsbo-Mattingly, S.D., Stout, S.A., Uhler, A.D., and McCarthy, K.J. (2007) Chemical fingerprinting of hydrocarbons and polychlorinated biphenyls. In: Introduction to Environmental Forensics, 2nd Ed., B. Murphy and R. Morrison, Eds., Academic Press, New York, pp. 317-459.

Product Samples

Client ID	Lab ID	Lab	CQ Project	Matrix	Organic Lead Isomers	8015D GC/FID	VOC PIANO GC/MS	Alkylated PAHs & Biomarkers GC/MS
TG02-MW03-221220	L2271579-01	Alpha	0290	Product	X	X	X	X
TG02-MW04-221220	L2271579-02	Alpha	0290	Product	X	X	X	X
TG02-MW05-221220	L2271579-03	Alpha	0290	Product	X	X	X	X
TG02-MW06-221220	L2271579-04	Alpha	0290	Product	X	X	X	X
TG02-MW08-221220	L2271579-05	Alpha	0290	Product	X	X	X	X
TG02-MW09-221220	L2271579-06	Alpha	0290	Product	X	X	X	X
TG02-MW10-221220	L2271579-07	Alpha	0290	Product	X	X	X	X
TG02-MW11-221219	L2271579-08	Alpha	0290	Product	X	X	X	X
TG02-MW12-221220	L2271579-09	Alpha	0290	Product	X	X	X	X
TG02-MW15-221220	L2271579-10	Alpha	0290	Product	X	X	X	X
TG07-MW6-230104	L2300359-01	Alpha	0290	Product	X	X	X	X
TG07-MW7-230209	L2307344-01	Alpha	0290	Product	X	X	X	X

Investigative methodology

This report dealt with the analysis of twelve LPH samples. Fingerprinting methods characterized the LPH. The forensics quality chemical data employed data analysis techniques typically used in a subsurface gasoline forensics investigation. Weathering of the refined parent gasoline was assessed with petroleum geochemistry molecular ratios[2]. The petroleum refinery process and properties lines of evidence were applied and based on well-established process forensics insights. These insights included historical knowledge of refiners' hydrocarbon feedstock properties, types, and blending strategies[3].

The scope of this investigation includes petroleum type classifications, probable petroleum source origins, and possible time of release examinations wherever possible with the finished gasoline and middle distillate range petroleum signatures. The project context involved ten product samples from Tank Group 02 and two from Tank Group 7. The chemical distributions of VOC and SVOC petroleum signatures were presented in the Fingerprint Mosaics (figures 7 to 34). The sample's general geospatial attributes are exhibited in Figures 1 and 2. The map in

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[2] Peters, K. E., C. C. Walters, and J. M. Moldowan. The biomarker guide: Volume 2, Biomarkers and isotopes in petroleum systems and earth history. Cambridge University Press, 2007.
[3] Stout, Scott A., Gregory S. Douglas, and Alen D. Uhler. "Automotive gasoline." Environmental Forensics Contaminant Specific Guide (2006): 465-531.

Figure 2 was coded with a color scheme corresponding to the diagnostic chemistry illustrations in Figures 4 to 6. The 12 LPHs exhibited complex mixtures of petroleum and pyrogenic residues. The mixture proportions of the dominant petroleum and pyrogenic aspects were estimated numerically and presented as a grouped bar graph in Figure 3 and a scatter plot in Figure 4. Note: Two LPHs collected from Tank Group 7 were examined separately from the ten LPH samples collected from Tank Group 2 at the end of the report. Also, environmental forensics characterization and age constraining of the refined gasoline relied on the presence/absence and assemblages of oxygenate additives, organic lead additives, and organic sulfur species.

Fingerprint Mosaics

Fingerprint Mosaics™ exhibited critical fingerprint features of the samples and served as technical references for sample-by-sample evaluations and review of diagnostic ratios (figures 7-34). Fingerprint Mosaics contain essential chemical information extracted from the analytical chemistry reports employed for this investigation and historical documents. Fingerprint Mosaics consist of the following elements:

- Color annotated bar graphs of VOC PIANO data. The bar graph contains a color key describing the chemical classes in the data (figures 7-9).
- Color annotated bar graphs of SVOC saturated hydrocarbon data. The bar graphs contain color keys describing the chemical classes in the data (figures 10-12).
- Color annotated bar graphs of SVOC parent and alkylated PAH, SPAH, and Petroleum Biomarker data. The bar graphs contain color keys describing the chemical classes in the data (figures 13-18 PAH; figures 19-21 Biomarkers).
- Chemical chromatograms from GC/FID method (figures 22-25).
- Extracted Ion Chromatography Profiles ("EICPs") from the SVOC analysis representing diagnostic ion scan fingerprints for n-paraffins (85 m/z) (figures 26-28).
- Extracted Ion Chromatography Profiles ("EICPs") from the SVOC analysis representing diagnostic ion scan fingerprints for different light distillate range biomarker classes – Alkylcyclohexanes (83 m/z) (figures 29-31); Bicyclanes (123 m/z) (figures 32-34).

Results and Discussion

Characteristics and Proportions of Petroleum Mixtures

5-part mixtures of petroleum products and pyrogenic residues with varying proportions are noted in all ten project LPHs collected from TG-02: a) An alkylate refinery intermediate type signature ~C5-C8 boiling range, b) a finished gasoline signature, d) a naphtha-like to light distillate range petroleum signature ("NLD") ~ C9-C16 boiling range, e) middle distillate range signature ~C13-C22 boiling range, and a pyrogenic residue from a manufactured gas plant ("MGP") process.

An approximate summary of the compositional petroleum attributes is shown in Tables 3 and 4, the grouped bar graphs in Figure 3, and an SVOC range-focused scatter plot in Figure 4. Figure 3 provides a general perspective on the dominant petroleum source aspects of the LPHs. In contrast, Figure 4 approximately differentiates the LPHs that exhibited NLD prominence from LPHs where NLD signatures were likely mixed with low-level middle distillate range ("low-MDR") petroleum.

Alkylate Signature

The chemical distributions of the alkylate aspects in the LPHs are presented in the VOC PIANO bar graphs in Figures 7 to 9, described by the orange bar series. As shown in the grouped bar graph in Figure 7, the alkylate-type product is significantly enriched relative to other VOC range products in TG02-MW-05-221219 and TG02-MW-04-221219, TG02-MW-06-221219 and TG02-MW-10-221219. The dominant alkylate quality in TG02-MW-05-221219 indicates the occurrence of alkylate refinery intermediate product in the subsurface environment of the NE zone of TG02. On the other hand, alkylate is present at proportionately lower enrichment levels in the rest of the LPHs collected from TG02.

Given the identification of the alkylate intermediate product in TG02-MW-05-221219, it was reasonable to have concluded that LPHs collected from the NE zone vicinity of TG02 likely contained a mixture of pure intermediate alkylate and alkylate enrichments from finished gasoline. Alkylate abundance in LPHs was characterized by diagnostic ratio #3 in Tables 1 and 2, and ratios #4 indicate that the character of alkylate in the TG02 LPHs was likely manufactured with a sulfuric acid H_2SO_4 catalyzed alkylation unit[4]. Proportional attributes of alkylate in LPHs from TG-02 (relative to other dominant source aspects) were presented as bar graphs in Figure 3.

Finished Gasoline Signature

Finished gasoline was the most ubiquitous and relatively abundant petroleum in LPHs collected from TG02. The relative enrichment qualities of finished gasoline in LPHs from TG02 were evident in Figure 3. Finished gasoline-enrichment factors in the LPHs were also apparent in GC/FID chromatograms in Figures 8 to 11. In the GC/FID chromatograms, the LPHs most enriched with finished gasoline exhibited chemical prominence on the left side of the chromatograms with lesser expressions of the unresolved complex mixture ("UCM") extended from the tail end of the gasoline signatures (Figure 22 to 25). Correspondingly, the predominance of gasoline in the LPHs was signaled by the relative enrichments of nC8 paraffin "octane" (85 m/z) in Figures 26 to 28, the lightest SVOC range alkylcyclohexane ("CH-2") (83 m/z) in figures 29 to 31, and lightest pairs of bicyclane isomers (Left side) (123 m/z) in figures 32 to 34.

From a compositional standpoint, the finished gasoline signature was presented in the VOC PIANO bar graphs. The VOC bar graphs exhibited the relative proportions of nC5 to nC9 isoparaffins (red bars), C3-C4 monoaromatics (green bars), naphthenes (purple bars), n-paraffins (blue bars), minor features of olefins (light blue bars), and C2 monoaromatics ("BTEX") (black bars). Multiple lines of evidence showed that finished gasoline was the most enriched (relative to other products) in TG02-MW-03-221219, TG02-MW-08-221219, TG02-MW-09-221219, TG02-MW-10-221220, TG02-MW-11-221220, TG02-MW-12-221220, and TG02-MW-15-221220. From a geospatial standpoint, gasoline prominence was exhibited in LPHs collected from the central section of the eastern zone of TG02 (figure 2). An age-constraining discussion for the gasoline expressed in LPHs from TG-02 will be discussed later in this report.

[4] *Beall, Philip W., et al. "On the role of process forensics in the characterization of fugitive gasoline." Environmental Claims Journal 14.4 (2002): 487-505.*

Naphtha-like to Light Distillate Range Petroleum Signature ("NLD")

Multiple visualization tools were applied to show changes in NLD enrichments relative to other petroleum types expressed in LPHs from TG-02. The NLD was the second most dominant petroleum type expressed in LPHs from TG-02 (figure 3). Although less abundant than finished gasoline in all LPHs from TG-02, properties of NLD were evident in LPHs that exhibited the following chemical attributes: 1) light distillate range UCM (figures 22 to 25), 2) enrichments of ~nC9 to nC16 n-paraffins (figures 26 and 27), 3) enrichments of CH-2 to CH-7 alkylcyclohexanes (figures 29 and 30), 4) and predominance of iso-paraffins IS1380 and IS1470, relative to isoprenoids pristane and phytane (figures 10 and 11). These hydrocarbon signatures were most consistent with a Jet fuel of some type. The complex mixture of petroleum in the LPHs (and the limited sample size) confounded a confident identification of the likely Jet Fuels: Jet A, JP-5, JP-4, or JP-8.

One metric applied to assess the proportions of NLD to other petroleum products was displayed in Figure 3. It was presented in the grouped bar graph in Figure 3 that NLD was the dominant SVOC range product in LPHs from TG02-MW-08-221220 and TG02-MW-10-221220. The presentation of NLD in Figure 3 was based on a compound most susceptible to biodegradation in the SVOC range of petroleum - nC12, and consequently, unable to detect the NLD when severely biodegraded and depleted of n-paraffins. A second metric was based on fairly recalcitrant SVOC range hydrocarbons, i.e., isoparaffins and isoprenoids. The second metric was applied to assess the proportions of NLD relative to low-MDR – since low-MDR signatures were evident in two LPHs - TG02-MW-05-221220 and TG02-MW-10-221220 (figure 4). Results from this metric were presented in Figure 4 and showed that NLD was the most enriched SVOC range petroleum feature in TG02-MW-08-221220 and TG02-MW-06-221220.

In Figure 4, it was shown that two samples - TG02-MW-05-221220 and TG02-MW-10-221220 – registered the lowest expressions of NLD relative to the low-MDR signature. It is important to note that TG02-MW-05-221220 and TG02-MW-10-221220 were not dominated by middle distillate range chemistry, but instead, the two LPHs exhibited the least enrichments of NLD relative to low-MDR. Explicitly stated, in two LPHs - TG02-MW-05-221220 and TG02-MW-10-221220 - the SVOC range showed the lowest NLD relative to low-MDR (figure 4). On the "flip-side," the VOC range of hydrocarbons of NLD was "unmasked" in the LPHs that exhibited the lowest relative enrichments of refined gasoline - TG02-MW-06-221220. The VOC range of NLD in TG02-MW-06-221220 was expressed if the VOC PIANO bar graphs as enrichments of naphthenes cyclohexane ("MCYP"), methylcyclohexane ("MCYHX"), and nC9 to nC15 n-paraffins, relative to other VOC hydrocarbons from the refined gasoline mixture (figure 7).

Low-MDR

As described in the section above, two LPHs - TG02-MW-05-221220 and TG02-MW-10-221220 - clearly exhibited low-MDR. Characteristic features of low-MDR were the following: a) bimodal UCM distribution (figures 22 and 24), b) lower ratio values of IS1380 and IS1470 to phytane – expressed in Figures 4, 26, and 27, and c) middle distillate range bicyclane signature 123 m/z (figures 32 and 33).

MGP Pyrogenic Residue

Pyrogenicity means being derived from a carbonization or combustion process. The following chemical attributes indicate pyrogenicity in the sample: a) enrichments of 5-6 ringed PAHs – illustrated as teal blue bars in the PAH bar graphs (figure 13); b) Greater enrichments of non-alkylated parent PAHs relative to the higher alkylated isomer series (more notable in four ring PAHs like fluoranthene, pyrenes). Parent PAHs are denoted with a "0" following the analyte abbreviation in the figure label; conversely, alkylated PAHs are indicated with a # > 0 following the analyte abbreviation in the figure label (figure 13). Manufactured gas plant (MGP) processes are myriad[5]. The feedstock used for gas production is one of the main variables that impact the tar byproduct's chemical fingerprint. The feedstock used at an MGP plant varies from coal to oil-based. Oil-based feedstocks range from Naphtha to middle distillate gas oil to crude oil, and trace levels of the hydrocarbon feedstock used during gas production are often present at low tar byproduct levels[6]. A PAH fingerprint diagnostic for MGP residue is notable in TG02-MW-04-221220 (figure 13). In addition, a low-level MGP pyrogenic residue was evident at relatively deficient levels in TG02-MW-03-221220, TG02-MW-05-221220, TG02-MW-06-221220, TG02-MW-08-221220, TG02-MW-09-221220, TG02-MW-10-221220, TG02-MW-11-221220, TG02-MW-12-221220, TG02-MW-15-221220 (figure 13 to 17).

Age-Constraining of Gasoline in TG-02

The complex mixture of petroleum in the VOC range (refinery intermediate alkylate) and NLD, which spanned the heavy VOC to lighter SVOC petroleum range, precluded PIANO-based gasoline fingerprint differentiation. Furthermore, the MTBE in TG02-MW-05-221220, TG02-MW-08-221220, TG02-MW-10-221220, and TG02-MW-15-221220 may have been derived from a refinery intermediate source. Thus, MTBE occurrence may not have been applicable for diagnosing the presence of unleaded gasoline in the LPHs from TG-02 (tables 1 and 2).

As described earlier, refined gasoline was the dominant petroleum product in LPHs from TG-02 (figure 3), and significant concentrations and compositional variation of the organic lead antiknock package fingerprints provided strong evidence that a considerable mass of the refined fuel in LPHs from TG-02 was leaded gasoline. Figures 5 and 6 showed the presence of four distinct leaded gasoline attributes in the LPH:

The following leaded parent gasoline attributes were apparent in the plots (the order of leaded gasoline components were approximations).

Leaded Gasoline A: TG02-MW-04-221220, TG02-MW-06-221220 (TEL Dominant >>> RM25 Dominant)

Leaded Gasoline B: TG02-MW-11-221220, TG02-MW-12-221220, and TG02-MW-15-221220 (TEL Dominant > RM25 Dominant)

Leaded Gasoline C: TG02-MW-5-221220, TG02-MW-8-221220, and TG02-MW-9-221220 (TEL Dominant ~= RM25 Dominant)

Leaded Gasoline D: TG02-MW-03-221220 (RM25 Dominant > RM50 Dominant)

Leaded gasoline A group exhibited two concentration regimes: TG02-MW-04-221220 contained 1.13 grams of lead per gallon ("glpg"), and TG02-MW-06-221220 measured 0.31 glpg. All LPHs in groups B through C exhibited organic lead isomer concentrations less than 0.5 glpg. Leaded gasoline D comprised one LPH with total organic lead measured at 1.28 glpg. This information can be applied to approximate a period of release based on federally mandated total lead concentration limits for automobile gasoline[7]. Basing an assumption that the leaded gasoline

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[5] Uhler, A. D., and S. D. Emsbo-Mattingly. "Environmental stability of PAH source indices in pyrogenic tars." *Bulletin of environmental contamination and toxicology* 76.4 (2006): 689-696.
[6] Emsbo-Mattingly, Stephen, et al. "Identifying Manufactured Gas Plant Tar in the Environment Using Chemical Fingerprinting." *Environmental Claims Journal* 15.4 (2003): 477-490.
[7] Gibbs, L. M.. How Gasoline Has Changed. SAE Technical Paper Number 932828. (Fuels and Lubricants Meeting

aspects in the subsurface of TG-02 were linked to finished gasoline, an age constraint for the leaded gasoline is approximated as follows:

TG02-MW-04-221220 and TG02-MW-03-221220 were the only LPHs with a total lead concentration of over 1.1 glpg and thus may have been released before 1982. Reacted mixtures ("RM") were used to manufacture gasoline from approximately 1960 to about 1985, and the total lead concentration of RM packages was limited to 0.5 gplg after 1985. Thus, it is logical to conclude that LPHs from TG02-MW-06-221220, TG02-MW-05-221220, TG02-MW-08-221220, TG02-MW-09-221220, TG02-MW-11-221220, TG02-MW-12-221220, TG02-MW-15-221220 were likely released before 1985.

Two LPHs from TG-07

The LPHs from TG-07 were significantly different from each other and from the LPHs collected from TG-02. The VOC range of TG07-MW-06-221220 was enriched considerably in ~nC5 to nC15 n-paraffins. The abundance of n-paraffins, absence of olefins, and sparseness of isoparaffins and monoaromatics, indicate the presence of an ultra-light condensate crude feedstock in the VOC range of TG07-MW-06-221220. The SVOC range of TG07-MW-06-221220 exhibited a pyrogenic signature likely linked to MGP residue (figure 18).

The LPH from TG07-MW-07-221220 exhibited an odd distribution of C3-C4 monoaromatics dominated by the isopropyl benzene ("IPROPB") compound. Furthermore, the distribution of C2-monoaromatics in TG07-MW-07-221220 was not typical for finished gasoline. Although difficult to interpret without additional information, the VOC range signature in TG07-MW-07-221220 may have been linked to the product (maybe associated with waste) of the reformate formulation process (figure 9). The SVOC range aspect of TG07-MW-07-221220 was composed of a severely biodegraded NLD product generally similar to what was observed in the SVOC range of LPHs from TG-02 (figures 12, 18, 25, 28, 31).

Upon receipt of additional information, I reserve the right to modify and supplement my opinions outlined in this report.

You may email questions or concerns to markcejas@chemquants.com
regarding chemistry data or interpretation.

Respectfully submitted,

Mark Jonathan Cejas
Principal

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and Exposition) October, 1993.

ChemQuants project ID	290	290	290	290	290	290
Sample ID	TG02-MW-03-221220	TG02-MW-04-221220	TG02-MW-05-221220	TG02-MW-06-221219	TG02-MW-08-221220	TG02-MW-09-221219
Laboratory ID	L2271579-01	L2271579-02	L2271579-03	L2271579-04	L2271579-05	L2271579-06
Sample Type	OIL	OIL	OIL	OIL	OIL	OIL
Waterwashing						
1) Toluene / (Toluene+Methylcyclohexane)	0.19	0.29	0.12	0.41	0.60	0.79
2) (Benzene+Toluene) / (Ethylbenzene+Xylenes)	0.07	0.33	0.16	0.63	0.31	0.51
Diagnostic Ratios (Refining Properties)						
3) 2,2,4-Trimethylpentane / (2,2,4-Trimethylpentane+Methylcyclohexane)	0.43	0.56	0.92	0.43	0.49	0.52
4) 2,2,4-Trimethylpentane / Total TMPs	0.42	0.42	0.41	0.43	0.43	0.49
5) nC9 / Isopropylbenzene	4.20	9.53	0.51	12.67	6.95	5.35
6) nC10 / 1-Methyl-2-ethylbenzene	0.83	4.47	0.56	2.83	2.24	0.58
7) nC11 / 1,4-Dimethyl-2-ethylbenzene	1.18	4.05	0.75	3.30	4.21	0.89
8) Naphthalene / (Naphthalene+nC12)	0.57	0.73	0.89	0.29	0.27	0.64
Oxygenates & Other (ug/kg)						
Methyl-tert-butyl ether (MTBE)	U	U	1090000	U	280000	U
Organic Lead Isomers (ug/Kg)						
Tetraethyl Lead	129000	474000	126000	130000	30400	43400
Tetramethyl Lead	10400	U	U	U	1480	1100
Trimethyl Ethyl Lead	47600	U	U	U	3650	2520
Diethyl Dimethyl Lead	141000	U	339	U	12900	12100
Methyl Triethyl Lead	188000	1360	12700	1380	24800	24500
Grams of Lead per Gallon (glpg)	1.28	1.13	0.33	0.31	0.18	0.20
Density (g/ml)	0.82	0.79	0.78	0.79	0.81	0.77
Sulfur Thiophenes (ug/kg)						
2-Methylthiophene	U	U	U	U	U	U
2-Ethylthiophene	U	U	U	U	U	U
Benzothiophene	U	328000	U	U	U	U
Fraction of Pyrogenic PAHs						
9) (FL + Py) / (C2 + C3 + C4 P/As)	NR	11.76	NR	NR	NR	NR
Pyrogenic & Petrogenic Ratios						
10) C2 DBT / (C2 DBT + C2 P/A)	0.33	0.30	0.45	0.34	0.37	0.36
11) C2 N / (C2 N + C2 P/A)	0.93	0.90	0.91	0.92	0.96	0.94
Saturated HC Biodegredation ratio						
12) n-C17 / Pristane	0.13	0.63	NR	0.29	0.44	0.60
13) n-C18 / Phytane	0.33	1.13	0.04	0.45	0.78	0.96
Saturated HC Diagnostic ratios						
14) Pristane / Phytane	2.34	2.36	1.86	2.17	2.84	2.02
15) Norpristane / Pristane	0.58	0.61	0.53	0.65	0.56	0.53
16) IS1470 / Norpristane	2.28	1.40	1.35	1.81	2.42	1.57
17) IS1380 / Phytane	2.84	1.36	1.15	2.01	3.24	1.31
18) IS1470 / Phytane	3.08	2.00	1.33	2.53	3.82	1.67

Table 1. Table of diagnostic chemical properties.

ChemQuants project ID	290	290	290	290	290	290
Sample ID	TG02-MW-10-221220	TG02-MW-11-221219	TG02-MW-12-221220	TG02-MW-15-221220	TG07-MW-06-230104	TG07-MW-07-230209
Laboratory ID	L2271579-07	L2271579-08	L2271579-09	L2271579-10	L2300359-01	L2307344-01
Sample Type	OIL	OIL	OIL	OIL	OIL	OIL
Waterwashing						
1) Toluene / (Toluene+Methylcyclohexane)	0.70	0.83	0.79	0.76	0.08	NR
2) (Benzene+Toluene) / (Ethylbenzene+Xylenes)	0.60	0.58	0.48	0.46	0.36	1.68
Diagnostic Ratios (Refining Properties)						
3) 2,2,4-Trimethylpentane / (2,2,4-Trimethylpentane+Methylcyclohexane)	0.51	0.38	0.56	0.51	NR	NR
4) 2,2,4-Trimethylpentane / Total TMPs	0.40	0.46	0.47	0.47	NR	NR
5) nC9 / Isopropylbenzene	3.40	4.84	4.92	4.95	156.39	NR
6) nC10 / 1-Methyl-2-ethylbenzene	0.84	0.54	0.67	0.68	106.13	1.15
7) nC11 / 1,4-Dimethyl-2-ethylbenzene	1.11	0.76	1.29	1.09	199.44	0.79
8) Naphthalene / (Naphthalene+nC12)	0.65	0.67	0.53	0.57	NR	0.54
Oxygenates & Other (ug/kg)						
Methyl-tert-butyl ether (MTBE)	109000	U	U	362000	U	U
Organic Lead Isomers (ug/Kg)						
Tetraethyl Lead	-	44600	48100	58300	U	1040
Tetramethyl Lead	-	U	621	2690	U	U
Trimethyl Ethyl Lead	-	U	1360	5890	U	U
Diethyl Dimethyl Lead	-	760	5660	21500	U	U
Methyl Triethyl Lead	-	5570	12800	36900	U	U
Grams of Lead per Gallon (glpg)	-	0.12	0.16	0.30	0.00	0.003
Density (g/ml)	-	0.77	0.79	0.80	0.86	0.82
Sulfur Thiophenes (ug/kg)						
2-Methylthiophene	U	U	U	U	U	1660000
2-Ethylthiophene	U	U	U	U	U	4850000
Benzothiophene	U	U	U	U	U	U
Fraction of Pyrogenic PAHs						
9) (FL + Py) / (C2 + C3 + C4 P/As)	0.96	NR	NR	NR	11.40	2.39
Pyrogenic & Petrogenic Ratios						
10) C2 DBT / (C2 DBT + C2 P/A)	0.39	0.34	0.41	0.40	0.42	0.51
11) C2 N / (C2 N + C2 P/A)	0.94	0.97	0.93	0.93	0.87	0.90
Saturated HC Biodegredation ratio						
12) n-C17 / Pristane	0.12	0.43	0.59	0.58	NR	0.03
13) n-C18 / Phytane	0.21	0.83	0.83	0.92	NR	NR
Saturated HC Diagnostic ratios						
14) Pristane / Phytane	2.50	2.02	1.82	2.03	1.84	2.70
15) Norpristane / Pristane	0.58	0.51	0.54	0.55	0.35	0.48
16) IS1470 / Norpristane	0.92	1.95	1.65	1.68	1.63	1.63
17) IS1380 / Phytane	1.08	1.50	1.17	1.35		
18) IS1470 / Phytane	1.34	1.99	1.63	1.88		

Table 2. Table of diagnostic chemical properties.

ChemQuants project ID Sample ID Laboratory ID Sample Type	290 TG02-MW-03-221220 L2271579-01 OIL	290 TG02-MW-04-221220 L2271579-02 OIL	290 TG02-MW-05-221219 L2271579-03 OIL	290 TG02-MW-06-221220 L2271579-04 OIL	290 TG02-MW-08-221220 L2271579-05 OIL
% ~Composition Ratios (Alkylate vs. Gasoline, Naphtha to Light Distillate Range, Middle Distillate, & Pyrogenic Residue) [224TMP / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	11.7	36.7	82.1	26.3	16.9
% ~Composition Ratios (Gasoline vs. Alkylate, Naphtha to Light Distillate Range, Middle Distillate, & Pyrogenic Residue) [124TMB / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	63.12	24.71	9.78	24.43	40.74
% ~Composition Ratios (Naphtha to Light Distillate Range vs. Alkylate, Gasoline, Middle Distillate, & Pyrogenic Residue) [nC12 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	9.5	8.6	0.4	13.8	24.8
% ~Composition Ratios (Middle Distillate Range vs. Alkylate, Gasoline, Naphtha to Light Distillate Range & Pyrogenic Residue) [DBT2 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	0.3	0.4	0.3	0.3	0.2
% ~Composition Ratios (Pyrogenic Residue vs. Alkylate, Gasoline, Naphtha to Light Distillate Range & Middle Distillate Range) [FL0 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	0.0	1.2	0.0	0.0	0.0

Note: If field is "NR" a ratio was not calculable.
If field is -- hydrocarbons occurred at trace levels
If field is "NA" a ratio was not analyzed.

Table 3. Table of % composition of petroleum products in the LPH samples.

ChemQuants project ID Sample ID Laboratory ID Sample Type	290 TG02-MW-09-221220 L2271579-06 OIL	290 TG02-MW-10-221219 L2271579-07 OIL	290 TG02-MW-11-221220 L2271579-08 OIL	290 TG02-MW-12-221220 L2271579-09 OIL	290 TG02-MW-15-221220 L2271579-10 OIL
% ~Composition Ratios (Alkylate vs. Gasoline, Naphtha to Light Distillate Range, Middle Distillate, & Pyrogenic Residue) [224TMP / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	23.7	27.3	14.4	24.7	21.9
% ~Composition Ratios (Gasoline vs. Alkylate, Naphtha to Light Distillate Range, Middle Distillate, & Pyrogenic Residue) [124TMB / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	49.39	33.84	57.69	47.92	49.21
% ~Composition Ratios (Naphtha to Light Distillate Range vs. Alkylate, Gasoline, Middle Distillate, & Pyrogenic Residue) [nC12 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	4.9	11.5	4.3	7.3	7.3
% ~Composition Ratios (Middle Distillate Range vs. Alkylate, Gasoline, Naphtha to Light Distillate Range & Pyrogenic Residue) [DBT2 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	0.1	0.6	0.0	0.2	0.2
% ~Composition Ratios (Pyrogenic Residue vs. Alkylate, Gasoline, Naphtha to Light Distillate Range & Middle Distillate Range) [FL0 / (224TMP+124TMB +nC12+DBT2+FL0)] x 100	0.0	0.1	0.0	0.0	0.0

Note: If field is "NR" a ratio was not calculable.
If field is -- hydrocarbons occurred at trace levels
If field is "NA" a ratio was not analyzed.

Table 4. Table of % composition of petroleum products in the LPH samples.

Abbreviation	VOC Compound	Abbreviation	VOC Compound	Abbreviation	VOC Compound
3M1B	3-Methyl-1-butene	ECYP	Ethylcyclopentane	IBCYHX	Isobutylcyclohexane
ISOP	Isopentane	223TMP	2,2,3-Trimethylpentane	1M2EB	1-Methyl-2-Ethylbenzene
1P	1-Pentene	234TMP	2,3,4-Trimethylpentane	C10	Decane (C10)
2M1B	2-Methyl-1-Butene	233TMP	2,3,3-Trimethylpentane	TBUTB	tert-Butylbenzene
C5	Pentane	23DMHX	2,3-Dimethylhexane	124TMB	1,2,4-Trimethylbenzene
T2P	trans-2-Pentene	2MHP	2-Methylheptane	IBUTB	Isobutylbenzene
IPE	Isoprene	4MHP	4-Methylheptane	SBUTB	sec-Butylbenzene
C2P	cis-2-Pentene	3MHP	3-Methylheptane	1M3IPROPB	1-Methyl-3-Isopropylbenzene
TBA	Tertiary Butanol	3EHX	3-Ethylhexane	1M4IPROPB	1-Methyl-4-Isopropylbenzene
22DMB	2,2-Dimethylbutane	T	Toluene	123TMB	1,2,3-Trimethylbenzene
4M1P	4-Methyl-1-pentene	2MTHIO	2-Methylthiophene	1M2IPROPB	1-Methyl-2-Isopropylbenzene
CYP	Cyclopentane	T14DMCYHX	1,4-Dimethylcyclohexane (trans)	IA	Indane
23DMB	2,3-Dimethylbutane	3MTHIO	3-Methylthiophene	13DEB	1,3-Diethylbenzene
2MP	2-Methylpentane	1O	1-Octene	1M3PROPB	1-Methyl-3-N-Propylbenzene
MTBE	Methyl tert butyl ether	C8	Octane	IE	Indene
3MP	3-Methylpentane	T12DMCYHX	1,2-Dimethylcyclohexane (trans)	1M4PROPB	1-Methyl-4-N-Propylbenzene
1H	1-Hexene	EDB	1,2-Dibromoethane	NBUB	n-Butylbenzene
C6	n-Hexane	C2O	cis-2-Octene	12DM4EB	1,2-Dimethyl-4-Ethylbenzene
IPROE	Isopropyl Ether	IPCYP	Isopropylcyclopentane	12DEB	1,2-Diethylbenzene
T2H	trans-2-Hexene	12DMCYHX	1,2-Dimethylcyclohexane (cis)	1M2PROPB	1-Methyl-2-N-Propylbenzene
2M2P	2-Methyl-2-pentene	25DMHP	2,5-Dimethylheptane	14DM2EB	1,4-Dimethyl-2-Ethylbenzene
C2H	cis-2-Hexene	35DMHP	3,5-Dimethylheptane	C11	Undecane
ETBE	Ethyl-Tert-Butyl-Ether	33DMHP	3,3-Dimethylheptane	13DM4EB	1,3-Dimethyl-4-Ethylbenzene
22DMP	2,2-Dimethylpentane	114TMCYHX	1,1,4-Trimethylcyclohexane	13DM5EB	1,3-Dimethyl-5-Ethylbenzene
MCYP	Methylcyclopentane	23DMHP	2,3-Dimethylheptane	13DM2EB	1,3-Dimethyl-2-Ethylbenzene
24DMP	2,4-Dimethylpentane	34DMHP	3,4-Dimethylheptane	12DM3EB	1,2-Dimethyl-3-Ethylbenzene
223TMP	2,2,3-Trimethylbutane	4MO	4-Methyloctane	1245TMB	1,2,4,5-Tetramethylbenzene
EDC	1,2-Dichloroethane	2MO	2-Methyloctane	1235TMB	1,2,3,5-Tetramethylbenzene
33DMP	3,3-Dimethylpentane	EB	Ethylbenzene	NPYB	N-Pentylbenzene
CYHX	Cyclohexane	2ETHIO	2-Ethylthiophene	1234TMB	1,2,3,4-Tetramethylbenzene
2MHX	2-Methylhexane	3MO	3-Methyloctane	13DM5TBUB	1,3-Dimethyl-5-tert-Butylbenzene
B	Benzene	33DEP	3,3-Diethylpentane	C12	Dodecane (C12)
23DMP	2,3-Dimethylpentane	PMX	p/m-Xylene	135TEB	1,3,5-Triethylbenzene
THIO	Thiophene	1N	1-Nonene	N	Naphthalene
11DMCYP	1,1-Dimethylcyclopentane	T3N	trans-3-Nonene	BTHIO	Benzothiophene
3MHX	3-Methylhexane	C3NE	cis-3-Nonene	124TEB	1,2,4-Triethylbenzene
TAME	Tertiary-Amyl Methyl Ether	C9	Nonane (C9)	HYB	Hexylbenzene
C13DMCYP	1,3-Dimethylcyclopentane (cis)	STRE	Styrene	MMT	MMT
3EP	3-Ethylpentane	OX	o-Xylene	C13	Tridecane
T13DMCYP/2M1HX	1,3-DMCP (trans)/2-Methyl-1-hexene	2N	2-Nonene	2MN	2-Methylnaphthalene
1HP/T12DMCYP	1-Heptene/1,2-DMCP (trans)	IPROCYHX	Isopropylcyclohexane	1MN	1-Methylnaphthalene
224TMP	Isooctane	IPROPB	Isopropylbenzene	C14	Tetradecane (C14)
T3H	trans-3-Heptene	33DMO	3,3-Dimethyloctane	C15	Pentadecane
C7	Heptane	NPRPPB	n-Propylbenzene		
T2H	trans-2-Heptene	2MNON	2-Methylnonane		
C2H	cis-2-Heptene	3MNON	3-Methylnonane		
22DMHX	2,2-Dimethylhexane	1M3EB	1-Methyl-3-Ethylbenzene		
MCYHX	Methylcyclohexane	1M4EB	1-Methyl-4-Ethylbenzene		
25DMHX	2,5-Dimethylhexane	135TMB	1,3,5-Trimethylbenzene		
24DMHX	2,4-Dimethylhexane	1D	1-Decene		

Table 5. Table of VOC compounds and abbreviations.

Abbreviation	VOC Compound	Abbreviation	VOC Compound
D0	cis/trans-Decalin	NBT1	C1-Naphthobenzothiophenes
D1	C1-Decalins	NBT2	C2-Naphthobenzothiophenes
D2	C2-Decalins	NBT3	C3-Naphthobenzothiophenes
D3	C3-Decalins	NBT4	C4-Naphthobenzothiophenes
D4	C4-Decalins	BA0	Benz(a)anthracene
N0	Naphthalene	C0	Chrysene/Triphenylene
N1	C1-Naphthalenes	BC1	C1-Chrysenes
N2	C2-Naphthalenes	BC2	C2-Chrysenes BS
N3	C3-Naphthalenes	BC3	C3-Chrysenes
N4	C4-Naphthalenes	BC4	C4-Chrysenes
BT0	Benzothiophene	BBF	Benzo(b)fluoranthene
BT1	C1-Benzo(b)thiophenes	BJKF	Benzo(j)+(k)fluoranthene
BT2	C2-Benzo(b)thiophenes	BAF	Benzo(a)fluoranthene
BT3	C3-Benzo(b)thiophenes	BEP	Benzo(e)pyrene
BT4	C4-Benzo(b)thiophenes	BAP	Benzo(a)pyrene
B	Biphenyl	PER	Perylene
DF	Dibenzofuran	IND	Indeno(1,2,3-cd)pyrene
ACY	Acenaphthylene	DA	Dibenz(a,h)+(a,c)anthracene
ACE	Acenaphthene	GHI	Benzo(g,h,i)perylene
F0	Fluorene	2MN	2-Methylnaphthalene
F1	C1-Fluorenes	1MN	1-Methylnaphthalene
F2	C2-Fluorenes	26DMN	2,6-Dimethylnaphthalene
F3	C3-Fluorenes	235TMN	2,3,5-Trimethylnaphthalene
DBT0	Dibenzothiophene	4MDT	4-Methyldibenzothiophene(4MDT)
DBT1	C1-Dibenzothiophenes BS	2MDT	2/3-Methyldibenzothiophene(2MDT)
DBT2	C2-Dibenzothiophenes	1MDT	1-Methyldibenzothiophene(1MDT)
DBT3	C3-Dibenzothiophenes	3MP	3-Methylphenanthrene (3MP)
DBT4	C4-Dibenzothiophenes	2MP	2-Methylphenanthrene (2MP)
P0	Phenanthrene	2MA	2-Methylanthracene (2MA)
P1	C1-Phenanthrenes/Anthracenes	9MP	9/4-Methylphenanthrene (9MP)
P2	C2-Phenanthrenes/Anthr BS	1MP	1-Methylphenanthrene (1MP)
P3	C3-Phenanthrenes/Anthracenes	BbFl	Benzo(b)fluorene
P4	C4-Phenanthrenes/Anthracenes	BcFl	7H-Benzo(c)fluorene
A0	Anthracene	2MPy	2-Methylpyrene
CAR	Carbazole	4MPy	4-Methylpyrene
FL0	Fluoranthene	1MPy	1-Methylpyrene
PY0	Pyrene	R	Retene
FP1	C1-Fluoranthenes/Pyrenes		
FP2	C2-Fluoranthenes/Pyrenes		
FP3	C3-Fluoranthenes/Pyrenes		
FP4	C4-Fluoranthenes/Pyrenes		
NBT0	Naphthobenzothiophenes		

Table 6. Table of SVOC compounds and abbreviations.

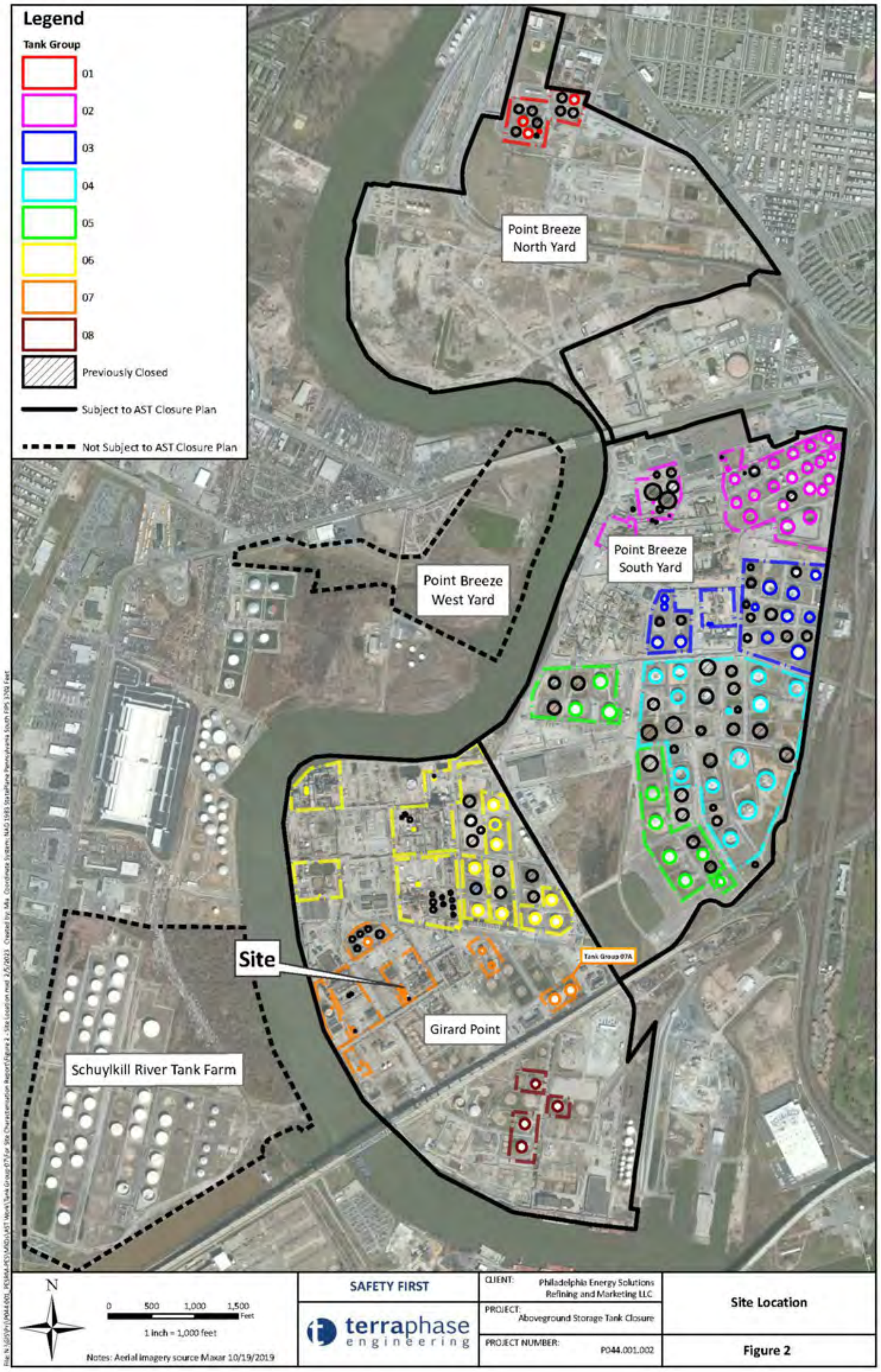

Figure 1. Geospatial Map of Tank Group Regions.

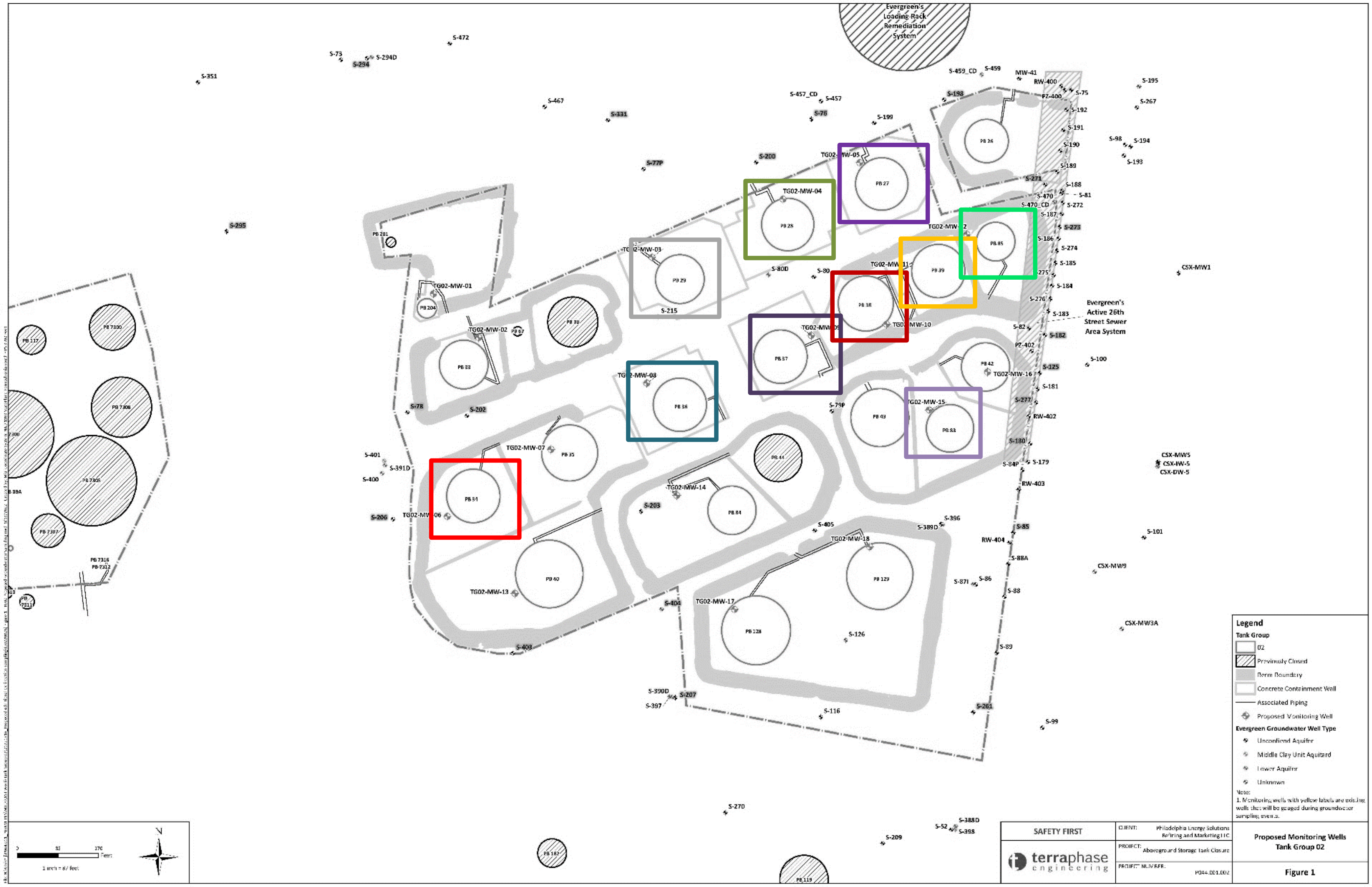

Figure 2. Geospatial Map of Tank Group 2 (Wells are color-coded to correspond to figures 5 to 7).

ChemQuants, LLC
Santa Barbara, CA 93101
www.ChemQuants.com

Interpreter

Figure 3. Grouped bar graph of approximate % compositions of petroleum products and pyrogenic residue.

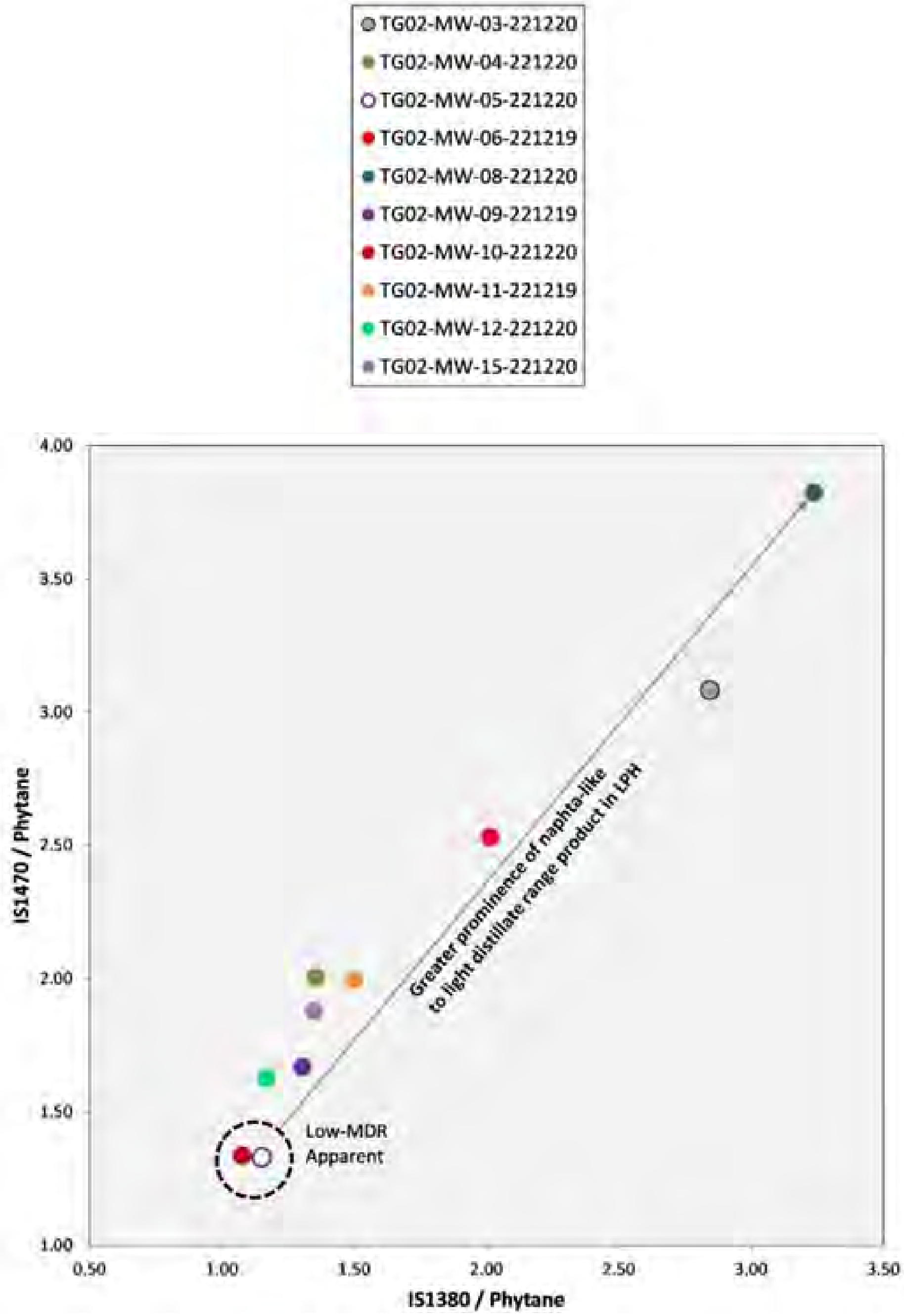

Figure 4. Scatter plot of isoprenoids ratios exhibiting approximate representation of naphtha-like to light distillate range petroleum dominance, relative to apparent middle distillate range background in TG-02.

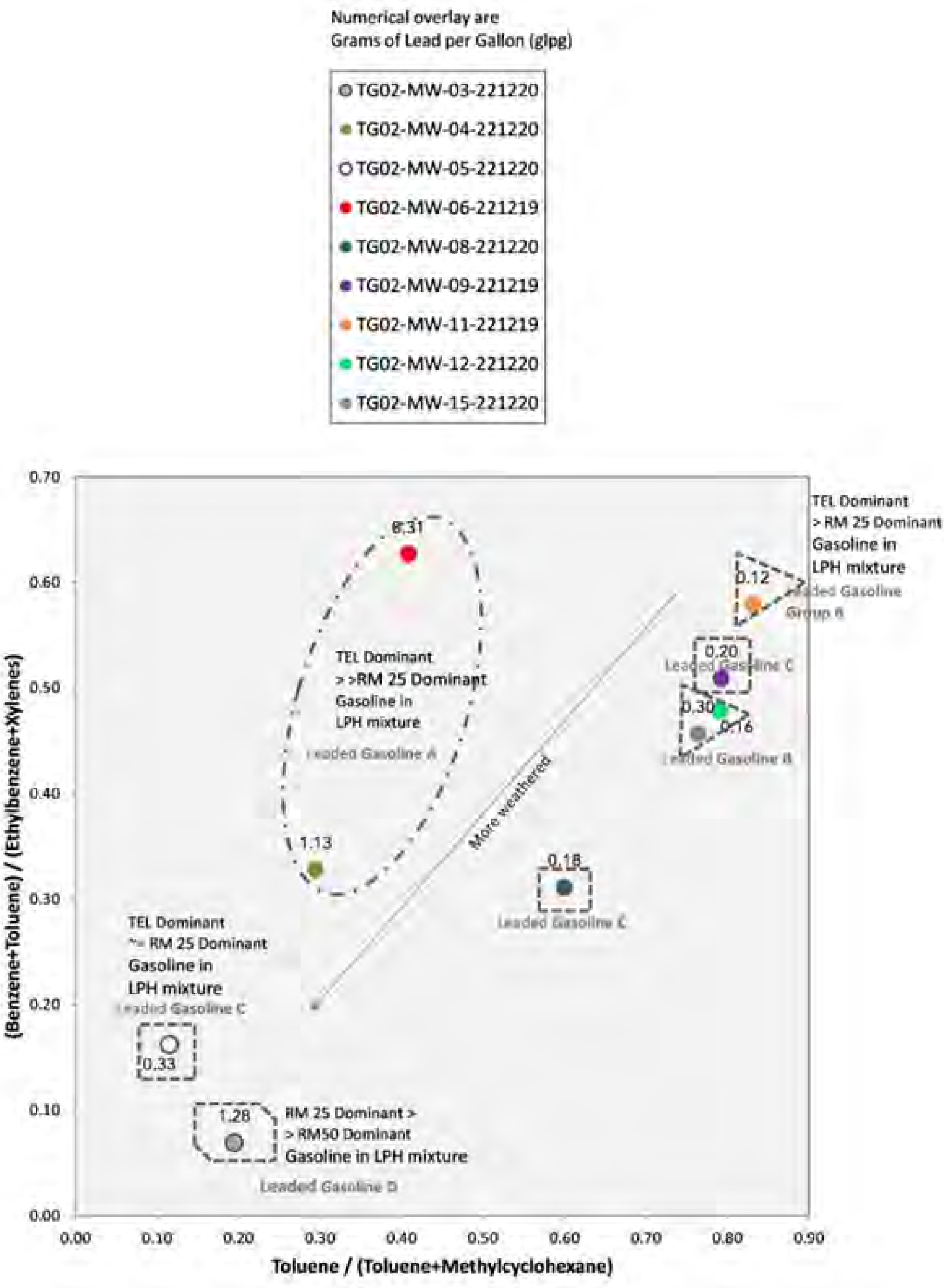

Figure 5. Scatter plot of gasoline C2 monoaromatics ratios overlaid with organic lead gasoline attributes.

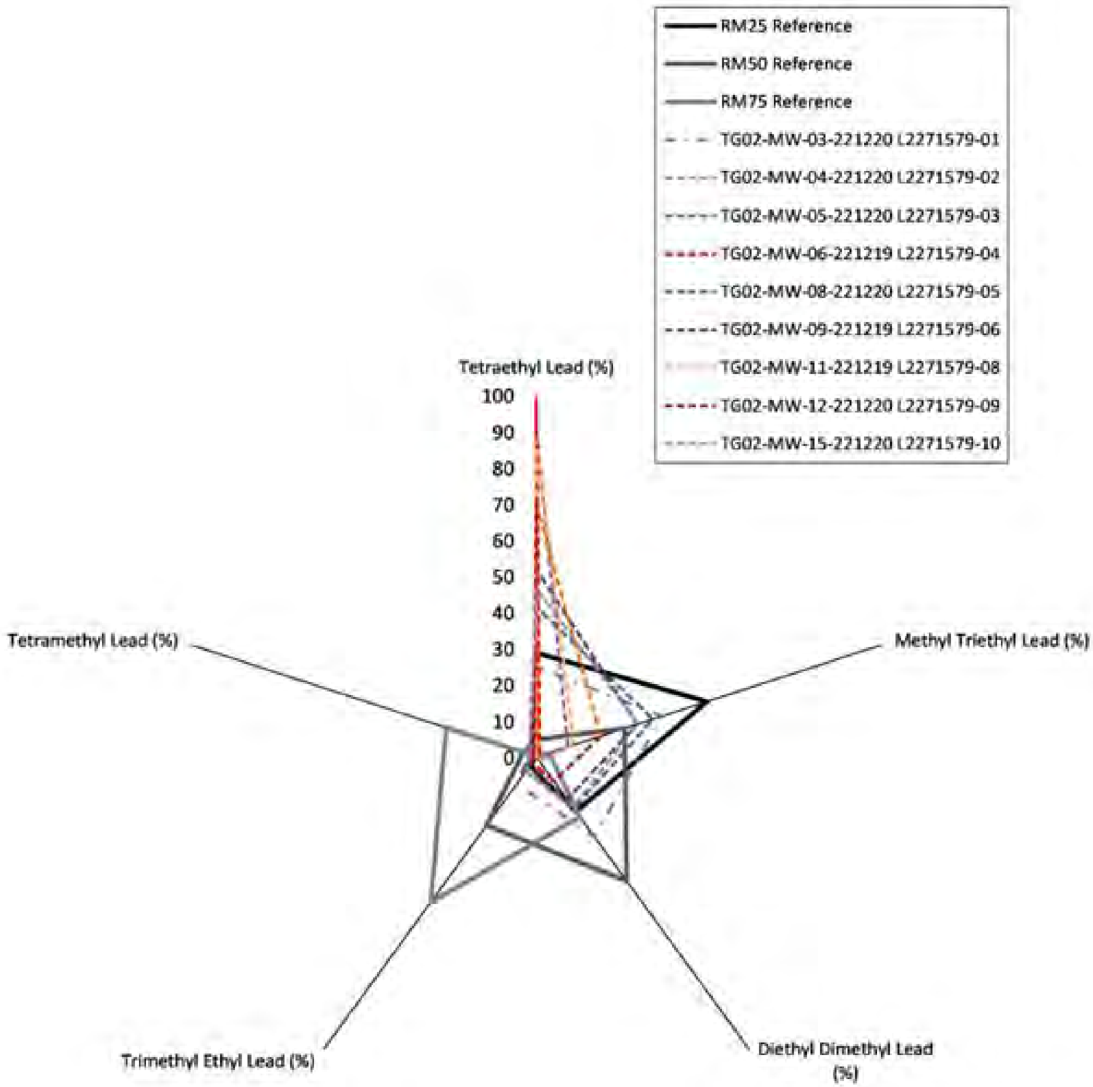

Figure 6. Star plot of organic lead isomer distributions.

VOC PIANO Bar Graphs

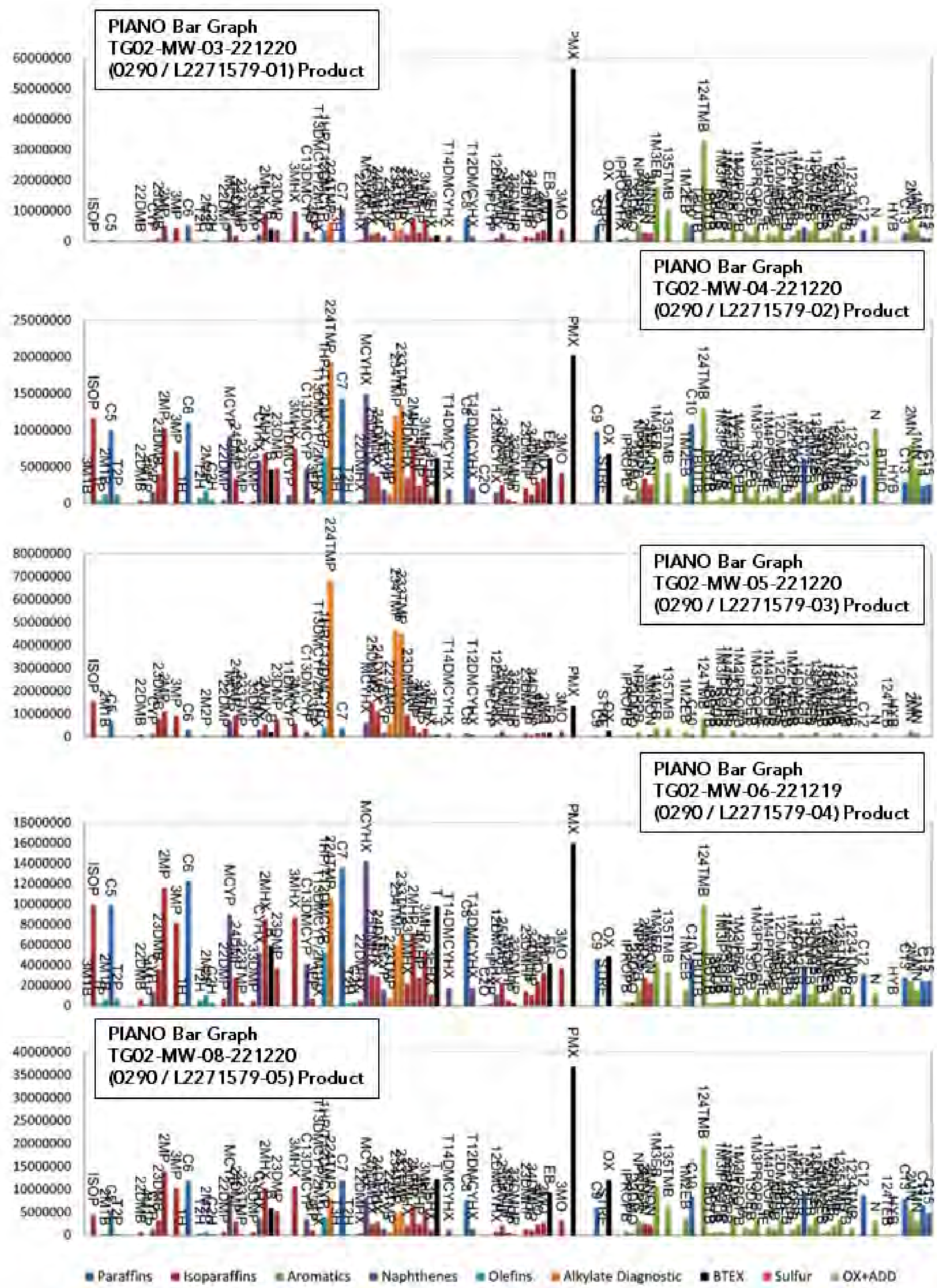

Figure 7. Fingerprint Mosaics™ for product samples – VOC PIANO Bar Graphs.

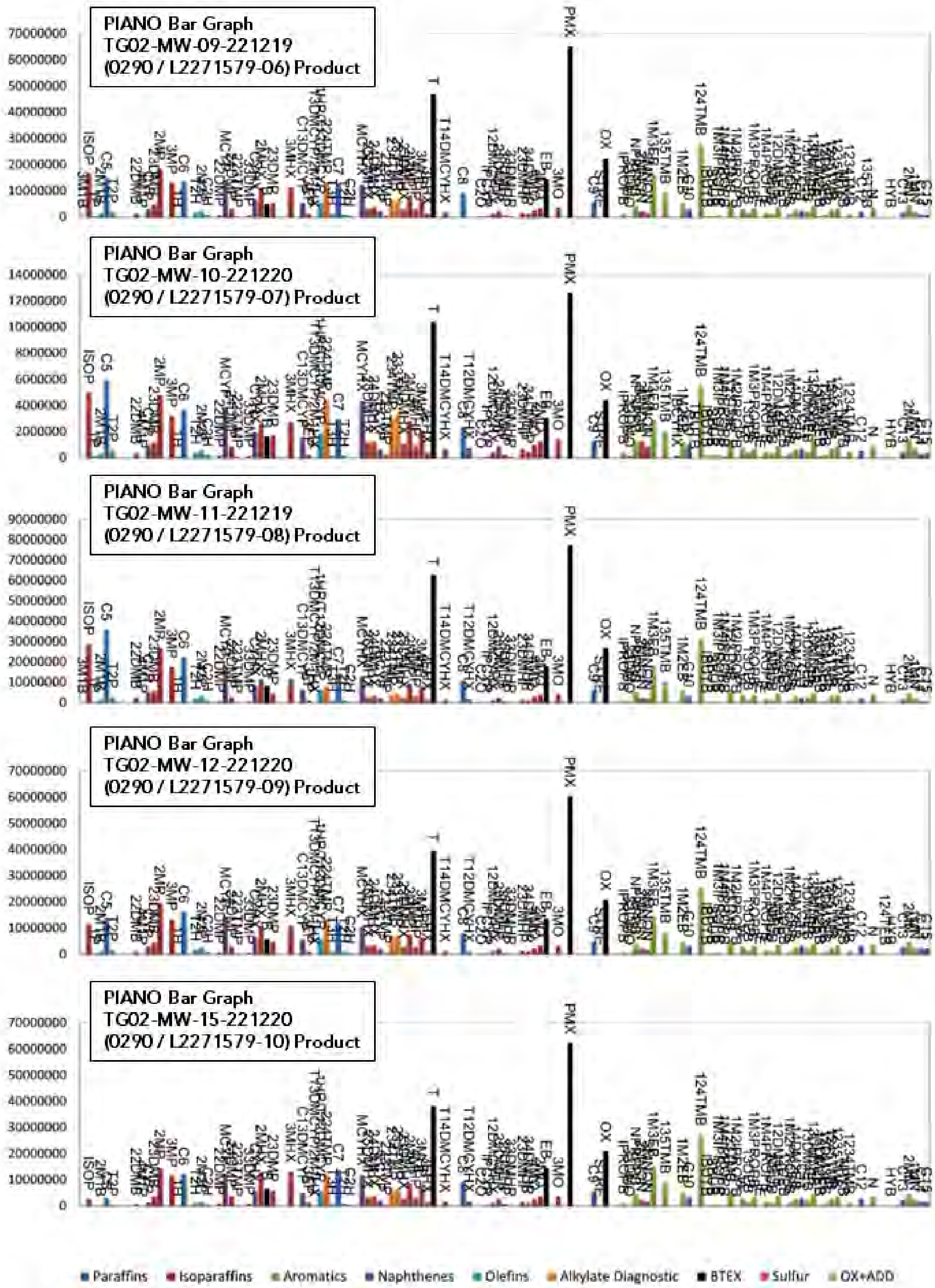

Figure 8. Fingerprint Mosaics™ for product samples – VOC PIANO Bar Graphs.

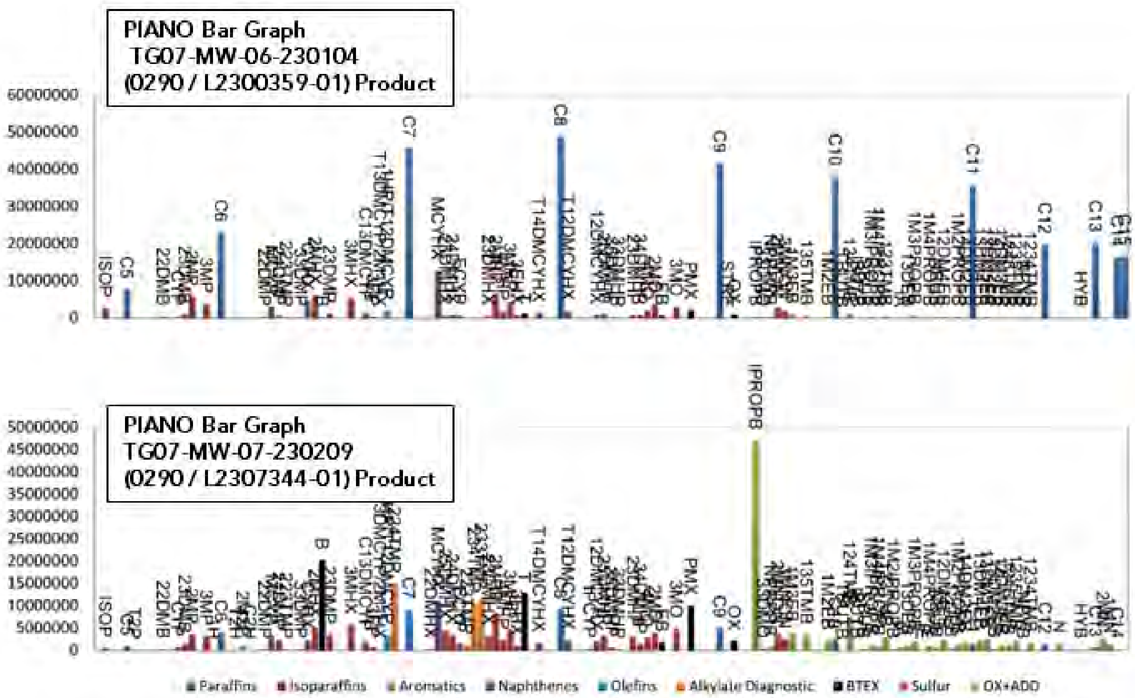

Figure 9. Fingerprint Mosaics™ for product samples – VOC PIANO Bar Graphs.

SHC SVOC Bar Graphs

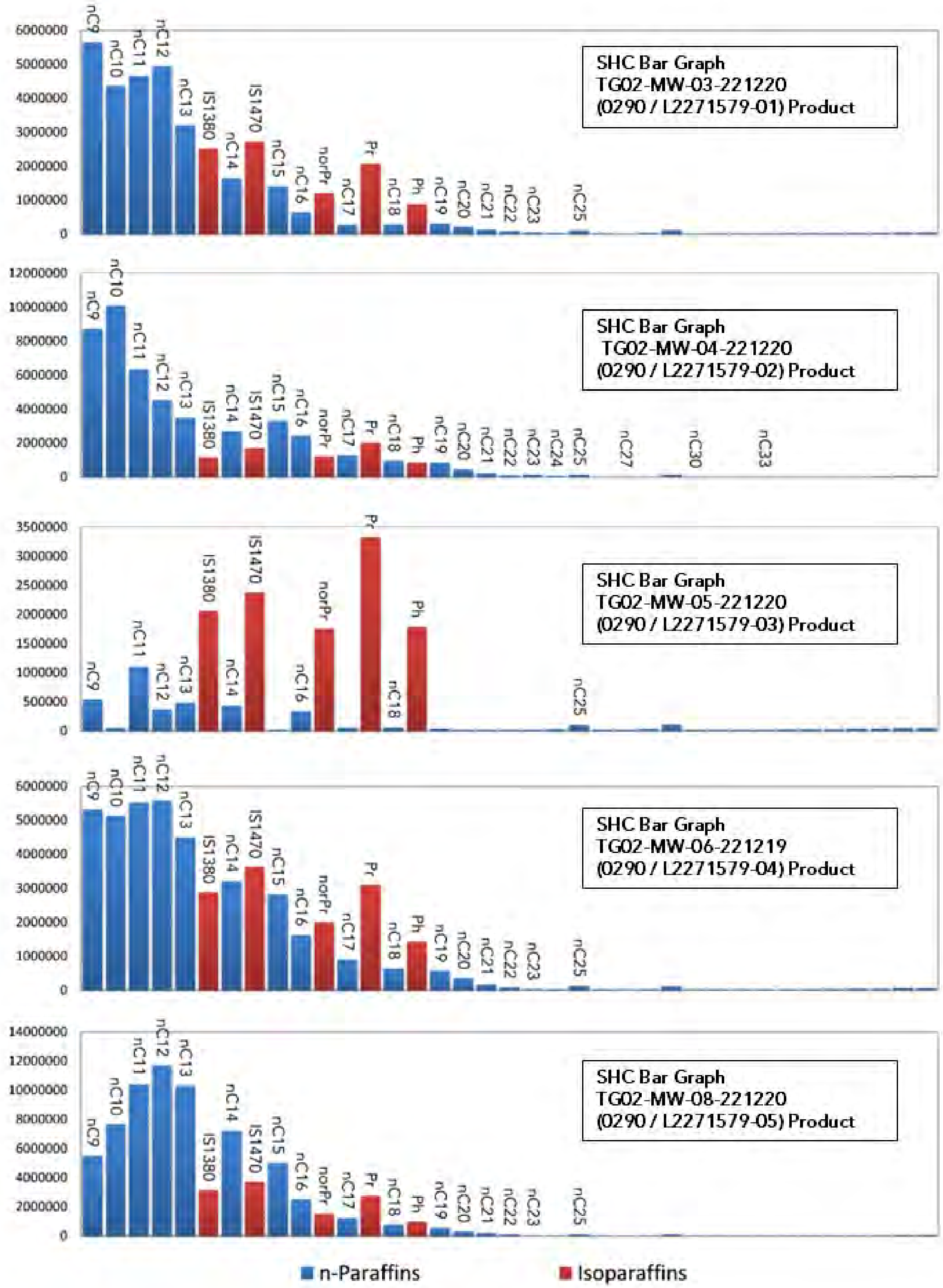

Figure 10. Fingerprint Mosaics™ for product samples – Saturated Hydrocarbons (SHC) Bar Graphs.

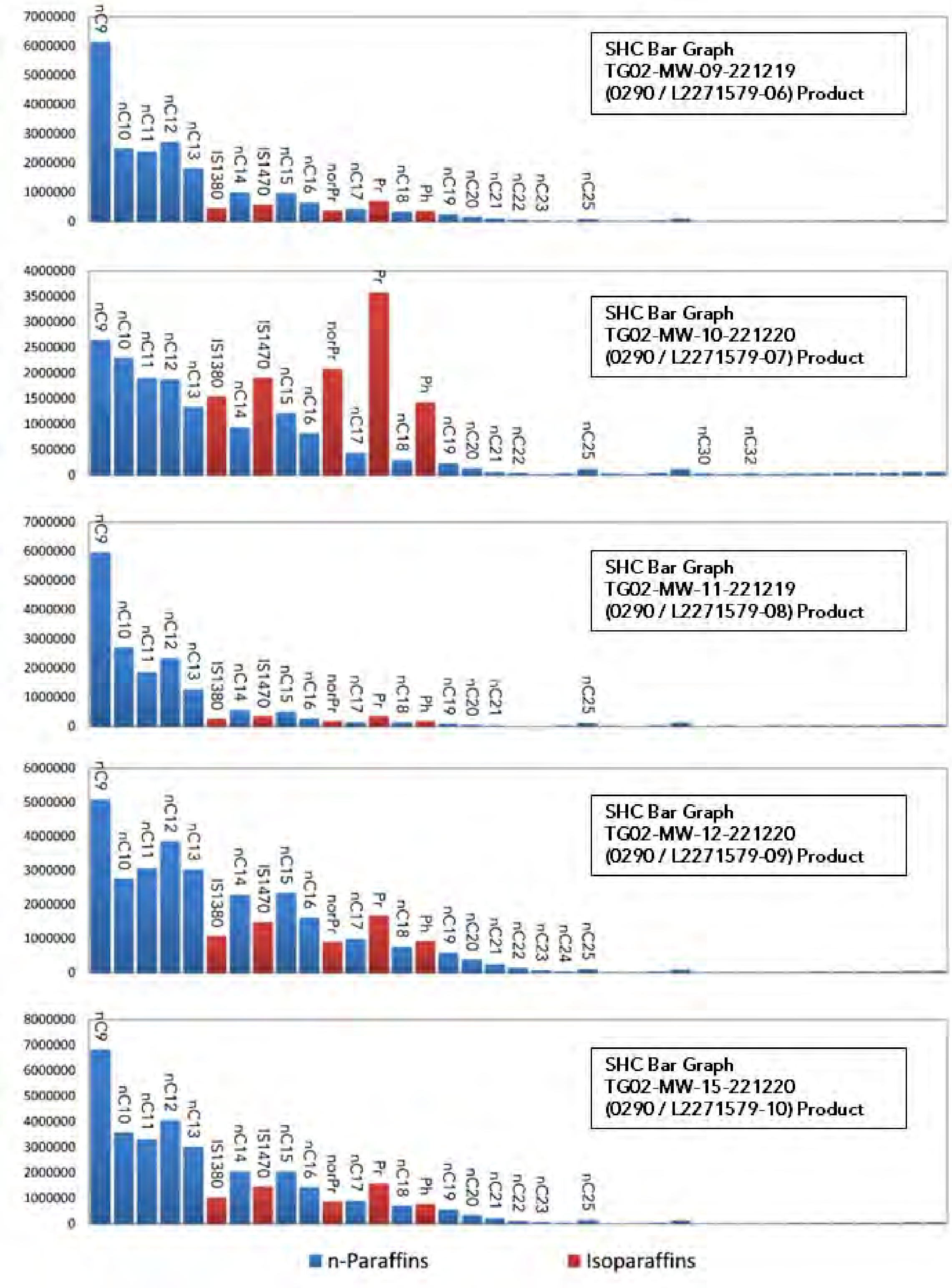

Figure 11. Fingerprint Mosaics™ for product samples – Saturated Hydrocarbons (SHC) Bar Graphs.

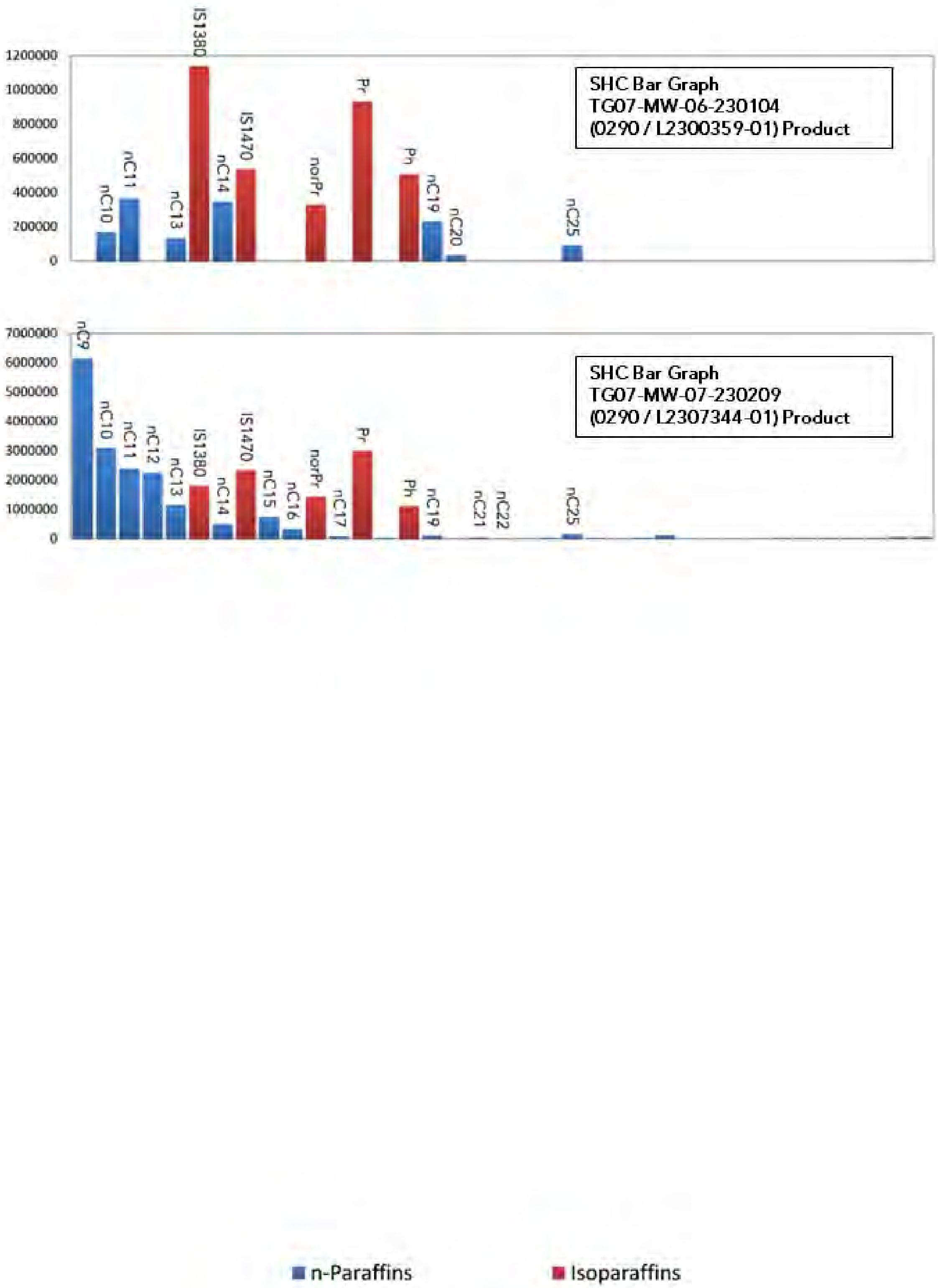

Figure 12. Fingerprint Mosaics™ for product samples – Saturated Hydrocarbons (SHC) Bar Graphs.

Parent and Alkylated PAH Bar Graphs

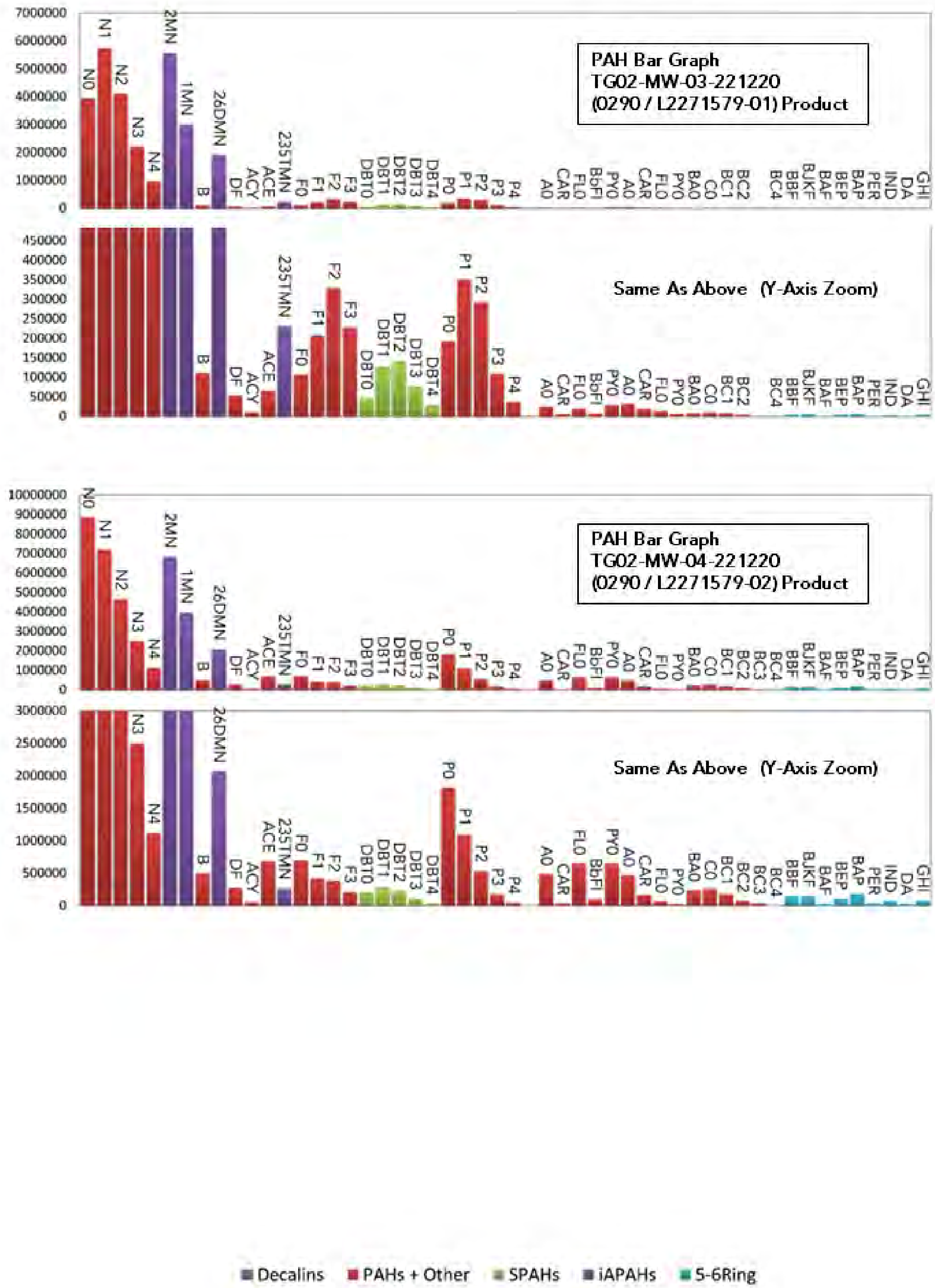

Figure 13. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

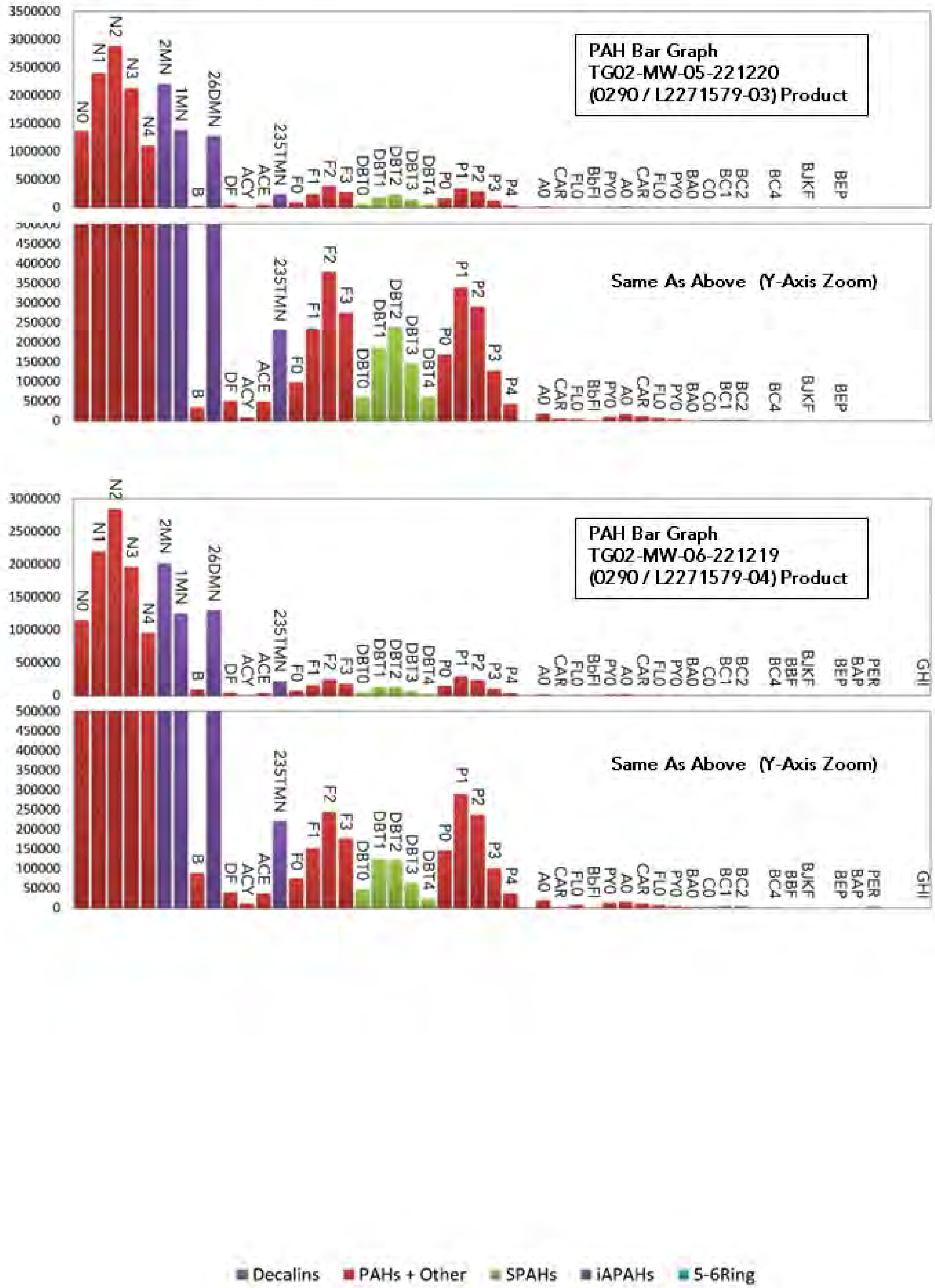

Figure 14. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

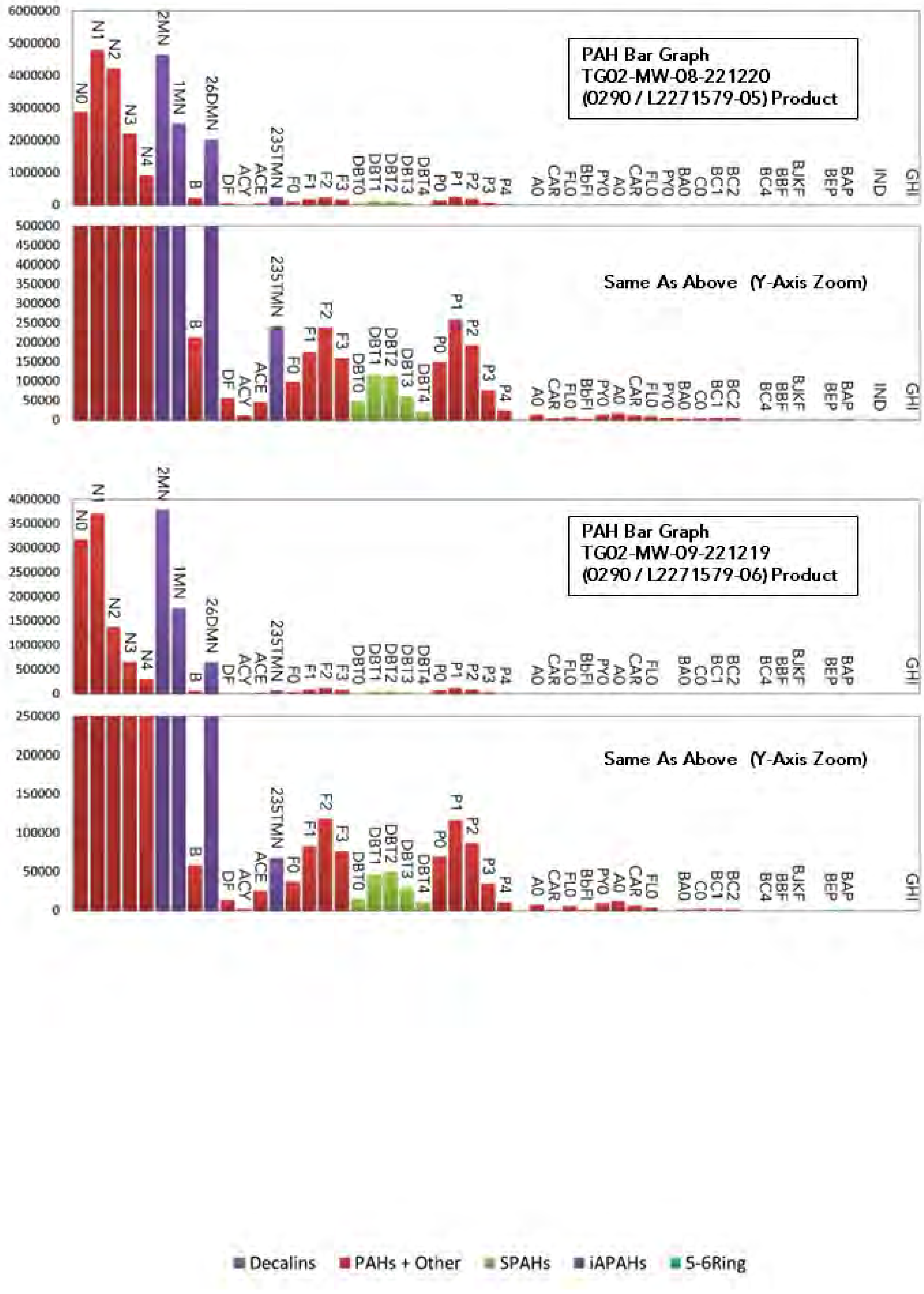

Figure 15. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

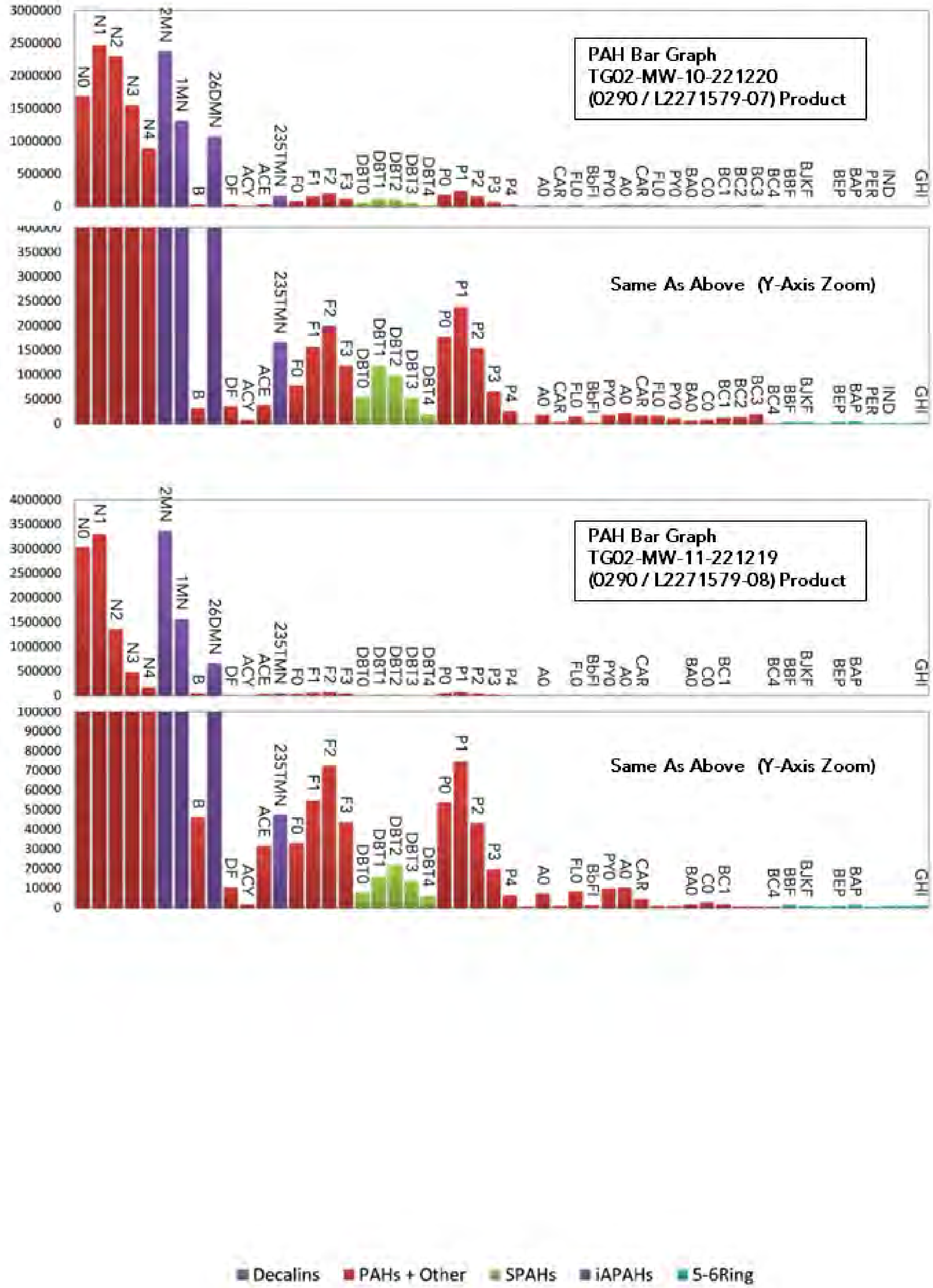

Figure 16. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

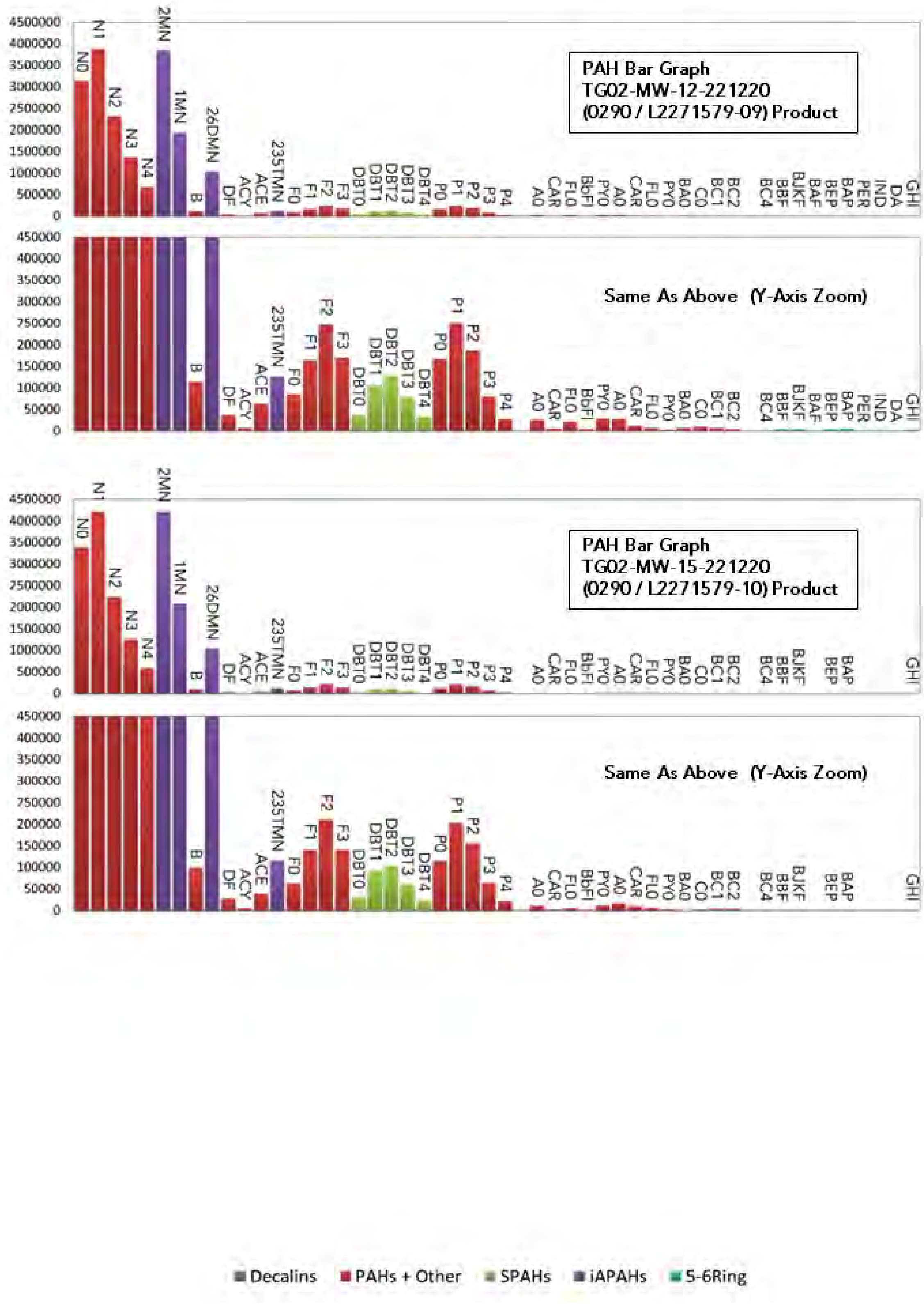

Figure 17. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

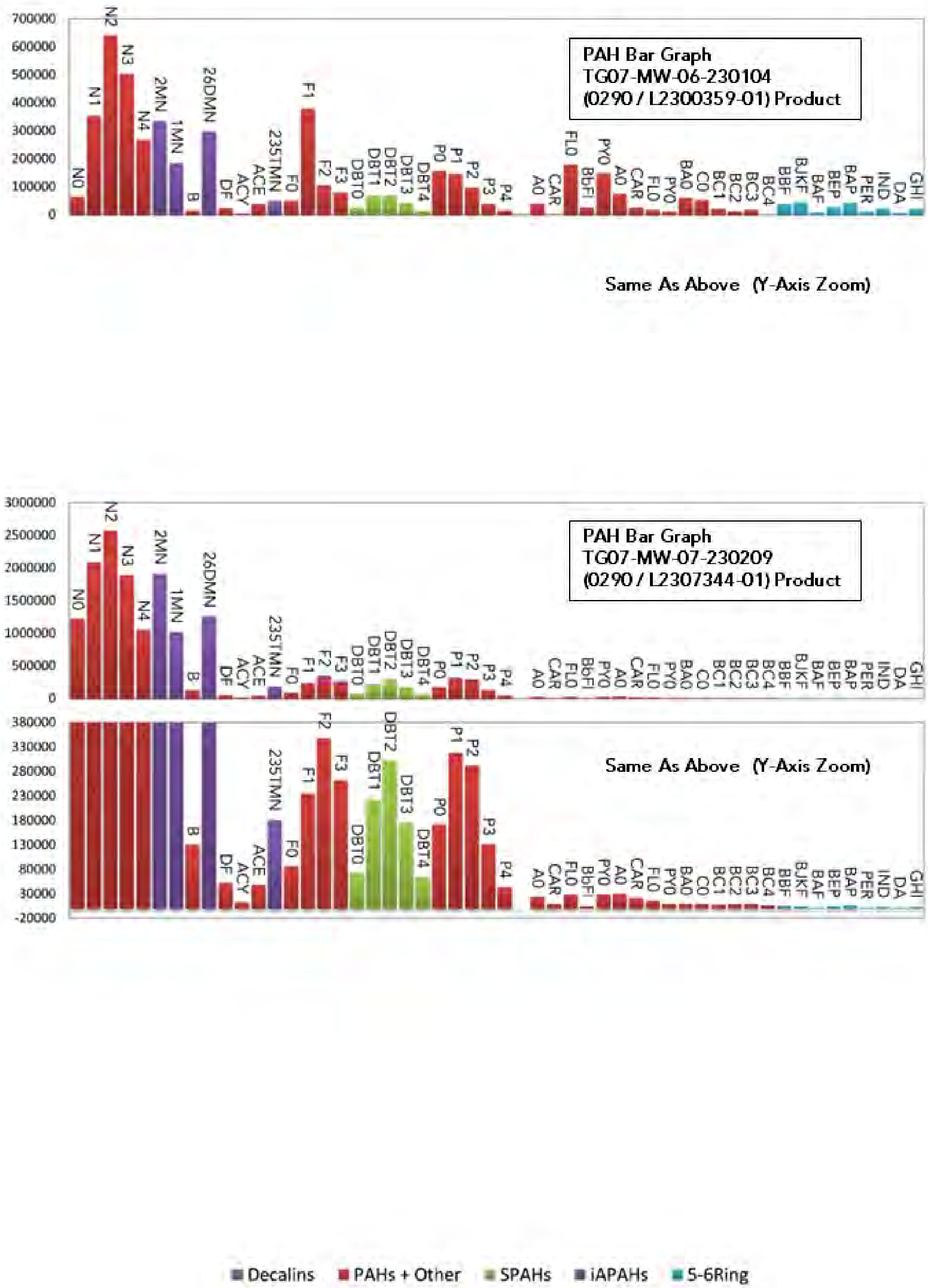

Figure 18. Fingerprint Mosaics™ for product samples – Parent and Alkylated PAH Bar Graphs.

Residual Range Petroleum Biomarkers Bar Graphs

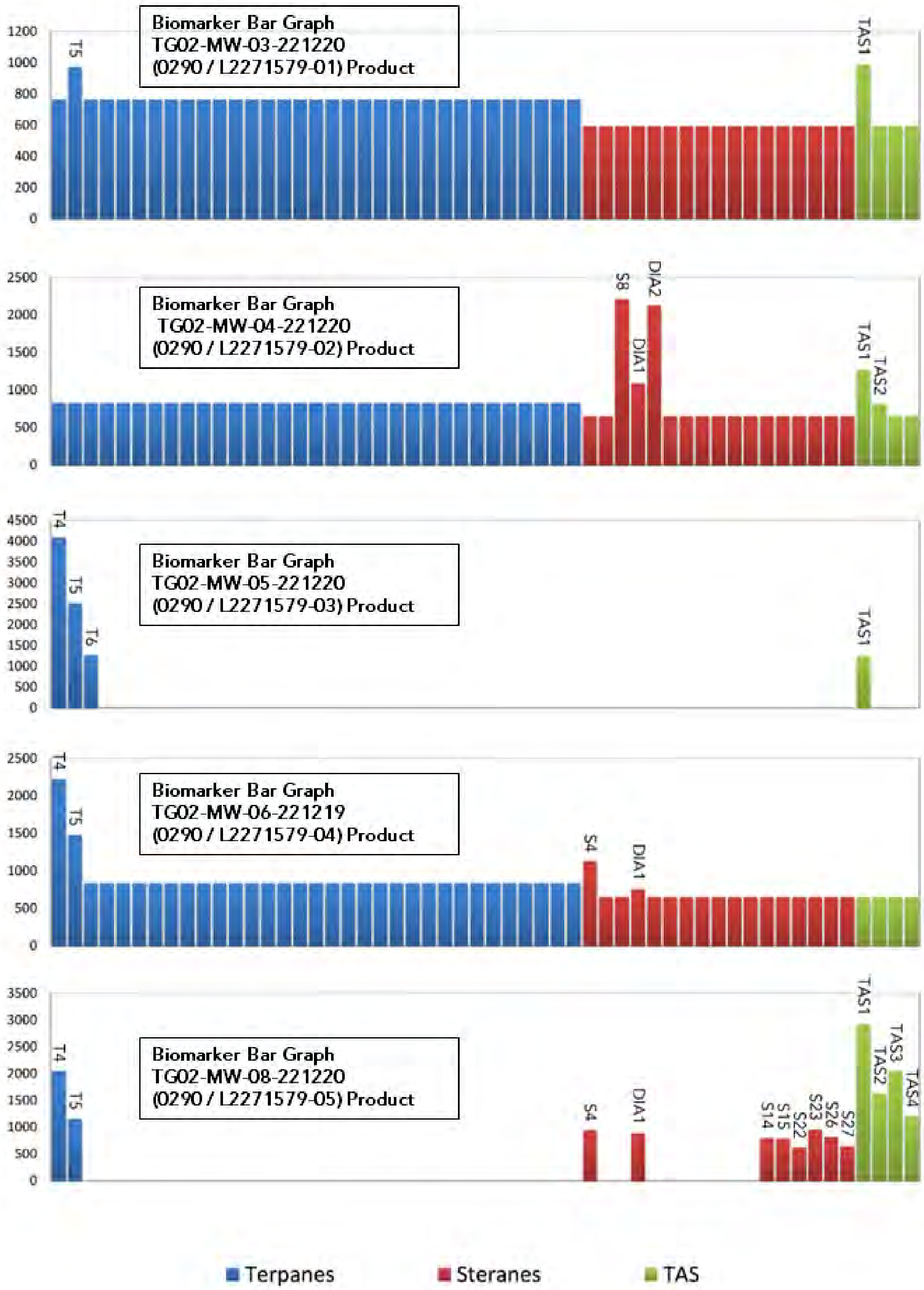

Figure 19. Fingerprint Mosaics™ for product samples – Residual Range Petroleum Biomarkers Bar Graphs.

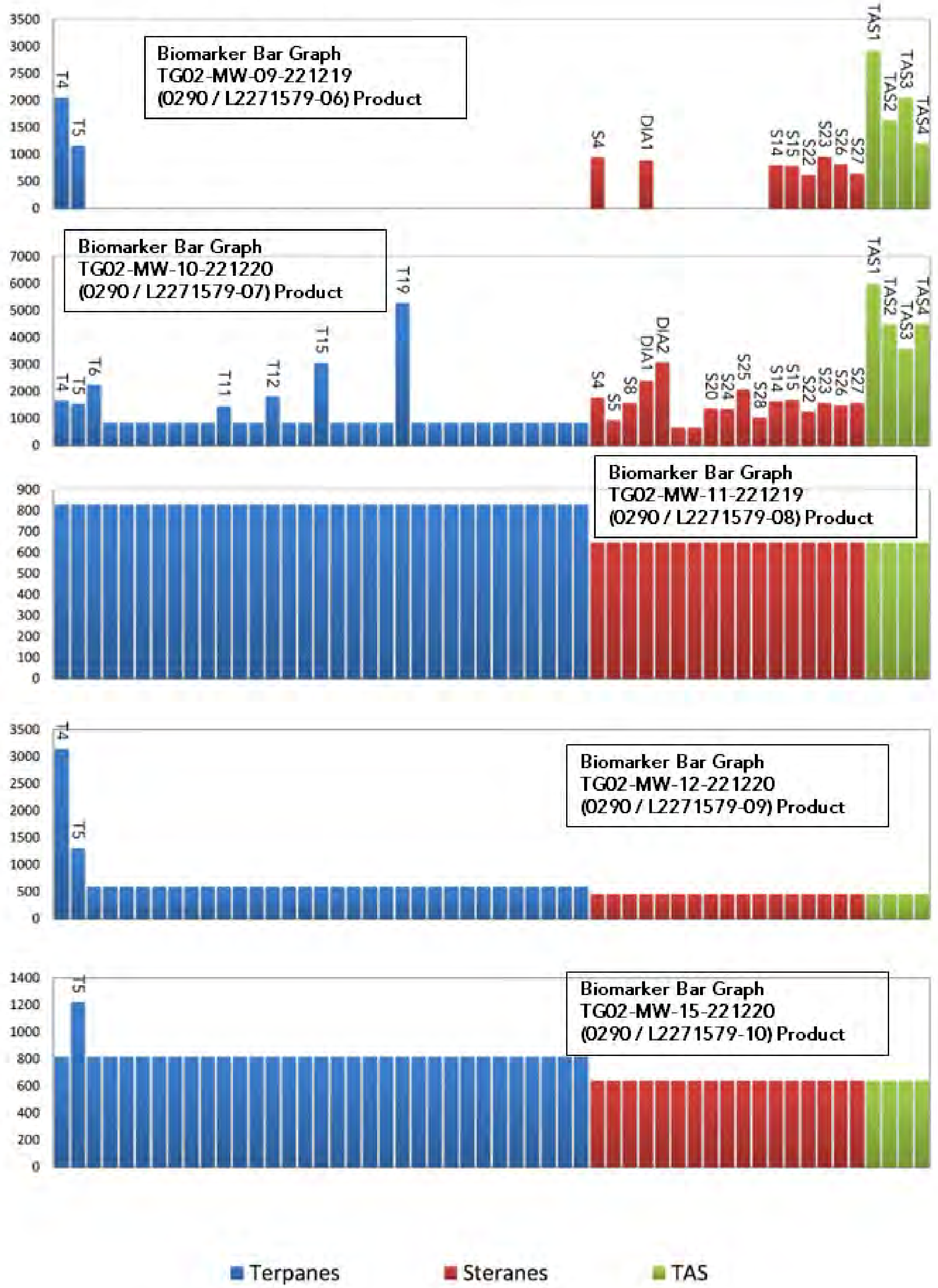

Figure 20. Fingerprint Mosaics™ for product samples – Residual Range Petroleum Biomarkers Bar Graphs.

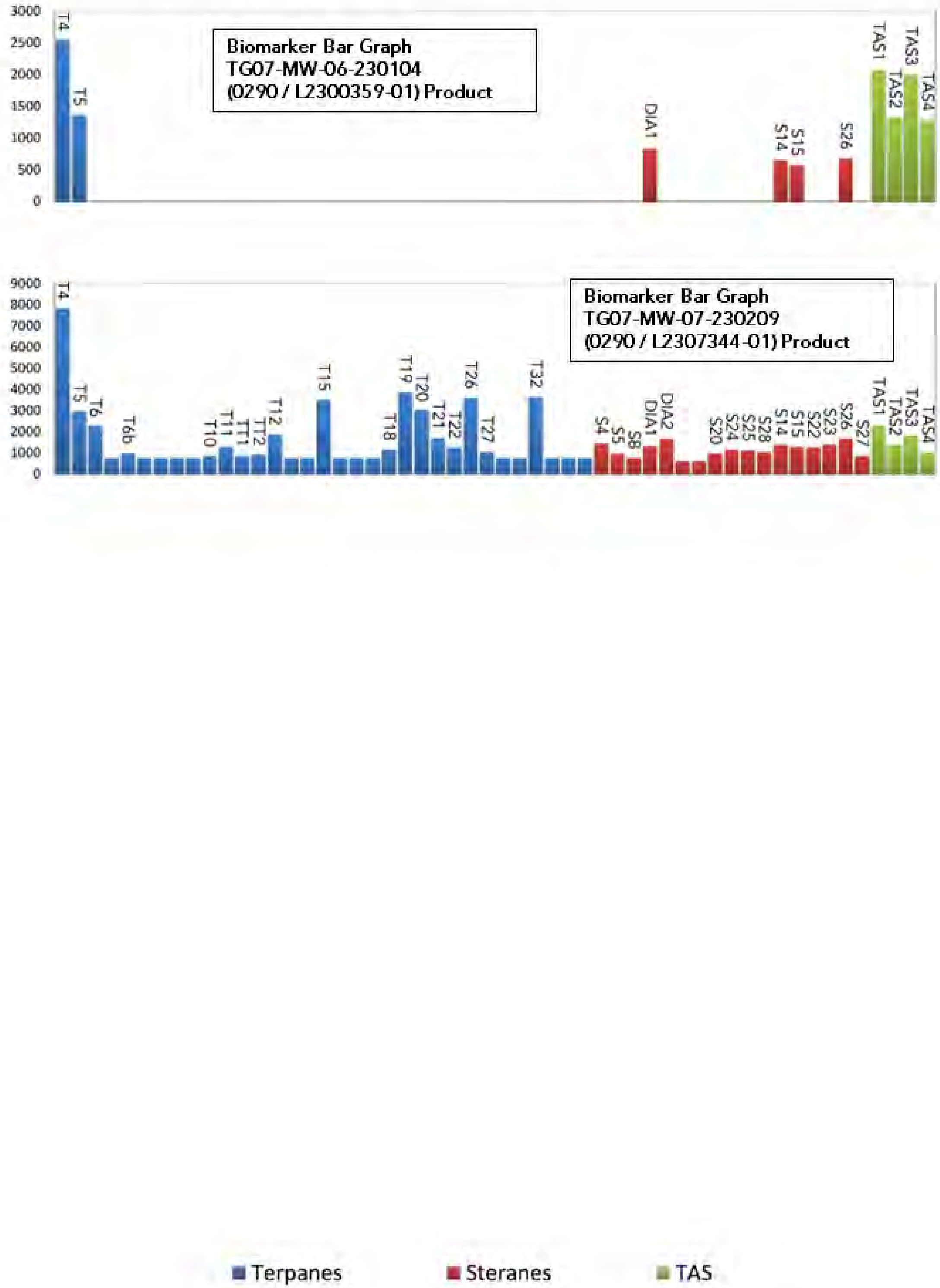

Figure 21. Fingerprint Mosaics™ for product samples – Residual Range Petroleum Biomarkers Bar Graphs.

GC/FID SVOC Chromatograms

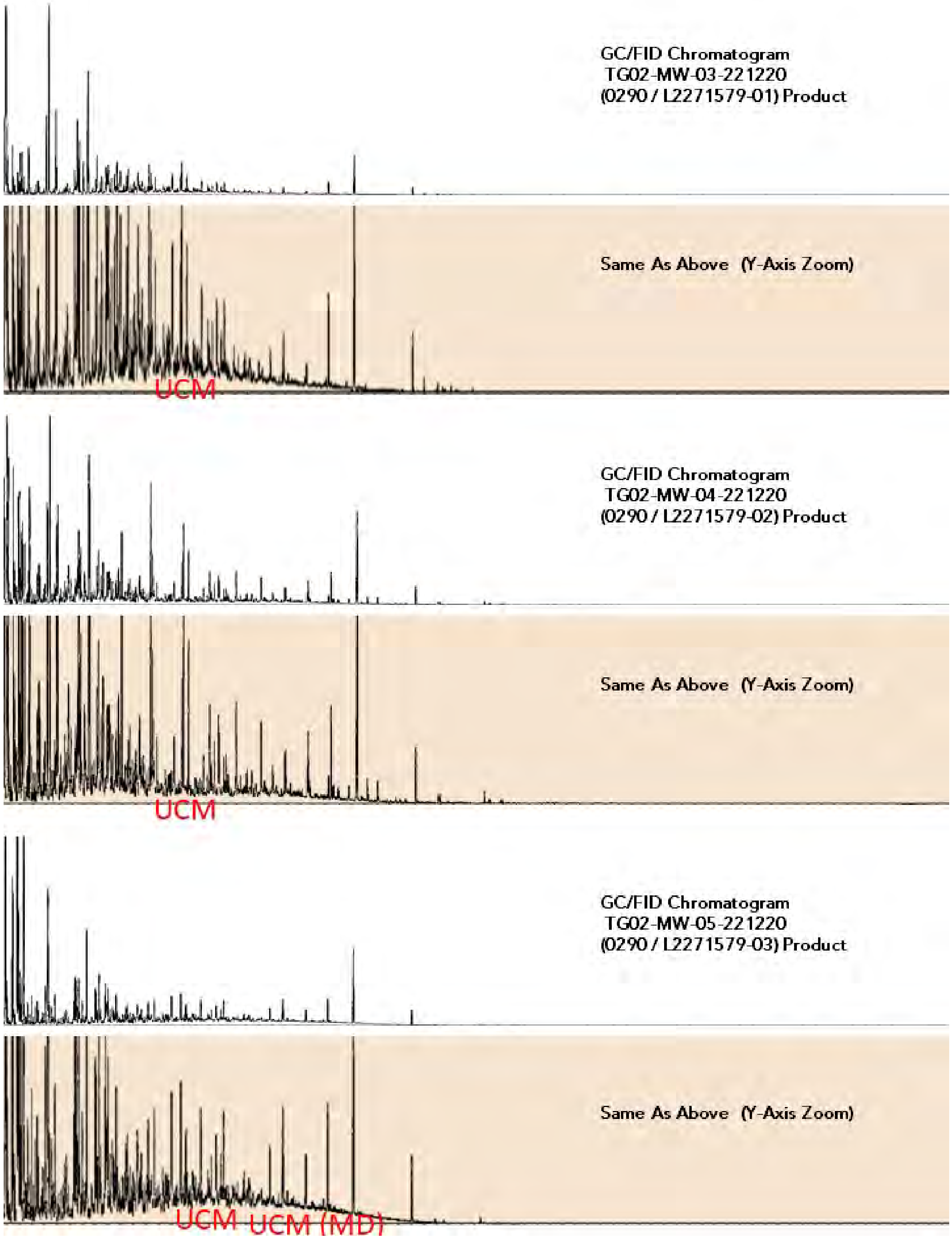

Figure 22. Fingerprint Mosaics™ for product samples – GC/FID Chromatograms.

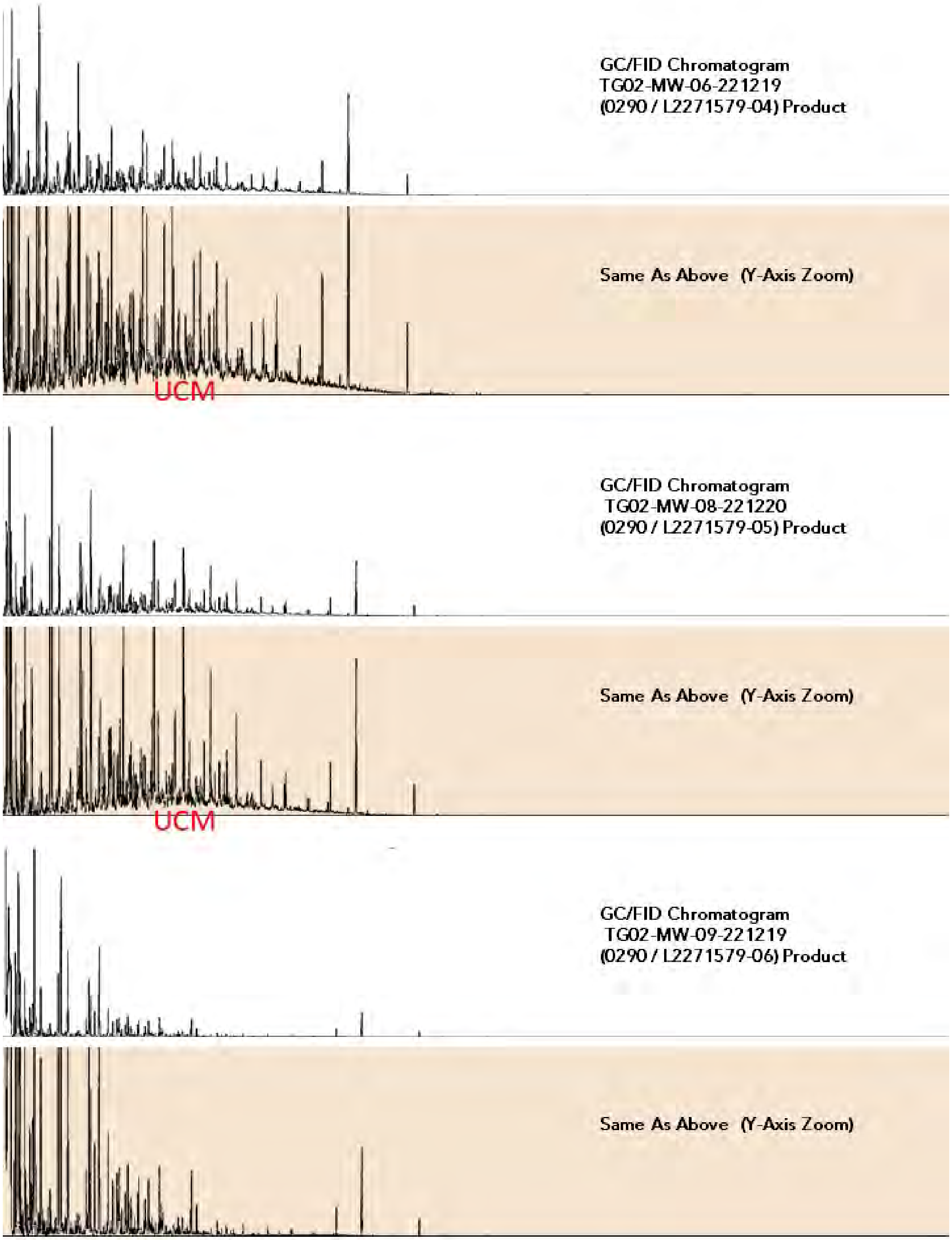

Figure 23. Fingerprint Mosaics™ for product samples – GC/FID Chromatograms.

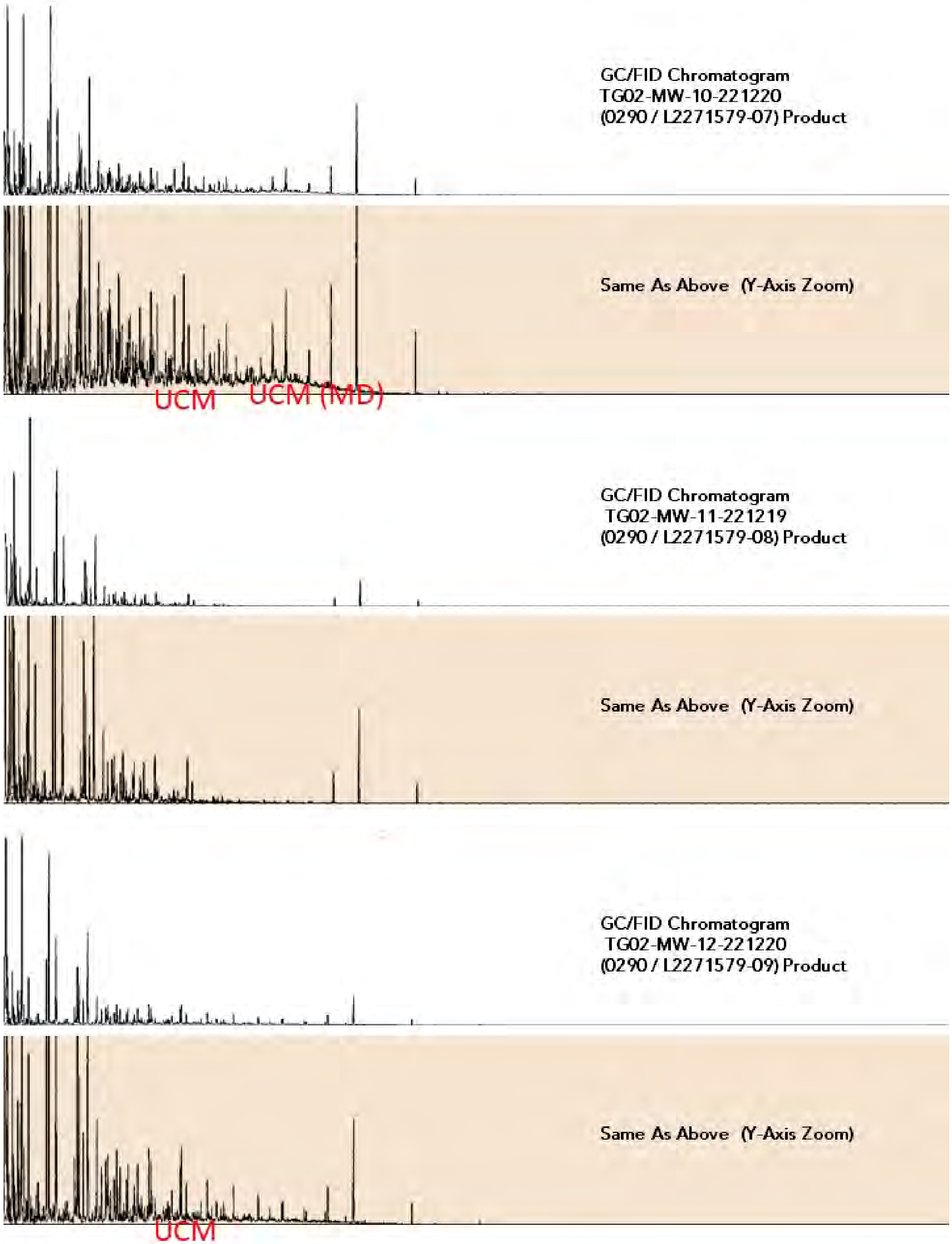

Figure 24. Fingerprint Mosaics™ for product samples – GC/FID Chromatograms.

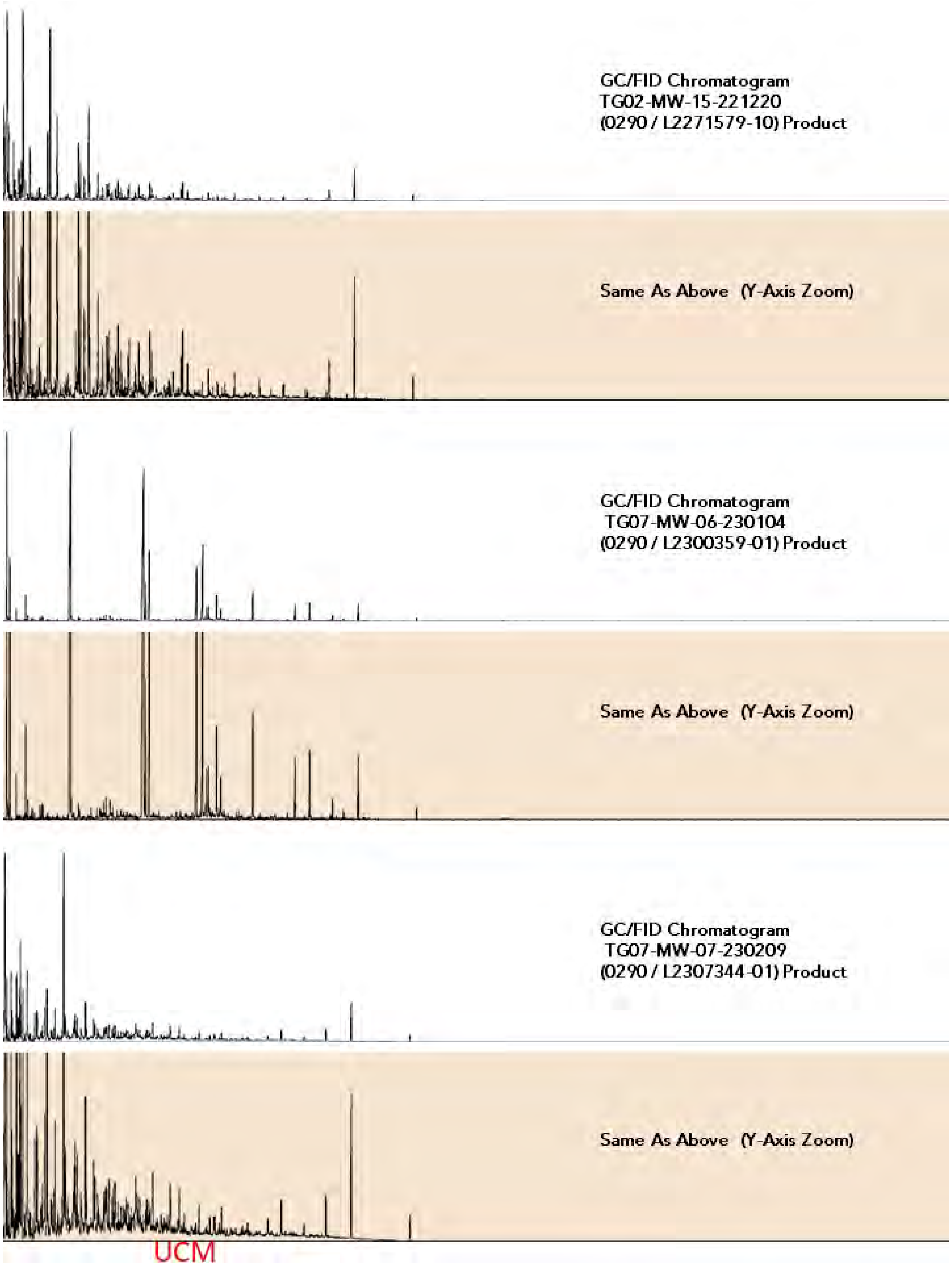

Figure 25. Fingerprint Mosaics™ for product samples – GC/FID Chromatograms.

N-Paraffins (85 m/z) SVOC Chromatograms

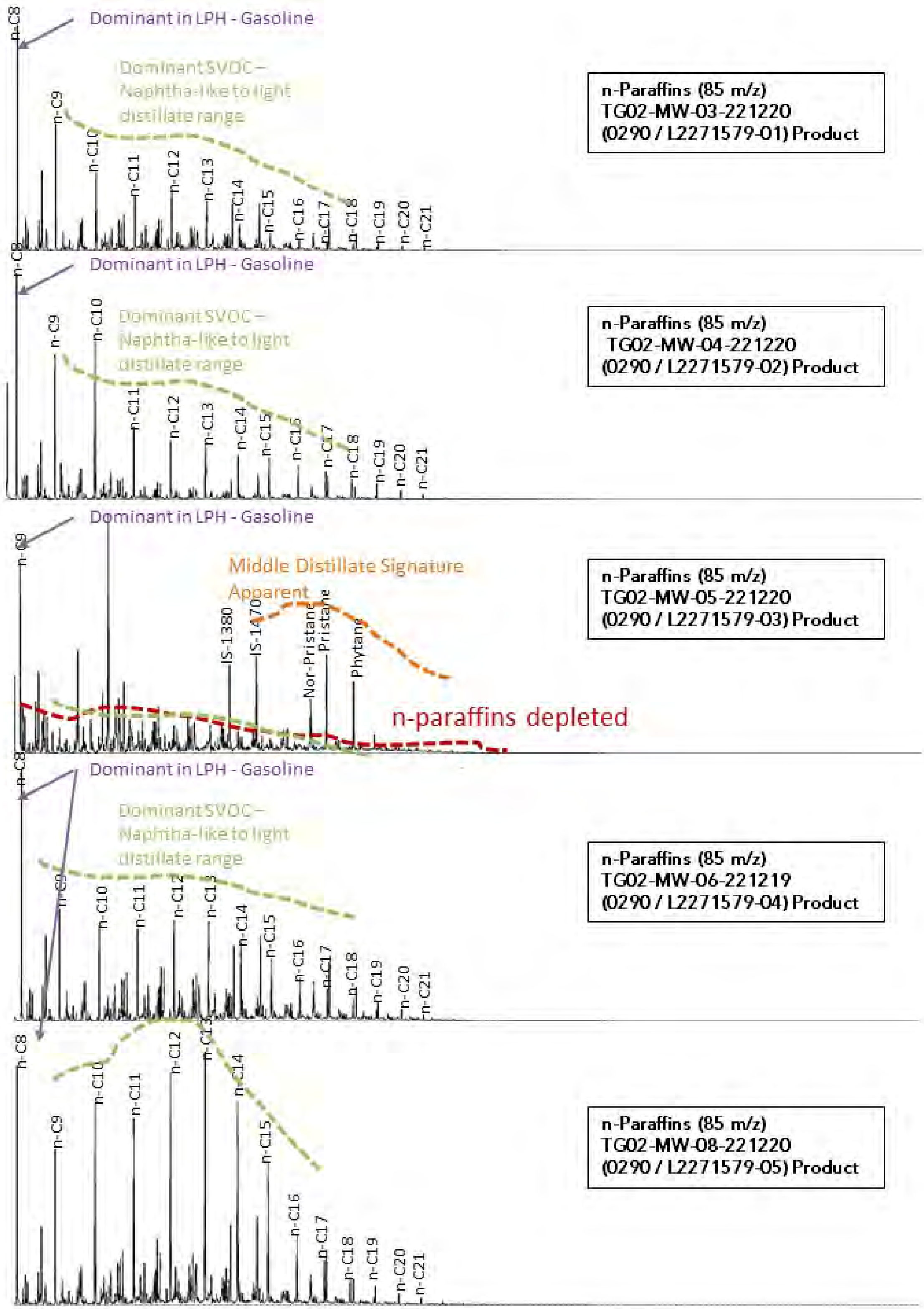

Figure 26. Fingerprint Mosaics™ for product samples – n-paraffins 85 m/z ion traces.

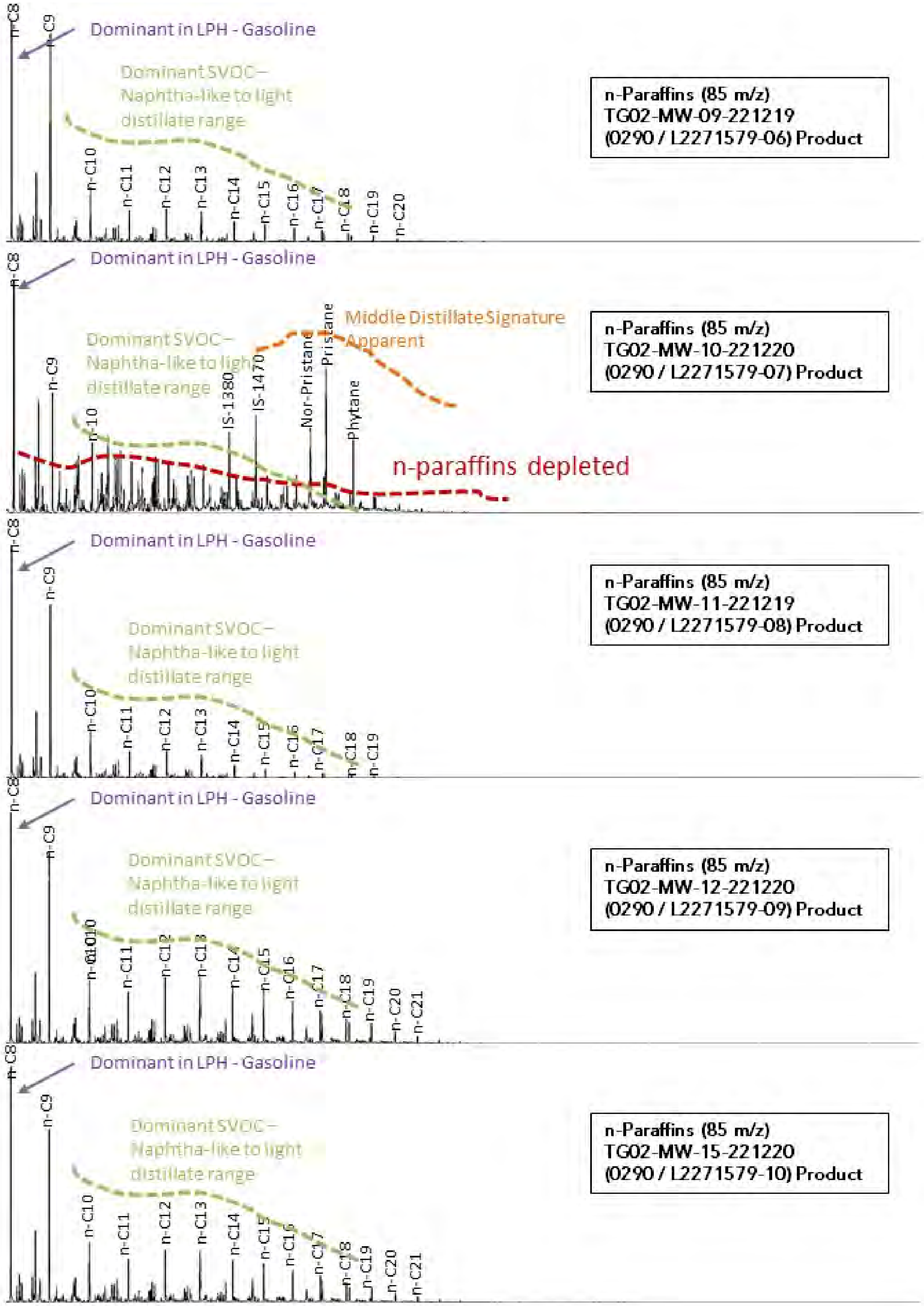

Figure 27. Fingerprint Mosaics™ for product samples – n-paraffins 85 m/z ion traces.

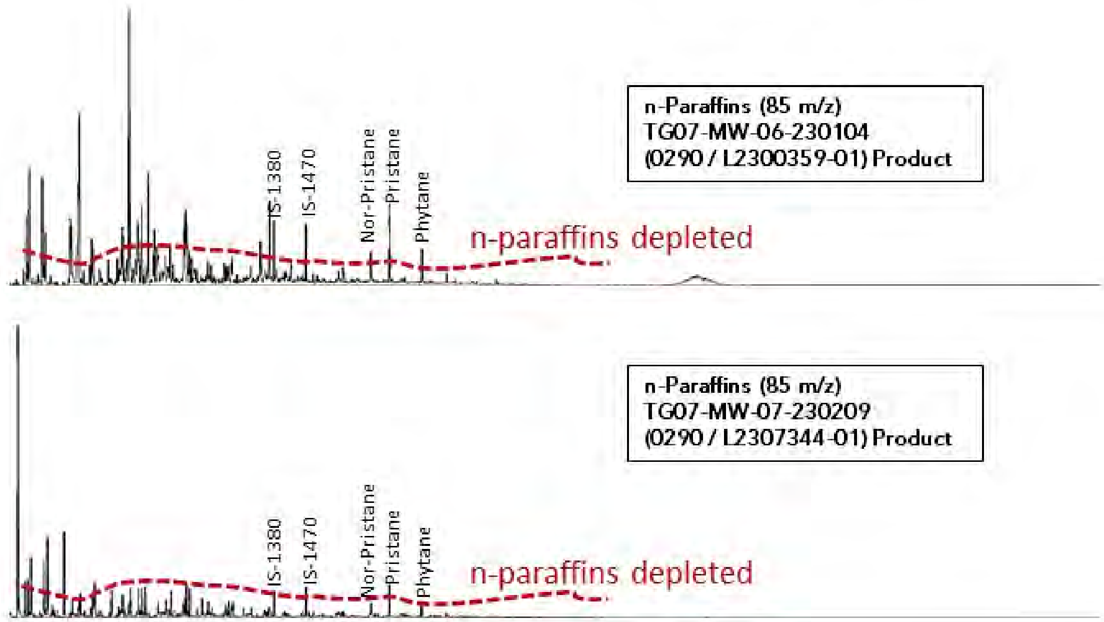

Figure 28. Fingerprint Mosaics™ for product samples – n-paraffins 85 m/z ion traces.

Alkylcyclohexanes (83 m/z)
SVOC Chromatograms

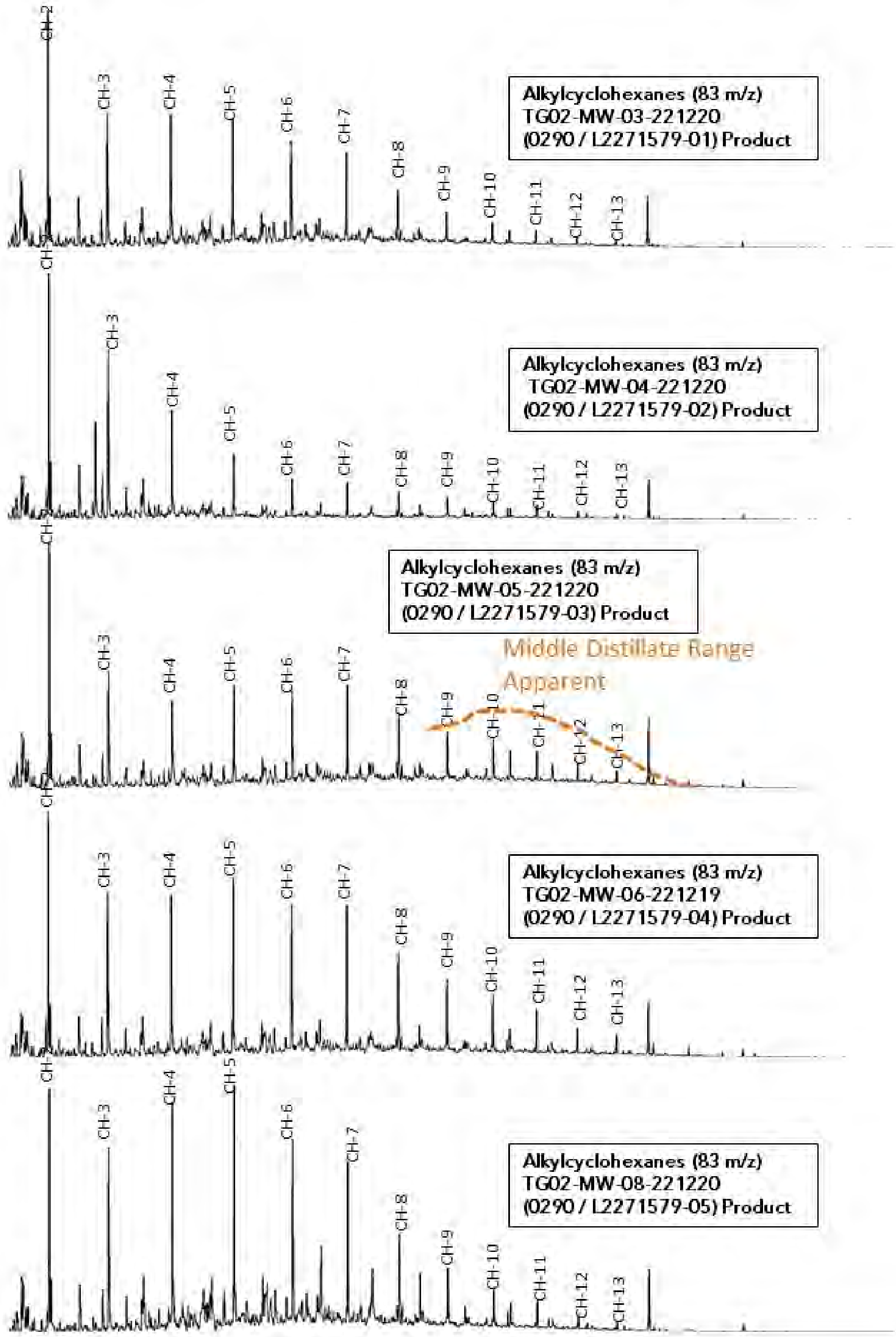

Figure 29. Fingerprint Mosaics™ for product samples – Alkycyclohexanes 83 m/z ion traces.

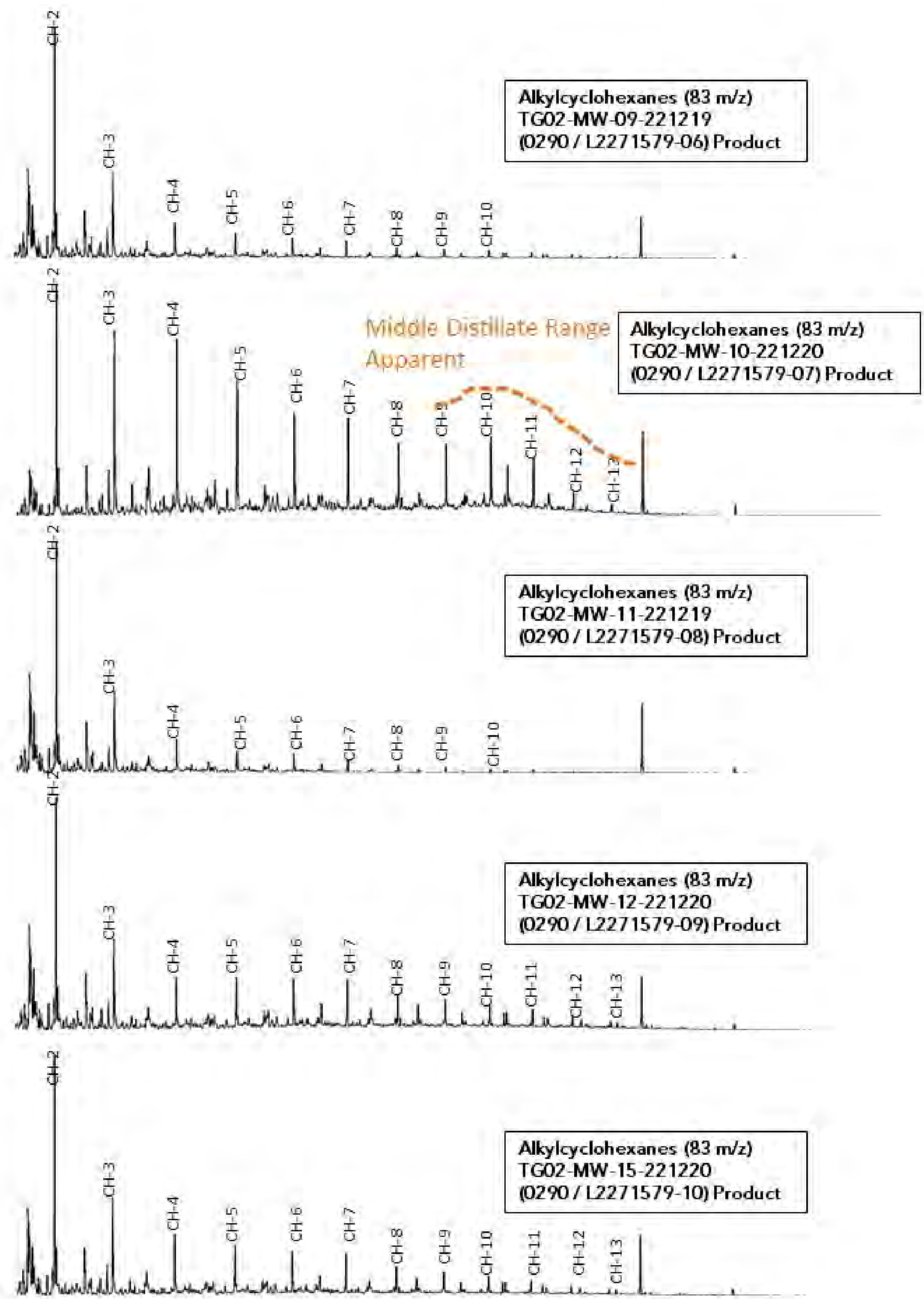

Figure 30. Fingerprint Mosaics™ for product samples – Alkycyclohexanes 83 m/z ion traces.

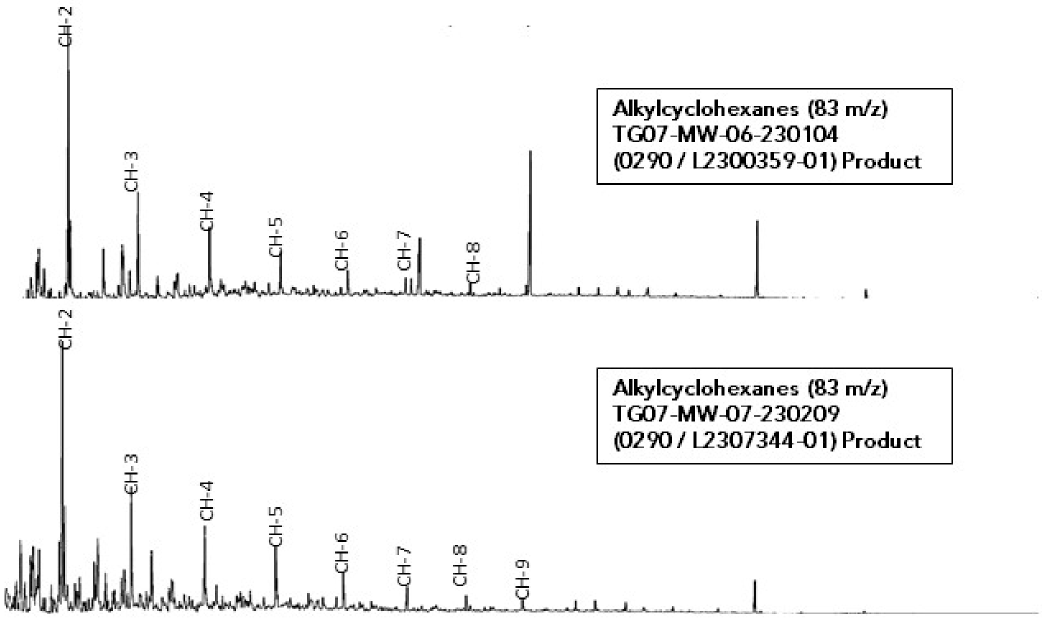

Figure 31. Fingerprint Mosaics™ for product samples – Alkycyclohexanes 83 m/z ion traces.

Bicyclanes (123 m/z) SVOC Chromatograms

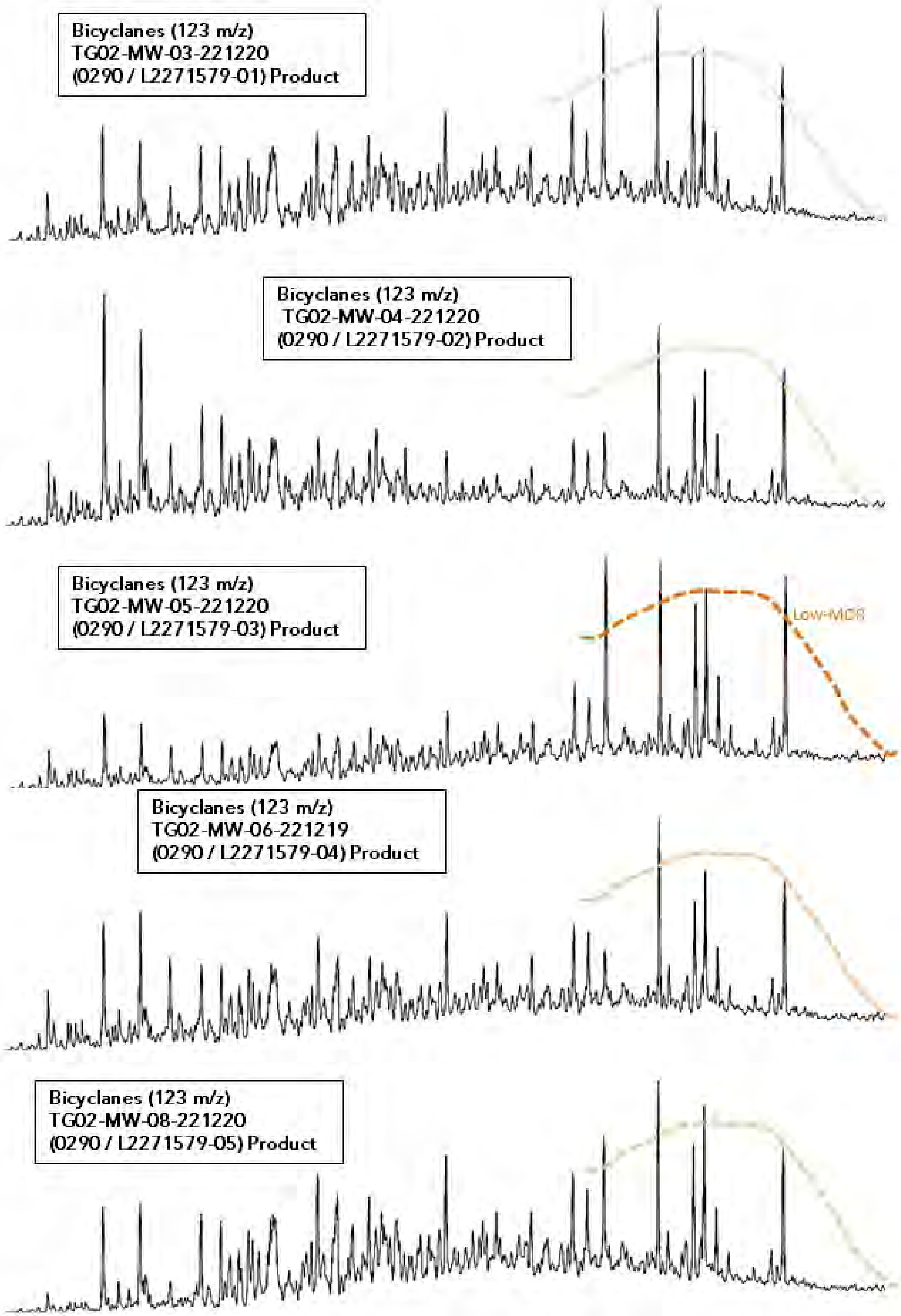

Figure 32. Fingerprint Mosaics™ for product samples – Bicyclanes 123 m/z ion traces.

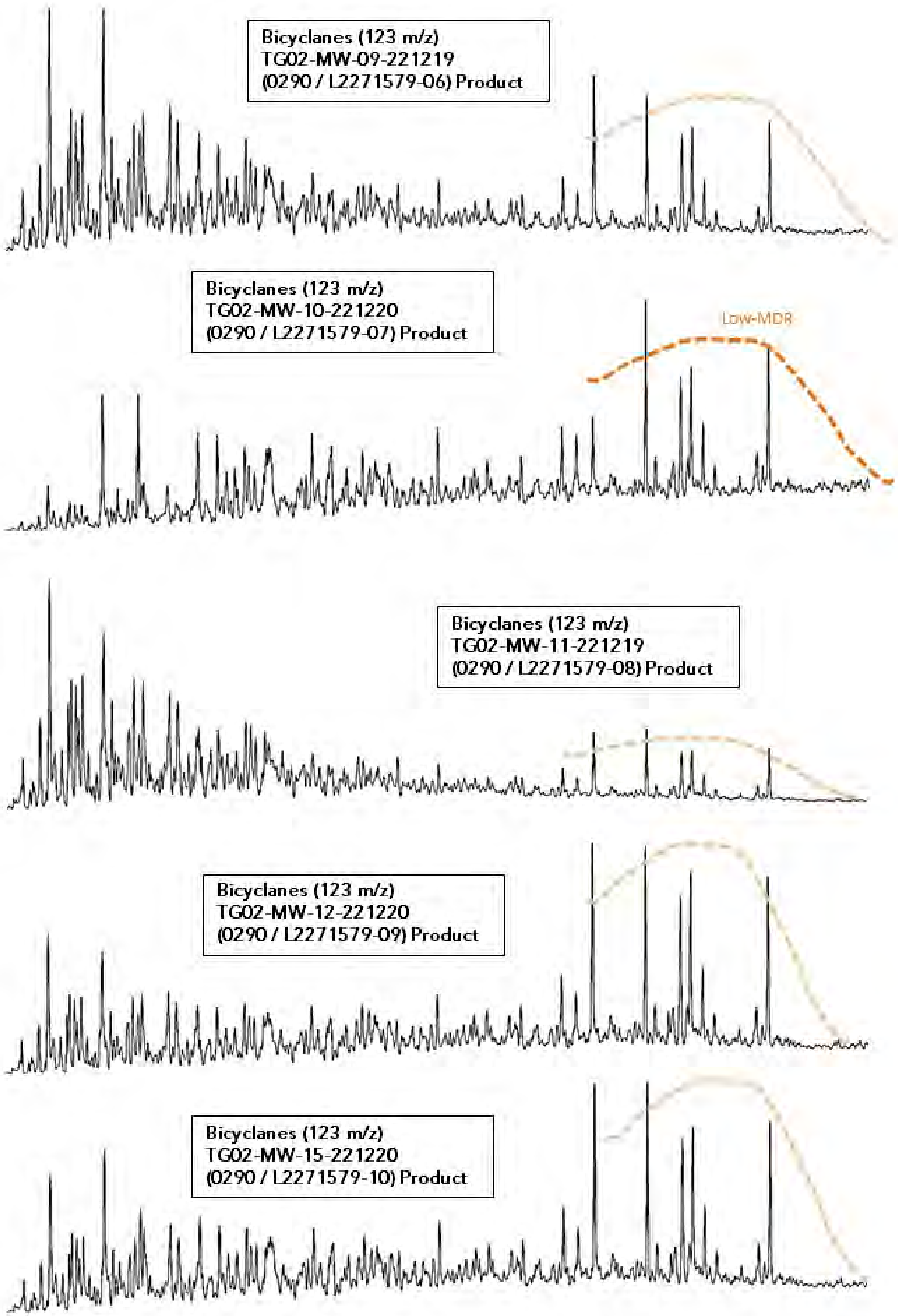

Figure 33. Fingerprint Mosaics™ for product samples – Bicyclanes 123 m/z ion traces.

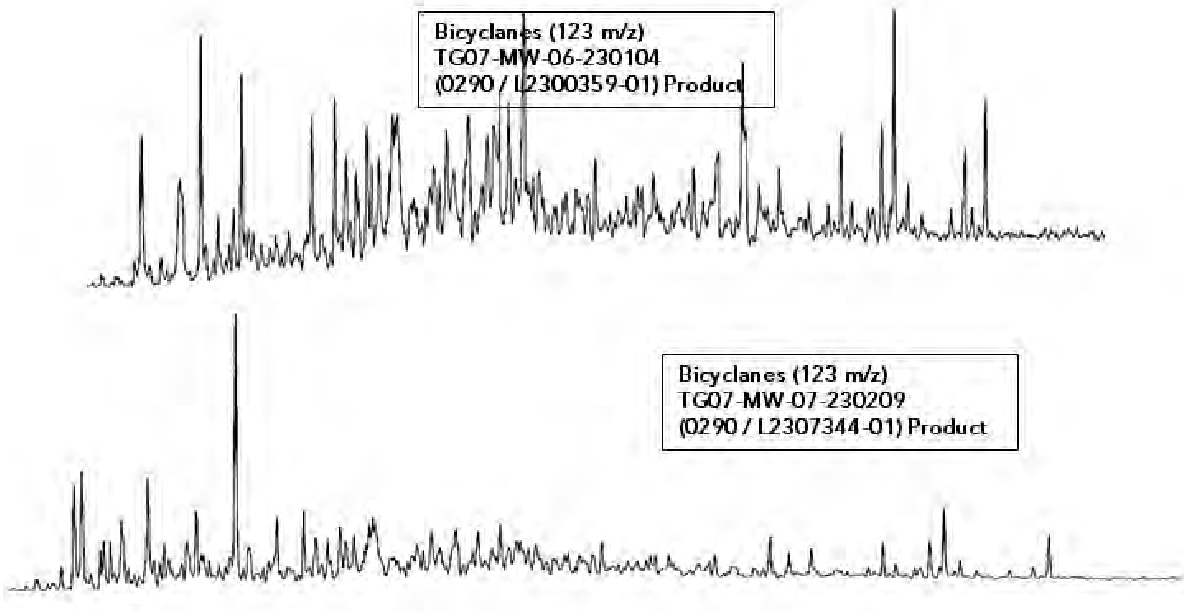

Figure 34. Fingerprint Mosaics™ for product samples – Bicyclanes 123 m/z ion traces.

ANALYTICAL REPORT

Lab Number:	L2130480
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/01/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130480-01	PB26-01-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:35	06/07/21
L2130480-02	PB26-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:45	06/07/21
L2130480-03	PB26-03-SS01	SOIL	PHILADELPHIA, PA	06/07/21 09:55	06/07/21
L2130480-04	PB26-04-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:10	06/07/21
L2130480-05	PB26-05-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:20	06/07/21
L2130480-06	PB26-06-SS01	SOIL	PHILADELPHIA, PA	06/07/21 10:35	06/07/21
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L2130480-08	PB26-08-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:00	06/07/21
L2130480-09	PB26-09-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:15	06/07/21
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L2130480-11	PB26-11-SS01	SOIL	PHILADELPHIA, PA	06/07/21 11:50	06/07/21
L2130480-12	PB26-12-SS01	SOIL	PHILADELPHIA, PA	06/07/21 12:00	06/07/21
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L2130480-15	PB26-15-SS01	SOIL	PHILADELPHIA, PA	06/07/21 13:30	06/07/21
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L2130480-18	PB27-02-SS01	SOIL	PHILADELPHIA, PA	06/07/21 14:45	06/07/21
L2130480-19	FB-210607-1	WATER	PHILADELPHIA, PA	06/07/21 14:20	06/07/21
L2130480-20	FB-210607-2	WATER	PHILADELPHIA, PA	06/07/21 14:50	06/07/21
L2130480-21	TB	WATER	PHILADELPHIA, PA	06/07/21 00:00	06/07/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

July 01, 2021: The Volatile Organics analyte list has been amended on L2130480-17, -18, -19, -20 and -21.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2130480-17D: The internal standard (IS) response(s) for fluorobenzene (232%) and the surrogate recovery for dibromofluoromethane (54%) and 4-bromofluorobenzene (279%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias.

L2130480-17D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130480-18D: The internal standard (IS) response(s) for fluorobenzene (204%) and the surrogate recovery for dibromofluoromethane (64%) and 4-bromofluorobenzene (165%)were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was re-analyzed on a larger dilution in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, since the IS response was above

Case Narrative (continued)

method criteria, all associated compounds are considered to have a potentially low bias.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/01/21

ORGANICS

VOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-01	Date Collected:	06/07/21 09:35
Client ID:	PB26-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 17:47
Analyst: SMB
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.55	1.27	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-02	Date Collected:	06/07/21 09:45
Client ID:	PB26-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 19:07
Analyst: SMB
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-03	Date Collected:	06/07/21 09:55
Client ID:	PB26-03-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 19:47
Analyst: SMB
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.38	1.19	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-04	Date Collected:	06/07/21 10:10
Client ID:	PB26-04-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 20:27
Analyst: SMB
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.49	1.24	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-05	Date Collected:	06/07/21 10:20
Client ID:	PB26-05-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 21:07
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.31	1.15	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-06
Client ID: PB26-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:35
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 21:47
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

SAMPLE RESULTS

Lab ID:	L2130480-07	Date Collected:	06/07/21 10:45
Client ID:	PB26-07-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/14/21 22:27
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.34	1.17	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-08
Client ID: PB26-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:00
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 01:07
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.29	1.15	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-09	Date Collected:	06/07/21 11:15
Client ID:	PB26-09-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 01:46
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.42	1.21	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-10
Client ID: PB26-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 11:30
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 02:26
Analyst: SMB
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-11
Client ID: PB26-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 11:50
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/15/21 03:06
Analyst: SMB
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-12	Date Collected:	06/07/21 12:00
Client ID:	PB26-12-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 17:13
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.43	1.22	1

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-13	Date Collected:	06/07/21 13:10
Client ID:	PB26-13-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 17:53
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-14
Client ID: PB26-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 13:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 18:32
Analyst: SMB
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.48	1.24	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-15	Date Collected:	06/07/21 13:30
Client ID:	PB26-15-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 19:12
Analyst: SMB
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.44	1.22	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-16	Date Collected:	06/07/21 13:40
Client ID:	PB26-16-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8015D
Analytical Date: 06/16/21 19:51
Analyst: SMB
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/kg	2.40	1.20	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-17 D2
Client ID: PB27-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:40
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/14/21 08:59
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	49.		mg/kg	3.8	0.38	25
Benzene	16.		mg/kg	0.94	0.31	25
1,2-Dichloroethane	ND		mg/kg	1.9	0.48	25
Toluene	89.		mg/kg	1.9	1.0	25
1,2-Dibromoethane	ND		mg/kg	0.94	0.55	25
Ethylbenzene	130		mg/kg	1.9	0.26	25
p/m-Xylene	550		mg/kg	3.8	1.0	25
o-Xylene	220		mg/kg	1.9	0.55	25
Xylenes, Total	770		mg/kg	1.9	0.55	25
Isopropylbenzene	33.		mg/kg	1.9	0.20	25
1,3,5-Trimethylbenzene	150		mg/kg	3.8	0.36	25
1,2,4-Trimethylbenzene	400		mg/kg	3.8	0.63	25
Naphthalene	98.		mg/kg	7.5	1.2	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**141**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17 D	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/12/21 14:25
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	31.		mg/kg	0.60	0.061	4
Benzene	9.0		mg/kg	0.15	0.050	4
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	4
Toluene	80.		mg/kg	0.30	0.16	4
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	4
Ethylbenzene	120	E	mg/kg	0.30	0.042	4
p/m-Xylene	460	E	mg/kg	0.60	0.17	4
o-Xylene	200	E	mg/kg	0.30	0.088	4
Isopropylbenzene	30.		mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	140	E	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	320	E	mg/kg	0.60	0.10	4
Naphthalene	91.	E	mg/kg	1.2	0.20	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**279**	Q	70-130
Dibromofluoromethane	**54**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-18 D2	Date Collected:	06/07/21 14:45
Client ID:	PB27-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/14/21 08:33
Analyst: MV
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	120		mg/kg	15	1.5	100
Benzene	69.		mg/kg	3.8	1.3	100
1,2-Dichloroethane	ND		mg/kg	7.6	2.0	100
Toluene	160		mg/kg	7.6	4.2	100
1,2-Dibromoethane	ND		mg/kg	3.8	2.2	100
Ethylbenzene	250		mg/kg	7.6	1.1	100
p/m-Xylene	1000		mg/kg	15	4.3	100
o-Xylene	400		mg/kg	7.6	2.2	100
Xylenes, Total	1400		mg/kg	0.76	0.22	100
Isopropylbenzene	61.		mg/kg	7.6	0.83	100
1,3,5-Trimethylbenzene	200		mg/kg	15	1.5	100
1,2,4-Trimethylbenzene	530		mg/kg	15	2.6	100
Naphthalene	170		mg/kg	31	5.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-18 D
Client ID: PB27-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:45
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/12/21 14:51
Analyst: NLK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	94.		mg/kg	1.5	0.15	10
Benzene	49.		mg/kg	0.38	0.13	10
1,2-Dichloroethane	ND		mg/kg	0.76	0.20	10
Toluene	160		mg/kg	0.76	0.42	10
1,2-Dibromoethane	ND		mg/kg	0.38	0.22	10
Ethylbenzene	260	E	mg/kg	0.76	0.11	10
p/m-Xylene	970	E	mg/kg	1.5	0.43	10
o-Xylene	400		mg/kg	0.76	0.22	10
Isopropylbenzene	61.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	190		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	490	E	mg/kg	1.5	0.26	10
Naphthalene	140		mg/kg	3.1	0.50	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	**165**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/10/21 13:00
Analytical Date:	06/10/21 15:25		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8015D
Analytical Date: 06/15/21 22:43
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-19
Client ID: FB-210607-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 03:26
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20
Client ID: FB-210607-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 14:50
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/10/21 15:32
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/10/21 13:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480

Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-20 Date Collected: 06/07/21 14:50

Client ID: FB-210607-2 Date Received: 06/07/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Analytical Method: 1,8015D

Analytical Date: 06/15/21 23:23

Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Alcohol Analysis by GC/FID - Mansfield Lab						
Ethyl Alcohol	ND		mg/l	2.00	1.88	1

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-20	Date Collected:	06/07/21 14:50
Client ID:	FB-210607-2	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 03:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-21
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 00:00
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/16/21 04:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/10/21 14:23
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/10/21 13:00

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 19-20 Batch: WG1510242-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/14/21 14:29
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 01-11 Batch: WG1510337-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/14/21 07:41
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/12/21 10:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18 Batch: WG1511682-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/15/21 19:22
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 19-20 Batch: WG1512410-1					
Ethyl Alcohol	ND		mg/l	2.00	1.88

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/15/21 22:01
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 19-21 Batch: WG1512883-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.27	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D
Analytical Date: 06/16/21 13:55
Analyst: SMB

Parameter	Result	Qualifier	Units	RL	MDL
Alcohol Analysis by GC/FID - Mansfield Lab for sample(s): 12-16 Batch: WG1512927-1					
Ethyl Alcohol	ND		mg/kg	2.00	1.00

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 19-20 Batch: WG1510242-2									
1,2-Dibromoethane	103		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 Batch: WG1510337-2 WG1510337-3								
Ethyl Alcohol	102		100		70-130	2		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-3 WG1511682-4								
Methyl tert butyl ether	87		89		66-130	2		30
Benzene	79		79		70-130	0		30
1,2-Dichloroethane	80		81		70-130	1		30
Toluene	80		80		70-130	0		30
1,2-Dibromoethane	82		84		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	86		84		70-130	2		30
o-Xylene	86		85		70-130	1		30
Isopropylbenzene	91		90		70-130	1		30
1,3,5-Trimethylbenzene	94		94		70-130	0		30
1,2,4-Trimethylbenzene	93		94		70-130	1		30
Naphthalene	91		100		70-130	9		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	104		102		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18 Batch: WG1511682-8 WG1511682-9								
Methyl tert butyl ether	88		87		66-130	1		30
Benzene	82		82		70-130	0		30
1,2-Dichloroethane	71		71		70-130	0		30
Toluene	84		82		70-130	2		30
1,2-Dibromoethane	86		85		70-130	1		30
Ethylbenzene	88		87		70-130	1		30
p/m-Xylene	85		84		70-130	1		30
o-Xylene	87		86		70-130	1		30
Isopropylbenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	95		93		70-130	2		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30
Naphthalene	103		102		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	80		78		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	94		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130480

Project Number: 200.00135.005

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 19-20 Batch: WG1512410-2 WG1512410-3								
Ethyl Alcohol	106		101		70-130	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 19-21 Batch: WG1512883-3 WG1512883-4								
Methyl tert butyl ether	82		82		63-130	0		20
Benzene	86		87		70-130	1		20
1,2-Dichloroethane	94		93		70-130	1		20
Toluene	95		96		70-130	1		20
Ethylbenzene	92		93		70-130	1		20
p/m-Xylene	90		90		70-130	0		20
o-Xylene	90		90		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	96		84		70-130	13		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		108		70-130
Toluene-d8	111		111		70-130
4-Bromofluorobenzene	121		120		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 Batch: WG1512927-2 WG1512927-3								
Ethyl Alcohol	99		102		70-130	3		30

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1510337-4 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30
Alcohol Analysis by GC/FID - Mansfield Lab Associated sample(s): 12-16 QC Batch ID: WG1512927-4 QC Sample: L2130480-16 Client ID: PB26-16-SS01						
Ethyl Alcohol	ND	ND	mg/kg	NC		30

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-17	Date Collected:	06/07/21 14:40
Client ID:	PB27-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	182		mg/kg	2.39	0.128	1	06/15/21 06:30	06/23/21 20:55	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-18	Date Collected:	06/07/21 14:45
Client ID:	PB27-02-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1580		mg/kg	2.49	0.133	1	06/15/21 06:30	06/23/21 21:00	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-19	Date Collected:	06/07/21 14:20
Client ID:	FB-210607-1	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:26	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-20	Date Collected:	06/07/21 14:50
Client ID:	FB-210607-2	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:31	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 19-20 Batch: WG1510812-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17-18 Batch: WG1511040-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/15/21 06:30	06/21/21 18:04	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130480

Report Date: 07/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 19-20 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1511040-2 SRM Lot Number: D109-540								
Lead, Total	100		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 19-20 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-3 QC Sample: L2128477-41 Client ID: MS Sample												
Lead, Total	9.80	49.2	61.4	105		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1511040-4 QC Sample: L2128477-41 Client ID: DUP Sample						
Lead, Total	9.80	13.4	mg/kg	**31**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-01	Date Collected:	06/07/21 09:35
Client ID:	PB26-01-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	76.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-02 Date Collected: 06/07/21 09:45
Client ID: PB26-02-SS01 Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	84.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-03	Date Collected:	06/07/21 09:55
Client ID:	PB26-03-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	80.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-04
Client ID: PB26-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:10
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	78.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-05
Date Collected: 06/07/21 10:20
Client ID: PB26-05-SS01
Date Received: 06/07/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	82.9		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130480

Project Number: 200.00135.005 | **Report Date:** 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-06
Client ID: PB26-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 10:35
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	82.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-07	Date Collected:	06/07/21 10:45
Client ID:	PB26-07-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.0		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-08	Date Collected:	06/07/21 11:00
Client ID:	PB26-08-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.4		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-09	Date Collected:	06/07/21 11:15
Client ID:	PB26-09-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.5		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-10	Date Collected:	06/07/21 11:30
Client ID:	PB26-10-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	79.7		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-11
Client ID: PB26-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 11:50
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.2		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-12	Date Collected:	06/07/21 12:00
Client ID:	PB26-12-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.8		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

SAMPLE RESULTS

Lab ID:	L2130480-13	Date Collected:	06/07/21 13:10
Client ID:	PB26-13-SS01	Date Received:	06/07/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.3		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-14
Client ID: PB26-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 13:20
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	79.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-15
Client ID: PB26-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 13:30
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	81.6		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-16
Client ID: PB26-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 13:40
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Solids, Total	83.1		%	0.100	0.100	1	-	06/09/21 13:01	121,2540G	NB

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130480
Project Number: 200.00135.005
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-17
Client ID: PB27-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/07/21 14:40
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

SAMPLE RESULTS

Lab ID: L2130480-18
Client ID: PB27-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/07/21 14:45
Date Received: 06/07/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.6		%	0.100	NA	1	-	06/08/21 11:53	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130480
Report Date: 07/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 17-18 QC Batch ID: WG1509027-1 QC Sample: L2129449-33 Client ID: DUP Sample						
Solids, Total	89.4	89.6	%	0		20
General Chemistry - Mansfield Lab Associated sample(s): 01-16 QC Batch ID: WG1509755-1 QC Sample: L2130480-01 Client ID: PB26-01-SS01						
Solids, Total	76.2	76.0	%	0		10

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130480-01A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-02A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-03A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-04A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-05A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-06A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-07A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-08A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-09A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-10A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-11A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-12A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-13A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-14A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-15A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-16A	Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		A2-TS(7),A2-ALCOHOL(14)
L2130480-17A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-17B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-17D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-18A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2130480-18B	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130480-18C	Vial water preserved	A	NA		2.9	Y	Absent	08-JUN-21 10:59	PA-8260HLW(14)
L2130480-18D	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2130480-18E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2130480-19A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-19D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-19G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-19I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-19J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-19K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2130480-20D	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20E	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20F	Vial unpreserved	A	NA		2.9	Y	Absent		A2-ALCOHOL(14)
L2130480-20G	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20H	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2130480-20I	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2130480-20J	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-20K	Amber 250ml unpreserved	A	7	7	2.9	Y	Absent		HOLD-8270(7)
L2130480-21A	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)
L2130480-21B	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		PA-8260(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130480
Project Number:	200.00135.005	**Report Date:**	07/01/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130480
Project Number: 200.00135.005 **Report Date:** 07/01/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:07012116:20

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/8/21

ALPHA Job #: L2130440

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of ETHANOL

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A2-Alcohol (8015)	Sample Specific Comments	TOTAL # BOTTLES
30440.01	PB26-01-SS01	6/7	0935	S	TS	☑	Ethanol only	1
.02	PB26-02-SS01	↓	0945	↓	TS	☑	Ethanol only	1
.03	PB26-03-SS01		0955		TS	☑	Ethanol only	1
.04	PB26-04-SS01		1010		TS	☑	Ethanol only	1
.05	PB26-05-SS01		1020		TS	☑	Ethanol only	1
.06	PB26-06-SS01		1035		TS	☑	Ethanol only	1
.07	PB26-07-SS01		1045		TS	☑	Ethanol only	1
.08	PB26-08-SS01		1100		TS	☑	Ethanol only	1
.09	PB26-09-SS01		1115		TS	☑	Ethanol only	1
.10	PB26-10-SS01	↓	1130	↓	TS	☑	Ethanol only	1

Container Type: G
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 1614	[signature]	6/7/21 1614
[signature]	6/7/21 1712	[signature] AAL	6/7/21 1712
[signature] AAL	6/7/21	[signature] AAL	6/7/21 22:00
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/8/21

ALPHA Job #: L2130460

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of ETHANOL

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING

Filtration
☐ Done
☒ Not Needed
☐ Lab to do

Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A2-Alcohol (8015)	Sample Specific Comments	TOTAL # BOTTLES
30460 .11	PB26-11-5501	6/7	1150	S	TS	☑	Ethanol only	1
.12	PB26-12-5501	↓	1200	↓	TS	☑	Ethanol only	1
.13	PB26-13-5501		1310		TS	☑	Ethanol only	1
.14	PB26-14-5501		1320		TS	☑	Ethanol only	1
.15	PB26-15-5501		1330		TS	☑	Ethanol only	1
.16	PB26-16-5501		1340		TS	☑	Ethanol only	1
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	
					TS	☐	Ethanol only	

Container Type: G
Preservative: A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 16:10	[signature]	6/7/21 16:10
[signature] AAL	6/7/21 1730	[signature] AAL	6/7/21 1730
[signature] AAL	6/7/21	[signature] AAL	6/7/21 2200
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

ALPHA ANALYTICAL

CHAIN OF COSTODY

PAGE 3 OF 3

Date Rec'd in Lab: 6/8/21

ALPHA Job #: L2130458

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits: * HCL RINSED FROM VIALS

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	PA-8260	~~PA-8270 SIM-Lvl~~ TS	DISSOLVED METALS (LEAD)	8011	ETHANOL *						Sample Specific Comments	TOTAL # BOTTLES
30458.17	PB27-01-5501	6/7	1440	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
.18	PB27-02-5501		1445	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
.19	FB-210607-1		1420	W	TS	☐	☐	☑	~~☑~~	☑	☑	☑	☐	☐	☐	☐	☐		8[illegible]
.20	FB-210607-2		1450	W	TS	☐	☐	☑	~~☑~~	☑	☑	☑	☐	☐	☐	☐	☐		8[illegible]
.21	TB			W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	-	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/7 16:10	[signature]	6/7/21 16:10
[signature]	6/7/21 1730	[signature] AAC	6/7/21 1730
[signature] AAC	6/7/21	[signature] AAL	6/7/21 22:00
[signature] AAL	6/8/21 02:00	[signature]	6/8/21 0200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

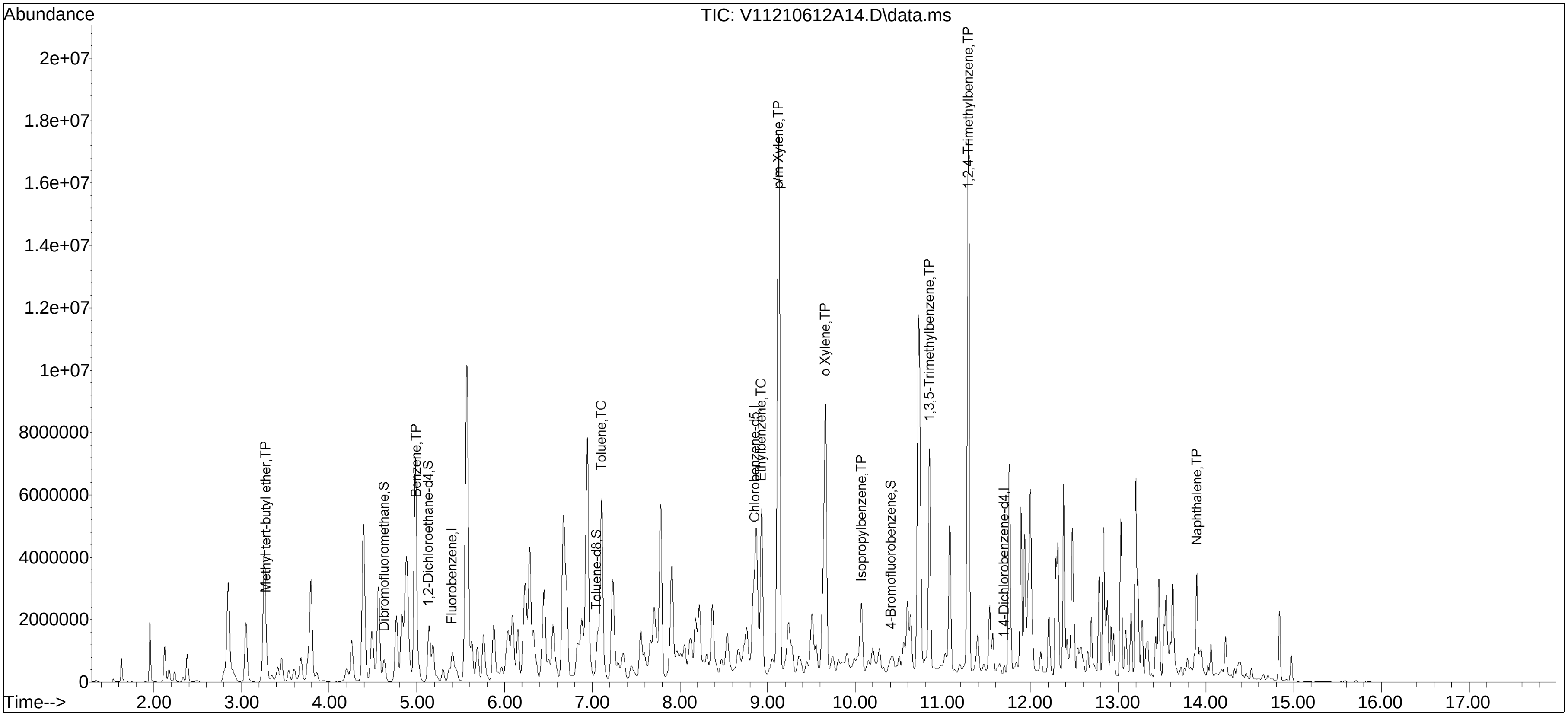
FORM NO: 01-01(HC) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A14.D
Acq On : 12 Jun 2021 02:25 pm
Operator : VOA111:NLK
Sample : L2130480-17D,31H,4.99,5,0.025,,A
Misc : WG1511682,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 13 14:32:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•

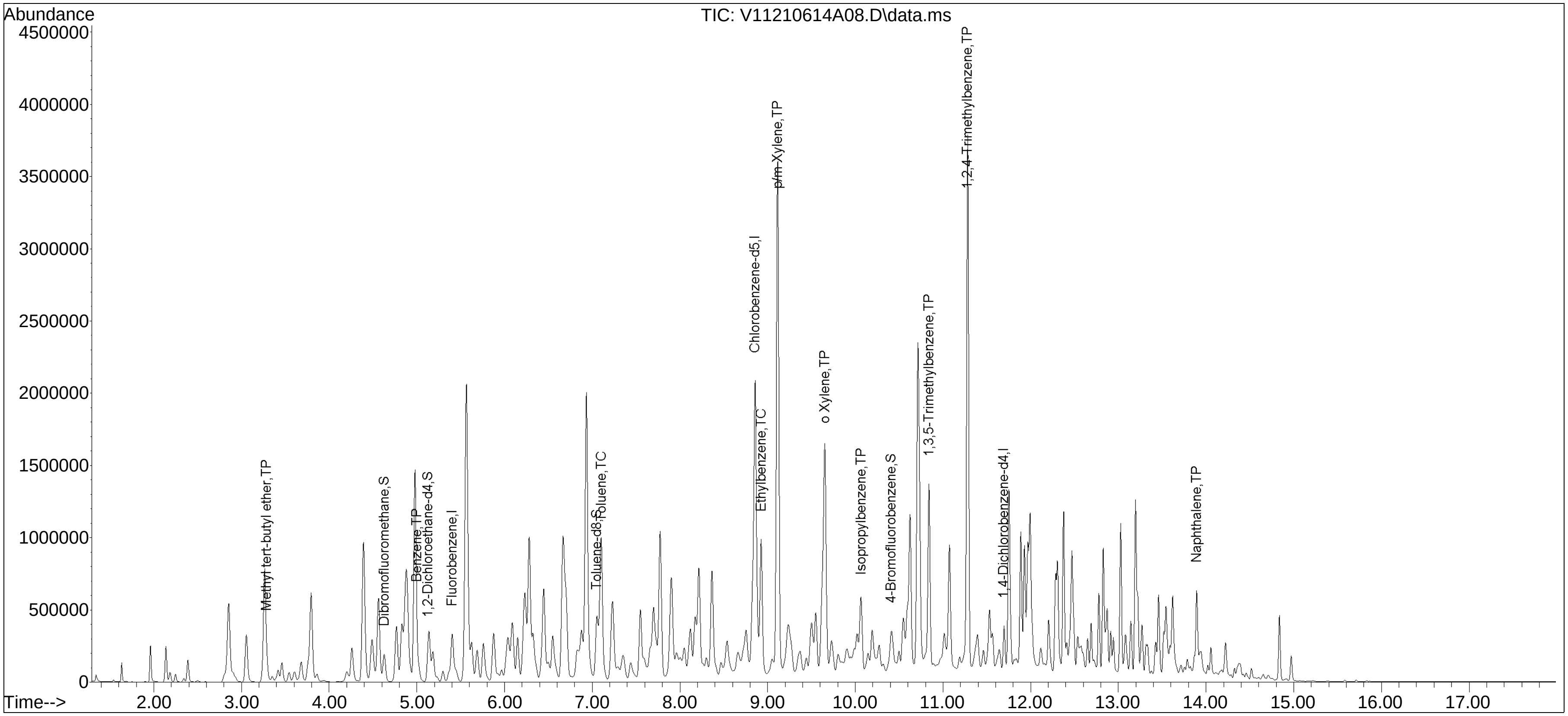


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210614A\
Data File : V11210614A08.D
Acq On    : 14 Jun 2021  08:59 am
Operator  : VOA111:MV
Sample    : L2130480-17D2,31H,4.99,5,0.004,,A
Misc      : WG1511682,ICAL18049
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Jun 14 12:39:53 2021
Quant Method : I:\VOLATILES\VOA111\2021\210614A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V11210614A01.D•
```

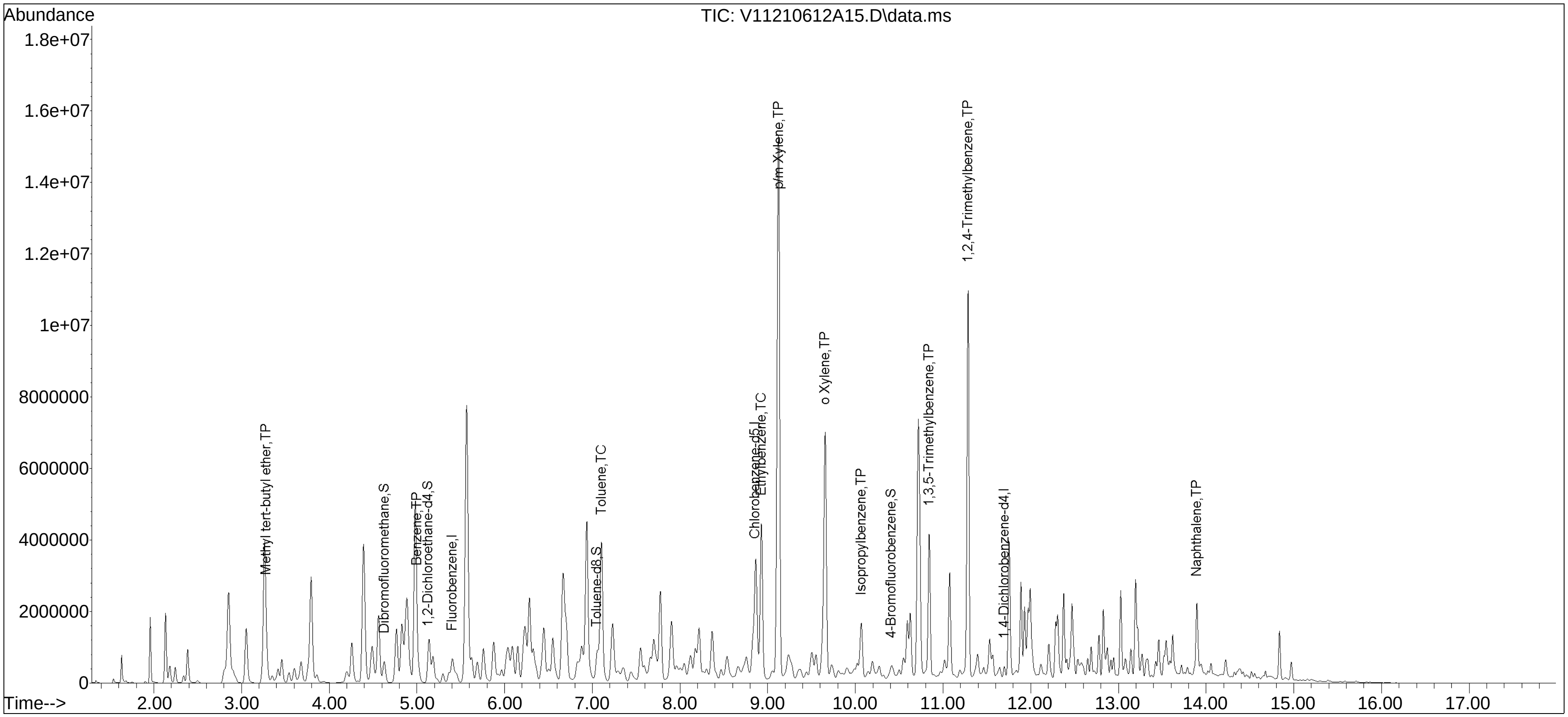


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210612A\
Data File : V11210612A15.D
Acq On : 12 Jun 2021 02:51 pm
Operator : VOA111:NLK
Sample : L2130480-18D,31H,5.47,5,0.010,,A
Misc : WG1511682,ICAL18049
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 13 14:32:57 2021
Quant Method : I:\VOLATILES\VOA111\2021\210612A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list12A\V11210612A01.D•



ANALYTICAL REPORT

Lab Number:	L2130781
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-01	PB27-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:30	06/08/21
L2130781-02	PB27-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:45	06/08/21
L2130781-03	PB27-05-SS01	SOIL	PHILADELPHIA, PA	06/08/21 07:55	06/08/21
L2130781-04	PB27-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:10	06/08/21
L2130781-05	PB27-07-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:15	06/08/21
L2130781-06	PB27-08-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:40	06/08/21
L2130781-07	PB27-09-SS01	SOIL	PHILADELPHIA, PA	06/08/21 08:55	06/08/21
L2130781-08	PB27-10-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:05	06/08/21
L2130781-09	PB27-12-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:35	06/08/21
L2130781-10	PB27-13-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:50	06/08/21
L2130781-11	PB27-11-SS01	SOIL	PHILADELPHIA, PA	06/08/21 09:55	06/08/21
L2130781-12	PB27-14-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:25	06/08/21
L2130781-13	PB27-15-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:40	06/08/21
L2130781-14	PB27-16-SS01	SOIL	PHILADELPHIA, PA	06/08/21 10:50	06/08/21
L2130781-15	PB27-17-SS01	SOIL	PHILADELPHIA, PA	06/08/21 11:50	06/08/21
L2130781-16	DUP-3	SOIL	PHILADELPHIA, PA	06/08/21 07:50	06/08/21
L2130781-17	FB-210608-1	WATER	PHILADELPHIA, PA	06/08/21 12:00	06/08/21
L2130781-18	TB	WATER	PHILADELPHIA, PA	06/08/21 00:00	06/08/21
L2130781-19	PB28-06-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:20	06/08/21
L2130781-20	PB28-19-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:30	06/08/21
L2130781-21	PB28-02-SS01	SOIL	PHILADELPHIA, PA	06/08/21 12:55	06/08/21
L2130781-22	PB28-03-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:10	06/08/21
L2130781-23	PB28-01-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:35	06/08/21
L2130781-24	PB28-04-SS01	SOIL	PHILADELPHIA, PA	06/08/21 13:50	06/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2130781-25	FB-210608-2	WATER	PHILADELPHIA, PA	06/08/21 14:00	06/08/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

July 06, 2021: This final report includes the results of all requested analyses.

July 01, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2130781-03D2: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (132%), toluene-d8 (145%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-05D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2130781-05D: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (56%) due to interference with the Internal Standard.

L2130781-05D: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (145%), toluene-d8 (188%) and 4-bromofluorobenzene (172%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-06D: The surrogate recoveries were outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Case Narrative (continued)

L2130781-07D: The surrogate recovery was outside the acceptance criteria for 1,2-dichloroethane-d4 (134%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-08D: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (148%), toluene-d8 (156%) and 4-bromofluorobenzene (150%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-08D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (131%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-09: The surrogate recovery is outside the method acceptance criteria for ibromofluoromethane (51%) due to interference with the Internal Standard.

L2130781-09: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (145%) and 4-bromofluorobenzene (675%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2130781-11D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (137%), toluene-d8 (159%) and 4-bromofluorobenzene (192%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

L2130781-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2130781-13D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (139%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-13D2: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (67%), 1,2-dichloroethane-d4 (136%), toluene-d8 (175%) and 4-bromofluorobenzene (196%); however, re-analysis on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-14: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (401%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-15: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (160%) and 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2130781-19: The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (62%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.
L2130781-23: The surrogate recovery was outside the acceptance criteria for 4-bromofluorobenzene (138%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial analysis. The results of both analyses are reported; however, all associated compounds are considered to have a potential bias.

Semivolatile Organics by SIM

L2130781-23D and -24D: The sample has elevated detection limits due to the dilution required by the sample

Case Narrative (continued)

matrix.

The WG1514497-1 Method Blank, associated with L2130781-19, -20D, -21D, -22, -23D, and -24D, has a concentration above the reporting limit for Naphthalene, Phenanthrene, Fluoranthene and Pyrene. The results of the original analysis are reported and are qualified with a "B" for any associated sample concentrations that are less than 10x the blank concentration for this analyte.

Total Metals

L2130781-09, -11 and -13: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-01	D2	Date Collected:	06/08/21 07:30
Client ID:	PB27-03-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 20:49
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	34.		mg/kg	5.5	0.55	40
Toluene	370		mg/kg	2.7	1.5	40
Ethylbenzene	200		mg/kg	2.7	0.38	40
p/m-Xylene	840		mg/kg	5.5	1.5	40
Xylenes, Total	1200		mg/kg	0.68	0.20	40
1,2,4-Trimethylbenzene	470		mg/kg	5.5	0.91	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01 D
Client ID: PB27-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 07:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:00
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	36.		mg/kg	1.4	0.14	10
Benzene	39.		mg/kg	0.34	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.68	0.18	10
Toluene	390	E	mg/kg	0.68	0.37	10
1,2-Dibromoethane	ND		mg/kg	0.34	0.20	10
Ethylbenzene	230	E	mg/kg	0.68	0.096	10
p/m-Xylene	820	E	mg/kg	1.4	0.38	10
o-Xylene	320		mg/kg	0.68	0.20	10
Isopropylbenzene	32.		mg/kg	0.68	0.074	10
1,3,5-Trimethylbenzene	180		mg/kg	1.4	0.13	10
1,2,4-Trimethylbenzene	450	E	mg/kg	1.4	0.23	10
Naphthalene	59.		mg/kg	2.7	0.44	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	79		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-02	Date Collected:	06/08/21 07:45
Client ID:	PB27-04-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 07:48
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.012	1
Benzene	1.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.36		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.56		mg/kg	0.061	0.0086	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.13		mg/kg	0.061	0.018	1
Xylenes, Total	1.3		mg/kg	0.061	0.018	1
Isopropylbenzene	3.2		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	7.2		mg/kg	0.12	0.020	1
Naphthalene	3.3		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	87		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03 D2
Client ID: PB27-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 01:27
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.9		mg/kg	1.8	0.18	5
Benzene	48.		mg/kg	0.46	0.15	5
1,2-Dichloroethane	ND		mg/kg	0.92	0.24	5
Toluene	25.		mg/kg	0.92	0.50	5
1,2-Dibromoethane	ND		mg/kg	0.46	0.27	5
Ethylbenzene	230		mg/kg	0.92	0.13	5
p/m-Xylene	850	E	mg/kg	1.8	0.52	5
o-Xylene	240		mg/kg	0.92	0.27	5
Isopropylbenzene	50.		mg/kg	0.92	0.10	5
1,3,5-Trimethylbenzene	150		mg/kg	1.8	0.18	5
1,2,4-Trimethylbenzene	400	E	mg/kg	1.8	0.31	5
Naphthalene	79.		mg/kg	3.7	0.60	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**132**	Q	70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03 D
Client ID: PB27-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:25
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	9.5		mg/kg	3.7	0.37	10
Benzene	60.		mg/kg	0.92	0.31	10
1,2-Dichloroethane	ND		mg/kg	1.8	0.48	10
Toluene	31.		mg/kg	1.8	1.0	10
1,2-Dibromoethane	ND		mg/kg	0.92	0.54	10
Ethylbenzene	250		mg/kg	1.8	0.26	10
p/m-Xylene	950		mg/kg	3.7	1.0	10
o-Xylene	260		mg/kg	1.8	0.54	10
Xylenes, Total	1200		mg/kg	0.92	0.27	10
Isopropylbenzene	56.		mg/kg	1.8	0.20	10
1,3,5-Trimethylbenzene	180		mg/kg	3.7	0.36	10
1,2,4-Trimethylbenzene	480		mg/kg	3.7	0.62	10
Naphthalene	93.		mg/kg	7.4	1.2	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	79		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-04 D2	Date Collected:	06/08/21 08:10
Client ID:	PB27-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 01:52
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	9.1		mg/kg	1.2	0.12	10
Benzene	39.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.16	10
Toluene	100		mg/kg	0.60	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	110		mg/kg	0.60	0.085	10
p/m-Xylene	420	E	mg/kg	1.2	0.34	10
o-Xylene	150		mg/kg	0.60	0.18	10
Isopropylbenzene	17.		mg/kg	0.60	0.066	10
1,3,5-Trimethylbenzene	98.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	250	E	mg/kg	1.2	0.20	10
Naphthalene	27.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	77		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-04 D	Date Collected:	06/08/21 08:10
Client ID:	PB27-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 11:35
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	11.		mg/kg	2.4	0.24	20
p/m-Xylene	500		mg/kg	2.4	0.68	20
Xylenes, Total	650		mg/kg	0.60	0.18	20
1,2,4-Trimethylbenzene	300		mg/kg	2.4	0.40	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-05 D
Client ID: PB27-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:15
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:32
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2.5
Benzene	3.0		mg/kg	0.066	0.022	2.5
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2.5
Toluene	1.0		mg/kg	0.13	0.071	2.5
1,2-Dibromoethane	ND		mg/kg	0.066	0.038	2.5
Ethylbenzene	1.5		mg/kg	0.13	0.018	2.5
p/m-Xylene	2.3		mg/kg	0.26	0.074	2.5
o-Xylene	0.36		mg/kg	0.13	0.038	2.5
Xylenes, Total	2.7		mg/kg	0.13	0.038	2.5
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2.5
1,3,5-Trimethylbenzene	1.2		mg/kg	0.26	0.025	2.5
1,2,4-Trimethylbenzene	0.59		mg/kg	0.26	0.044	2.5
Naphthalene	1.3		mg/kg	0.52	0.085	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**145**	Q	70-130
Toluene-d8	**188**	Q	70-130
4-Bromofluorobenzene	**172**	Q	70-130
Dibromofluoromethane	**56**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06 D2
Client ID: PB27-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:34
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.3	0.23	20
Benzene	30.		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	240		mg/kg	1.2	0.63	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	97.		mg/kg	1.2	0.16	20
p/m-Xylene	370		mg/kg	2.3	0.65	20
o-Xylene	130		mg/kg	1.2	0.34	20
Xylenes, Total	500		mg/kg	0.58	0.17	20
Isopropylbenzene	11.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	75.		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	200		mg/kg	2.3	0.39	20
Naphthalene	20.		mg/kg	4.7	0.76	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	85		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-06 D	Date Collected:	06/08/21 08:40
Client ID:	PB27-08-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 12:50
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.24	J	mg/kg	1.2	0.12	10
Benzene	26.		mg/kg	0.29	0.097	10
1,2-Dichloroethane	ND		mg/kg	0.58	0.15	10
Toluene	220	E	mg/kg	0.58	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.29	0.17	10
Ethylbenzene	92.		mg/kg	0.58	0.082	10
p/m-Xylene	340		mg/kg	1.2	0.33	10
o-Xylene	120		mg/kg	0.58	0.17	10
Xylenes, Total	460		mg/kg	0.58	0.17	10
Isopropylbenzene	10.		mg/kg	0.58	0.064	10
1,3,5-Trimethylbenzene	69.		mg/kg	1.2	0.11	10
1,2,4-Trimethylbenzene	170		mg/kg	1.2	0.19	10
Naphthalene	19.		mg/kg	2.3	0.38	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	**134**	Q	70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07 D2
Client ID: PB27-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:09
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0	J	mg/kg	2.4	0.25	20
Benzene	32.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.32	20
Toluene	110		mg/kg	1.2	0.67	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	140		mg/kg	1.2	0.17	20
p/m-Xylene	440		mg/kg	2.4	0.69	20
o-Xylene	180		mg/kg	1.2	0.36	20
Xylenes, Total	620		mg/kg	0.61	0.18	20
Isopropylbenzene	30.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	91.		mg/kg	2.4	0.24	20
1,2,4-Trimethylbenzene	250		mg/kg	2.4	0.41	20
Naphthalene	53.		mg/kg	4.9	0.80	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07 D
Client ID: PB27-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 13:16
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.91	J	mg/kg	1.2	0.12	10
Benzene	27.		mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	100		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	140		mg/kg	0.61	0.087	10
p/m-Xylene	410	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.61	0.18	10
Isopropylbenzene	28.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	85.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	230	E	mg/kg	1.2	0.20	10
Naphthalene	55.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**134**	Q	70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	73		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-08	D2	Date Collected:	06/08/21 09:05
Client ID:	PB27-10-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 18:43
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	7.2		mg/kg	0.59	0.060	5
Benzene	17.		mg/kg	0.15	0.049	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.076	5
Toluene	67.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	38.		mg/kg	0.30	0.042	5
p/m-Xylene	120		mg/kg	0.59	0.17	5
o-Xylene	43.		mg/kg	0.30	0.086	5
Xylenes, Total	160		mg/kg	0.15	0.043	5
Isopropylbenzene	8.6		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	25.		mg/kg	0.59	0.057	5
1,2,4-Trimethylbenzene	64.		mg/kg	0.59	0.099	5
Naphthalene	13.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	**131**	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08 D
Client ID: PB27-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:05
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:57
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	6.2		mg/kg	0.30	0.030	2.5
Benzene	13.		mg/kg	0.074	0.025	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	63.	E	mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	36.		mg/kg	0.15	0.021	2.5
p/m-Xylene	110	E	mg/kg	0.30	0.083	2.5
o-Xylene	41.		mg/kg	0.15	0.043	2.5
Isopropylbenzene	7.9		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	22.		mg/kg	0.30	0.029	2.5
1,2,4-Trimethylbenzene	57.	E	mg/kg	0.30	0.050	2.5
Naphthalene	13.		mg/kg	0.59	0.096	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**148**	Q	70-130
Toluene-d8	**156**	Q	70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09
Client ID: PB27-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:35
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 03:33
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0015		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0054		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0011		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0050		mg/kg	0.0020	0.00056	1
o-Xylene	0.0062		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.011		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.25		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00036	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	0.00080	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**675**	Q	70-130
Dibromofluoromethane	**51**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10
Client ID: PB27-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:32
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0030		mg/kg	0.0020	0.00020	1
Benzene	0.043		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0024		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0014		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.016		mg/kg	0.0020	0.00056	1
o-Xylene	0.0020		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.018		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.036		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0023		mg/kg	0.0020	0.00033	1
Naphthalene	0.00079	J	mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	74		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-11 D2
Client ID: PB27-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 02:17
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.1		mg/kg	0.61	0.061	5
Benzene	19.		mg/kg	0.15	0.051	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	37.		mg/kg	0.30	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.090	5
Ethylbenzene	54.		mg/kg	0.30	0.043	5
p/m-Xylene	190	E	mg/kg	0.61	0.17	5
o-Xylene	61.		mg/kg	0.30	0.089	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	51.		mg/kg	0.61	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.61	0.10	5
Naphthalene	43.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**137**	Q	70-130
Toluene-d8	**159**	Q	70-130
4-Bromofluorobenzene	**192**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-11 D	Date Collected:	06/08/21 09:55
Client ID:	PB27-11-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 13:41
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.3		mg/kg	1.2	0.12	10
Benzene	23.		mg/kg	0.30	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.61	0.16	10
Toluene	38.		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	54.		mg/kg	0.61	0.086	10
p/m-Xylene	200		mg/kg	1.2	0.34	10
o-Xylene	63.		mg/kg	0.61	0.18	10
Xylenes, Total	260		mg/kg	0.30	0.089	10
Isopropylbenzene	17.		mg/kg	0.61	0.067	10
1,3,5-Trimethylbenzene	56.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10
Naphthalene	49.		mg/kg	2.4	0.40	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	76		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-12	Date Collected:	06/08/21 10:25
Client ID:	PB27-14-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:58
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0058		mg/kg	0.0019	0.00019	1
Benzene	0.052		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	0.0035		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.0037		mg/kg	0.00096	0.00014	1
p/m-Xylene	0.0065		mg/kg	0.0019	0.00054	1
o-Xylene	0.0030		mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0095		mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.016		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.0038		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.0083		mg/kg	0.0019	0.00032	1
Naphthalene	0.023		mg/kg	0.0038	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-13 D2	Date Collected:	06/08/21 10:40
Client ID:	PB27-15-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/17/21 02:43
Analyst:	JC
Percent Solids:	82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.56	J	mg/kg	0.60	0.060	5
Benzene	8.0		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	16.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	59.		mg/kg	0.30	0.042	5
p/m-Xylene	220	E	mg/kg	0.60	0.17	5
o-Xylene	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	16.		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.60	0.10	5
Naphthalene	40.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**136**	Q	70-130
Toluene-d8	**175**	Q	70-130
4-Bromofluorobenzene	**196**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-13 D
Client ID: PB27-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 14:06
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.66	J	mg/kg	1.2	0.12	10
Benzene	9.8		mg/kg	0.30	0.099	10
1,2-Dichloroethane	ND		mg/kg	0.60	0.15	10
Toluene	16.		mg/kg	0.60	0.32	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	60.		mg/kg	0.60	0.084	10
p/m-Xylene	230		mg/kg	1.2	0.34	10
o-Xylene	78.		mg/kg	0.60	0.17	10
Xylenes, Total	310		mg/kg	0.30	0.087	10
Isopropylbenzene	18.		mg/kg	0.60	0.065	10
1,3,5-Trimethylbenzene	59.		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	160		mg/kg	1.2	0.20	10
Naphthalene	45.		mg/kg	2.4	0.39	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	78		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14
Client ID: PB27-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 02:43
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.0017		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0021		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00030	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	0.0067		mg/kg	0.0023	0.00065	1
o-Xylene	0.0049		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.012		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.17		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0023	0.00039	1
Naphthalene	0.0062		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	**401**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-15	Date Collected:	06/08/21 11:50
Client ID:	PB27-17-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:04
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.024	J	mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.091		mg/kg	0.054	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.93		mg/kg	0.054	0.0076	1
p/m-Xylene	0.62		mg/kg	0.11	0.030	1
o-Xylene	0.13		mg/kg	0.054	0.016	1
Xylenes, Total	0.75		mg/kg	0.054	0.016	1
Isopropylbenzene	4.3		mg/kg	0.054	0.0058	1
1,3,5-Trimethylbenzene	6.8		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	2.5		mg/kg	0.11	0.018	1
Naphthalene	0.56		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	**160**	Q	70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	70		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16
Client ID: DUP-3
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:29
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.14	0.014	1
Benzene	0.64		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	0.27		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.021	1
Ethylbenzene	0.45		mg/kg	0.070	0.0099	1
p/m-Xylene	1.1		mg/kg	0.14	0.039	1
o-Xylene	0.11		mg/kg	0.070	0.020	1
Xylenes, Total	1.2		mg/kg	0.070	0.020	1
Isopropylbenzene	1.9		mg/kg	0.070	0.0077	1
1,3,5-Trimethylbenzene	0.30		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	6.4		mg/kg	0.14	0.024	1
Naphthalene	2.4		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-17	Date Collected:	06/08/21 12:00
Client ID:	FB-210608-1	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 13:38		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-17
Client ID: FB-210608-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 12:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:09
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	0.24	J	ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	111		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-18	Date Collected:	06/08/21 00:00
Client ID:	TB	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:33
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	120		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 09:54
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	0.30		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.18		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.44		mg/kg	0.063	0.0089	1
p/m-Xylene	6.4		mg/kg	0.12	0.035	1
o-Xylene	0.22		mg/kg	0.063	0.018	1
Xylenes, Total	6.6		mg/kg	0.063	0.018	1
Isopropylbenzene	2.3		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	19.	E	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	**62**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-19 D
Client ID: PB28-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:20
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:14
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.063	5
Benzene	0.34		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.081	5
Toluene	0.18	J	mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.092	5
Ethylbenzene	0.41		mg/kg	0.31	0.044	5
p/m-Xylene	5.5		mg/kg	0.63	0.18	5
o-Xylene	0.23	J	mg/kg	0.31	0.092	5
Xylenes, Total	5.7	J	mg/kg	0.063	0.018	5
Isopropylbenzene	2.1		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	18.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	55.		mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	89		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-20 D2	Date Collected:	06/08/21 12:30
Client ID:	PB28-19-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 20:24
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	2000		mg/kg	14	7.5	200
p/m-Xylene	2300		mg/kg	27	7.7	200
Xylenes, Total	3300		mg/kg	3.4	1.0	200
1,2,4-Trimethylbenzene	870		mg/kg	27	4.6	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-20	D	Date Collected:	06/08/21 12:30
Client ID:	PB28-19-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 11:09
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.9	0.69	50
Benzene	74.		mg/kg	1.7	0.57	50
1,2-Dichloroethane	ND		mg/kg	3.4	0.88	50
Toluene	2300	E	mg/kg	3.4	1.9	50
1,2-Dibromoethane	ND		mg/kg	1.7	1.0	50
Ethylbenzene	700		mg/kg	3.4	0.48	50
p/m-Xylene	2700	E	mg/kg	6.9	1.9	50
o-Xylene	990		mg/kg	3.4	1.0	50
Isopropylbenzene	41.		mg/kg	3.4	0.37	50
1,3,5-Trimethylbenzene	400		mg/kg	6.9	0.66	50
1,2,4-Trimethylbenzene	1200	E	mg/kg	6.9	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 10:44
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.13		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	ND		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	4.3		mg/kg	0.062	0.0087	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.062	0.018	1
Xylenes, Total	ND		mg/kg	0.062	0.018	1
Isopropylbenzene	1.7		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.061	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21 D
Client ID: PB28-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:59
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	48.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	99		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-22	D2	Date Collected:	06/08/21 13:10
Client ID:	PB28-03-SS01		Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/16/21 18:18
Analyst:	JC
Percent Solids:	79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	56.		mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	86		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-22 D	Date Collected:	06/08/21 13:10
Client ID:	PB28-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:22
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	2.5
Benzene	0.049	J	mg/kg	0.074	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	2.5
Toluene	0.15		mg/kg	0.15	0.080	2.5
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	2.5
Ethylbenzene	2.3		mg/kg	0.15	0.021	2.5
p/m-Xylene	1.8		mg/kg	0.29	0.082	2.5
o-Xylene	0.15		mg/kg	0.15	0.043	2.5
Xylenes, Total	2.0		mg/kg	0.15	0.043	2.5
Isopropylbenzene	3.2		mg/kg	0.15	0.016	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.29	0.028	2.5
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.29	0.049	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 00:17
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.22		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.56		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	9.4		mg/kg	0.064	0.0091	1
p/m-Xylene	21.		mg/kg	0.13	0.036	1
o-Xylene	2.0		mg/kg	0.064	0.019	1
Xylenes, Total	23.		mg/kg	0.064	0.019	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	9.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23 D2
Client ID: PB28-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:35
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 10:30
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.32	0.032	2.5
Benzene	0.20		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	0.50		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	8.2		mg/kg	0.16	0.023	2.5
p/m-Xylene	19.		mg/kg	0.32	0.090	2.5
o-Xylene	1.7		mg/kg	0.16	0.047	2.5
Xylenes, Total	21.		mg/kg	0.064	0.019	2.5
Isopropylbenzene	1.4		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	8.1		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	25.		mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24
Client ID: PB28-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 00:42
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.18		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.83		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.9		mg/kg	0.058	0.0082	1
p/m-Xylene	14.		mg/kg	0.12	0.032	1
o-Xylene	4.9		mg/kg	0.058	0.017	1
Xylenes, Total	19.		mg/kg	0.058	0.017	1
Isopropylbenzene	0.71		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.12	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-25	Date Collected:	06/08/21 14:00
Client ID:	FB-210608-2	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 13:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-25
Client ID: FB-210608-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 14:00
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/15/21 13:56
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	115		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8011	Extraction Method:	EPA 8011
Analytical Date:	06/15/21 12:36	Extraction Date:	06/15/21 11:25
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17,25 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/15/21 08:29
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-18,25 Batch: WG1512537-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	113		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10,12 Batch: WG1513067-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 17:53
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 06:07
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 19:14
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,14 Batch: WG1513390-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1513397-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23-24 Batch: WG1513397-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17,25 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-18,25 Batch: WG1512537-3 WG1512537-4								
Methyl tert butyl ether	72		73		63-130	1		20
Benzene	92		91		70-130	1		20
1,2-Dichloroethane	78		81		70-130	4		20
Toluene	92		91		70-130	1		20
Ethylbenzene	92		92		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		95		70-130	0		20
1,3,5-Trimethylbenzene	92		91		64-130	1		20
1,2,4-Trimethylbenzene	92		91		70-130	1		20
Naphthalene	82		88		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		92		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10,12 Batch: WG1513067-3 WG1513067-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-08,11,13,15-16,19-22 Batch: WG1513068-3 WG1513068-4								
Methyl tert butyl ether	105		108		66-130	3		30
Benzene	111		108		70-130	3		30
1,2-Dichloroethane	106		106		70-130	0		30
Toluene	113		110		70-130	3		30
1,2-Dibromoethane	112		114		70-130	2		30
Ethylbenzene	115		112		70-130	3		30
p/m-Xylene	112		109		70-130	3		30
o-Xylene	108		105		70-130	3		30
Isopropylbenzene	124		116		70-130	7		30
1,3,5-Trimethylbenzene	118		114		70-130	3		30
1,2,4-Trimethylbenzene	118		112		70-130	5		30
Naphthalene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		99		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03-04,06-08,11,13,19-22 Batch: WG1513068-8 WG1513068-9								
Methyl tert butyl ether	103		107		66-130	4		30
Benzene	109		109		70-130	0		30
1,2-Dichloroethane	101		106		70-130	5		30
Toluene	113		112		70-130	1		30
1,2-Dibromoethane	109		113		70-130	4		30
Ethylbenzene	114		114		70-130	0		30
p/m-Xylene	113		112		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	118		118		70-130	0		30
1,3,5-Trimethylbenzene	114		116		70-130	2		30
1,2,4-Trimethylbenzene	113		115		70-130	2		30
Naphthalene	97		102		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		95		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	98		99		70-130
Dibromofluoromethane	95		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,14 Batch: WG1513390-3 WG1513390-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	84		84		70-130	0		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	84		85		70-130	1		30
Ethylbenzene	91		91		70-130	0		30
p/m-Xylene	84		84		70-130	0		30
o-Xylene	83		84		70-130	1		30
Isopropylbenzene	94		93		70-130	1		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	92		93		70-130	1		30
Naphthalene	89		93		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		103		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23-24 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1513397-8 WG1513397-9								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130

SEMIVOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/21/21 13:18		
Analyst:	DV		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.14		mg/kg	0.0082	0.0015	1
Fluorene	0.24		mg/kg	0.0082	0.00098	1
Phenanthrene	0.31		mg/kg	0.0082	0.00070	1
Anthracene	0.034		mg/kg	0.0082	0.00066	1
Pyrene	0.030	B	mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0084		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0028	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0019	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0013	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20 D
Client ID: PB28-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 16:51
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.9		mg/kg	0.080	0.014	10
Fluorene	0.054	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	JB	mg/kg	0.080	0.0068	10
Anthracene	0.0076	J	mg/kg	0.080	0.0064	10
Pyrene	0.015	JB	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	ND		mg/kg	0.080	0.0076	10
Chrysene	ND		mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	ND		mg/kg	0.080	0.0076	10
Benzo(a)pyrene	ND		mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	96		30-120
4-Terphenyl-d14	93		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21 D	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/22/21 17:07		
Analyst:	DV		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.4		mg/kg	0.083	0.015	10
Fluorene	0.10		mg/kg	0.083	0.010	10
Phenanthrene	0.14		mg/kg	0.083	0.0070	10
Anthracene	0.030	J	mg/kg	0.083	0.0066	10
Pyrene	0.027	JB	mg/kg	0.083	0.0058	10
Benzo(a)anthracene	0.010	J	mg/kg	0.083	0.0079	10
Chrysene	0.0070	J	mg/kg	0.083	0.0062	10
Benzo(b)fluoranthene	ND		mg/kg	0.083	0.0079	10
Benzo(a)pyrene	ND		mg/kg	0.083	0.010	10
Benzo(ghi)perylene	ND		mg/kg	0.083	0.0070	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	94		30-120
4-Terphenyl-d14	90		18-120

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781

Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22
Client ID: PB28-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 13:10
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/21/21 14:08
Analyst: DV
Percent Solids: 79%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.42		mg/kg	0.0081	0.0015	1
Fluorene	0.056		mg/kg	0.0081	0.00098	1
Phenanthrene	0.11	B	mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.014	B	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0023	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0015	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0014	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-23 D	Date Collected:	06/08/21 13:35
Client ID:	PB28-01-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/22/21 17:23		
Analyst:	DV		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.040	0.0072	5
Fluorene	0.13		mg/kg	0.040	0.0048	5
Phenanthrene	0.20		mg/kg	0.040	0.0034	5
Anthracene	0.029	J	mg/kg	0.040	0.0032	5
Pyrene	0.0086	JB	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.040	0.0038	5
Chrysene	ND		mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	93		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-24 D	Date Collected:	06/08/21 13:50
Client ID:	PB28-04-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 11:54
Analytical Date:	06/22/21 17:40		
Analyst:	DV		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.4		mg/kg	0.041	0.0073	5
Fluorene	0.024	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.033	JB	mg/kg	0.041	0.0035	5
Anthracene	0.0051	J	mg/kg	0.041	0.0033	5
Pyrene	ND		mg/kg	0.041	0.0028	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	76		18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-25	Date Collected:	06/08/21 14:00
Client ID:	FB-210608-2	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	06/13/21 12:41
Analytical Date:	06/14/21 16:53		
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.04	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	81		41-149

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	06/14/21 16:33	Extraction Date:	06/13/21 08:08
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25 Batch: WG1511442-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	50		21-120
Phenol-d6	45		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	75		15-120
2,4,6-Tribromophenol	68		10-120
4-Terphenyl-d14	87		41-149

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 15:29
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/20/21 11:54

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 19-24 Batch: WG1514497-1					
Naphthalene	0.0075		mg/kg	0.0066	0.0012
Fluorene	0.0019	J	mg/kg	0.0066	0.00079
Phenanthrene	0.013		mg/kg	0.0066	0.00056
Anthracene	0.0038	J	mg/kg	0.0066	0.00053
Pyrene	0.014		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.0046	J	mg/kg	0.0066	0.00063
Chrysene	0.0034	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0021	J	mg/kg	0.0066	0.00063
Benzo(a)pyrene	0.0015	J	mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.00066	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	93		25-120
Phenol-d6	94		10-120
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	82		30-120
2,4,6-Tribromophenol	108		10-136
4-Terphenyl-d14	84		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2130781

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25 Batch: WG1511442-2 WG1511442-3								
Naphthalene	92		80		40-140	14		40
Fluorene	100		94		40-140	6		40
Phenanthrene	96		92		40-140	4		40
Anthracene	102		98		40-140	4		40
Pyrene	101		100		26-127	1		40
Benzo(a)anthracene	99		100		40-140	1		40
Chrysene	101		100		40-140	1		40
Benzo(b)fluoranthene	106		100		40-140	6		40
Benzo(a)pyrene	105		103		40-140	2		40
Benzo(ghi)perylene	114		111		40-140	3		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	85		72		21-120
Phenol-d6	70		59		10-120
Nitrobenzene-d5	97		82		23-120
2-Fluorobiphenyl	87		80		15-120
2,4,6-Tribromophenol	**137**	Q	**147**	Q	10-120
4-Terphenyl-d14	102		102		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 19-24 Batch: WG1514497-2 WG1514497-3								
Naphthalene	80		76		40-140	5		50
Fluorene	85		83		40-140	2		50
Phenanthrene	84		82		40-140	2		50
Anthracene	91		89		40-140	2		50
Pyrene	93		90		35-142	3		50
Benzo(a)anthracene	96		93		40-140	3		50
Chrysene	84		84		40-140	0		50
Benzo(b)fluoranthene	93		95		40-140	2		50
Benzo(a)pyrene	98		96		40-140	2		50
Benzo(ghi)perylene	90		87		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	91		87		23-120
2-Fluorobiphenyl	73		71		30-120
4-Terphenyl-d14	74		72		18-120

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-01	Date Collected:	06/08/21 07:30
Client ID:	PB27-03-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	38.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 18:49	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-02 Date Collected: 06/08/21 07:45

Client ID: PB27-04-SS01 Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	392		mg/kg	2.32	0.124	1	06/25/21 09:34	07/02/21 18:37	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03
Client ID: PB27-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 07:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.0		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 18:41	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04
Date Collected: 06/08/21 08:10
Client ID: PB27-06-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	22.8		mg/kg	2.40	0.129	1	06/25/21 09:34	07/02/21 18:45	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-05	Date Collected:	06/08/21 08:15
Client ID:	PB27-07-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	224		mg/kg	2.41	0.129	1	06/25/21 09:34	07/02/21 19:19	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781
Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-06	Date Collected:	06/08/21 08:40
Client ID:	PB27-08-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	32.9		mg/kg	2.25	0.120	1	06/25/21 09:34	07/02/21 19:23	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781

Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07
Client ID: PB27-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 08:55
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.3		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 19:28	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08

Date Collected: 06/08/21 09:05

Client ID: PB27-10-SS01

Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.8		mg/kg	2.35	0.126	1	06/25/21 09:34	07/02/21 19:32	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-09	Date Collected:	06/08/21 09:35
Client ID:	PB27-12-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	112		mg/kg	11.9	0.636	5	06/25/21 09:34	07/03/21 13:12	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10
Date Collected: 06/08/21 09:50
Client ID: PB27-13-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	215		mg/kg	2.27	0.122	1	06/25/21 09:34	07/02/21 19:40	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-11	Date Collected:	06/08/21 09:55
Client ID:	PB27-11-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.7		mg/kg	11.7	0.630	5	06/25/21 09:34	07/03/21 13:17	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2130781

Project Number: 200.00135.005 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-12 | Date Collected: 06/08/21 10:25

Client ID: PB27-14-SS01 | Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.0		mg/kg	2.36	0.126	1	06/25/21 09:34	07/02/21 19:49	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-13	Date Collected:	06/08/21 10:40
Client ID:	PB27-15-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	55.8		mg/kg	12.1	0.651	5	06/25/21 09:34	07/03/21 13:21	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781

Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14 Date Collected: 06/08/21 10:50

Client ID: PB27-16-SS01 Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	120		mg/kg	2.47	0.133	1	06/25/21 09:34	07/02/21 19:57	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15
Date Collected: 06/08/21 11:50
Client ID: PB27-17-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	20.7		mg/kg	2.38	0.128	1	06/25/21 09:34	07/02/21 20:10	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-16	Date Collected:	06/08/21 07:50
Client ID:	DUP-3	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	101		mg/kg	2.39	0.128	1	06/25/21 09:34	07/02/21 20:14	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-17	Date Collected:	06/08/21 12:00
Client ID:	FB-210608-1	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:36	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.45		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:19	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-20	Date Collected:	06/08/21 12:30
Client ID:	PB28-19-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.29		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:23	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-21	Date Collected:	06/08/21 12:55
Client ID:	PB28-02-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.6		mg/kg	2.43	0.130	1	06/25/21 09:34	07/02/21 20:27	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22
Date Collected: 06/08/21 13:10
Client ID: PB28-03-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.65		mg/kg	2.46	0.132	1	06/25/21 09:34	07/02/21 20:32	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23
Date Collected: 06/08/21 13:35
Client ID: PB28-01-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.54		mg/kg	2.41	0.129	1	06/16/21 11:00	06/22/21 14:58	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-24	Date Collected:	06/08/21 13:50
Client ID:	PB28-04-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.66		mg/kg	2.42	0.130	1	06/16/21 11:00	06/22/21 23:08	EPA 3050B	1,6010D	BV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-25	Date Collected:	06/08/21 14:00
Client ID:	FB-210608-2	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/25/21 13:41	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17,25 Batch: WG1510812-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/15/21 00:38	06/16/21 10:49	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,19-22 Batch: WG1512398-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/16/21 20:57	06/23/21 22:59	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1512399-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/16/21 11:00	06/22/21 14:33	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,19-22 Batch: WG1516839-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/25/21 09:34	07/02/21 18:28	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17,25 Batch: WG1510812-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512399-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 Batch: WG1516839-2 SRM Lot Number: D109-540								
Lead, Total	96		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17,25 QC Batch ID: WG1510812-3 QC Sample: L2130793-01 Client ID: MS Sample												
Lead, Total	0.6803J	510	516.8	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1512398-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	ND	51	83.4	80		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-3 QC Sample: L2130781-23 Client ID: PB28-01-SS01												
Lead, Total	6.54	48.2	44.8	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-3 QC Sample: L2130781-01 Client ID: PB27-03-SS01												
Lead, Total	38.8	50.9	83.1	87		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512399-4 QC Sample: L2130781-23 Client ID: PB28-01-SS01						
Lead, Total	6.54	6.59	mg/kg	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,19-22 QC Batch ID: WG1516839-4 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Lead, Total	38.8	39.9	mg/kg	3		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-01
Client ID: PB27-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 07:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-02	Date Collected:	06/08/21 07:45
Client ID:	PB27-04-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-03
Date Collected: 06/08/21 07:55
Client ID: PB27-05-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-04 Date Collected: 06/08/21 08:10
Client ID: PB27-06-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-05	Date Collected:	06/08/21 08:15
Client ID:	PB27-07-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-06
Client ID: PB27-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 08:40
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-07
Date Collected: 06/08/21 08:55
Client ID: PB27-09-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-08

Date Collected: 06/08/21 09:05

Client ID: PB27-10-SS01

Date Received: 06/08/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-09
Client ID: PB27-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 09:35
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-10
Client ID: PB27-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 09:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-11	Date Collected:	06/08/21 09:55
Client ID:	PB27-11-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-12
Client ID: PB27-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 10:25
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-13	Date Collected:	06/08/21 10:40
Client ID:	PB27-15-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-14
Client ID: PB27-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 10:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-15 Date Collected: 06/08/21 11:50
Client ID: PB27-17-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-16
Client ID: DUP-3
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 07:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2130781-19	Date Collected:	06/08/21 12:20
Client ID:	PB28-06-SS01	Date Received:	06/08/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-20
Client ID: PB28-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/08/21 12:30
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/09/21 12:43	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2130781
Project Number: 200.00135.005 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-21 Date Collected: 06/08/21 12:55
Client ID: PB28-02-SS01 Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-22
Client ID: PB28-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 13:10
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-23
Date Collected: 06/08/21 13:35
Client ID: PB28-01-SS01
Date Received: 06/08/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2130781
Project Number: 200.00135.005
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2130781-24
Client ID: PB28-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/08/21 13:50
Date Received: 06/08/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	06/09/21 12:51	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-16,19-20 QC Batch ID: WG1509649-1 QC Sample: L2130781-01 Client ID: PB27-03-SS01						
Solids, Total	79.9	80.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24 QC Batch ID: WG1509653-1 QC Sample: L2129334-01 Client ID: DUP Sample						
Solids, Total	90.8	91.5	%	1		20

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2130781
Report Date: 07/06/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-01A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-01B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-01D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-02A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-02B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-02D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-03A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-03B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-03E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-04A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-04B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-04D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-05A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-05B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-05D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-06A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-06B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-06D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-07A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-07B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-07D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-08A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-08B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-08D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-09A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-09B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-09D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-10A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-10B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-10D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-11A	Vial MeOH preserved	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-11B	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11C	Vial water preserved	B	NA		4.9	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-11D	Plastic 120ml unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-12A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-12B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-12D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-13A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-13B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-13D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-14A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-14B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-14D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-15A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2130781-15B	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15C	Vial water preserved	A	NA		3.5	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-15D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2130781-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2130781-16A	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16B	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-16C	1 Vial MeOH/2 Vial Water	B	NA		4.9	Y	Absent		PA-8260HLW(14)
L2130781-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.9	Y	Absent		TS(7)
L2130781-16E	Glass 60ml unpreserved split	B	NA		4.9	Y	Absent		PB-TI(180)
L2130781-17A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-17D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-17F	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)
L2130781-18A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-18B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-19A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-19B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-19D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-19E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-19F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-20A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-20B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-20D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-20E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-20F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-21A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-21B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-21D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-21E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2130781

Project Number: 200.00135.005

Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2130781-21F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-22A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-22B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-22D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-22E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-22F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-23A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-23B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-23D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-23E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-23F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-24A	Vial MeOH preserved	C	NA		3.6	Y	Absent		PA-8260HLW(14)
L2130781-24B	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24C	Vial water preserved	C	NA		3.6	Y	Absent	09-JUN-21 08:57	PA-8260HLW(14)
L2130781-24D	Plastic 120ml unpreserved	C	NA		3.6	Y	Absent		TS(7)
L2130781-24E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.6	Y	Absent		PB-TI(180)
L2130781-24F	Glass 120ml/4oz unpreserved	C	NA		3.6	Y	Absent		PA-8270SIM(14)
L2130781-25A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25C	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2130781-25D	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25E	Vial Na2S2O3 preserved	A	NA		3.5	Y	Absent		8011(14)
L2130781-25F	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25G	Amber 250ml unpreserved	A	7	7	3.5	Y	Absent		PA-8270SIM-LVI(7)
L2130781-25H	Plastic 250ml HNO3 preserved	A	<2	<2	3.5	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: *DU Report with 'J' Qualifiers*

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2130781
Project Number:	200.00135.005	**Report Date:**	07/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
30781 -01	PB27-03-SS01	6/9	0730	S	TS	☑	☑		5
-02	PB27-04-SS01		0745		TS	☑	☑		
-03	PB27-05-SS01		0755		TS	☑	☑		
-04	PB27-06-SS01		0810		TS	☑	☑		
-05	PB27-07-SS01		0815		TS	☑	☑		
-06	PB27-08-SS01		0840		TS	☑	☑		
-07	PB27-09-SS01		0855		TS	☑	☑		
-08	PB27-10-SS01		0905		TS	☑	☑		
-09	PB27-12-SS01		0935		TS	☑	☑		
-10	PB27-13-SS01		0950		TS	☑	☑		

	VOCs (8260)	Lead (6010B)
Container Type	G	G
Preservative	F	A

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/8	[signature]	6/8/21 1534
[signature] 1/8/21	6/8/21 1704	[signature] AAL	6/8/21 1800
[signature]	6-8-21 2031	[signature] AAL	6/8/21 21:30
[signature] AAL	6/9/21 01:00	[signature]	6/9/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HC) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 1 and 2 Fuel Oil Shortlist.
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	Lead (6010B)	PA-8260 (SHORTLIST 1-2)	DISSOLVED METALS (LEAD)	8011								Sample Specific Comments	TOTAL # BOTTLES
30781-11	PB27-11-SS01	6/8	0955	S	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB27-14-SS01		1025		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB27-15-SS01		1040		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB27-16-SS01		1050		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB27-17-SS01		1150		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	DUP-3		7:50		TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	FB-210608-1		12:00		TS	☐	☐	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐		8
-18	TB				TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	-	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	-	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/8		6/8/21 1534
[signature] / 9:00	6/8/21 1730	[signature]	6/8/ 9:00
[signature] AAL	6/8 2030	[signature] AAL	6/8/21 21:30
[signature] AAL	6/9/21 01:00	[signature]	6/9/21 01:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/9/21

ALPHA Job #: L2130781

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	PA-8260 (5 Analyst 1-5)	Dissolved Metals (Lead)	8011	PA-8270							Sample Specific Comments	Total # Bottles
30781 -19	PB28-06-SS01	6/8	1220	S	TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-20	PB28-05-SS01		1230		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-21	PB28-02-SS01		1255		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-22	PB28-03-SS01		1310		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	PB28-01-SS01		1335		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-24	PB28-04-SS01		1350		TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-25	FB-210608-2		1400		TS	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐	☐		8
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/8	[signature]	6/8/21 1530
[signature] 1800	6/8/21 1734	[signature] AAC	6-5 1800
[signature]	6-8-21 3	[signature] AAC	6/8/21 2130
[signature] AAC	6/9/21 01:00	[signature]	6/9/21 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

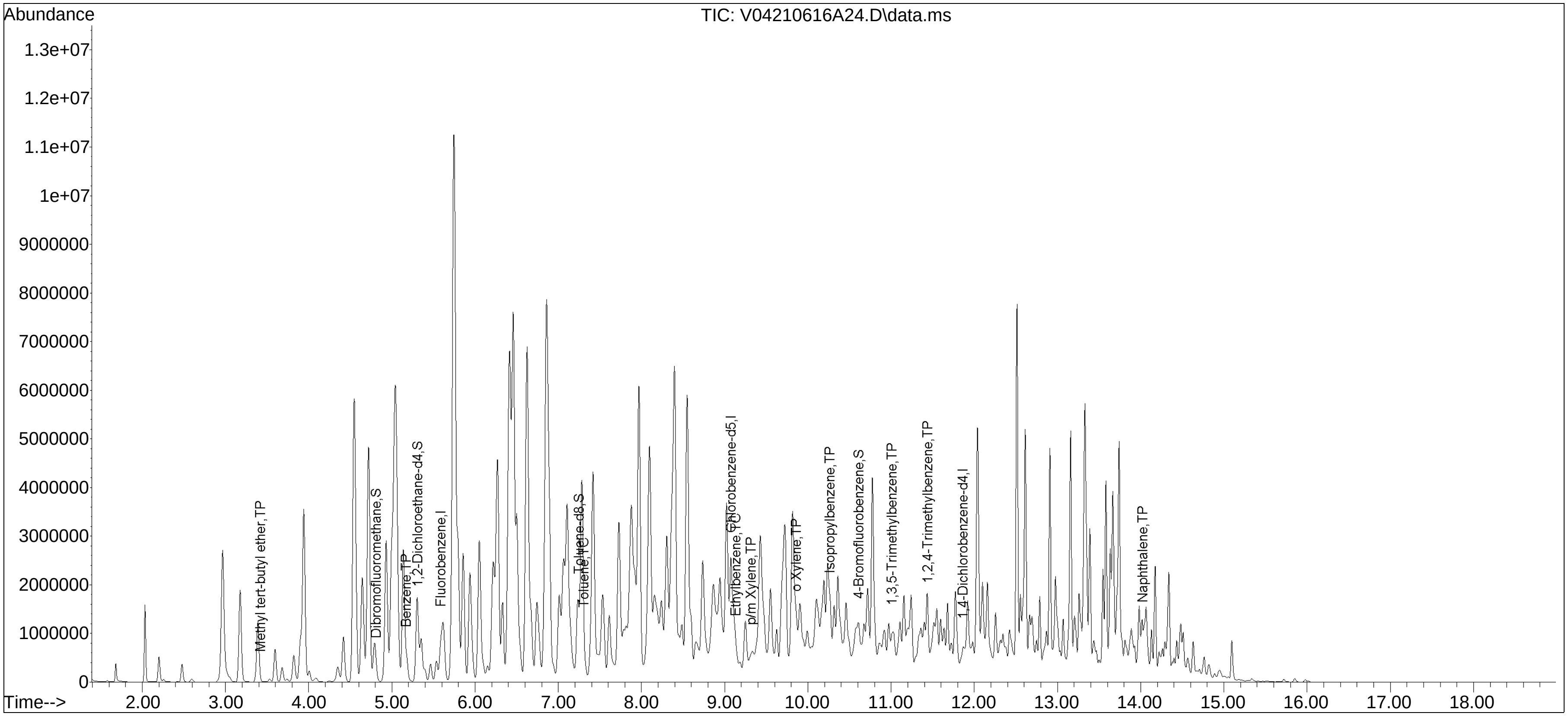
FORM NO: 01-01(HAJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A24.D
Acq On : 16 Jun 2021 2:32 pm
Operator : VOA104:AJK
Sample : L2130781-05D,31H,7.35,5,0.040,,A
Misc : WG1513068,ICAL18000
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 16 16:34:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

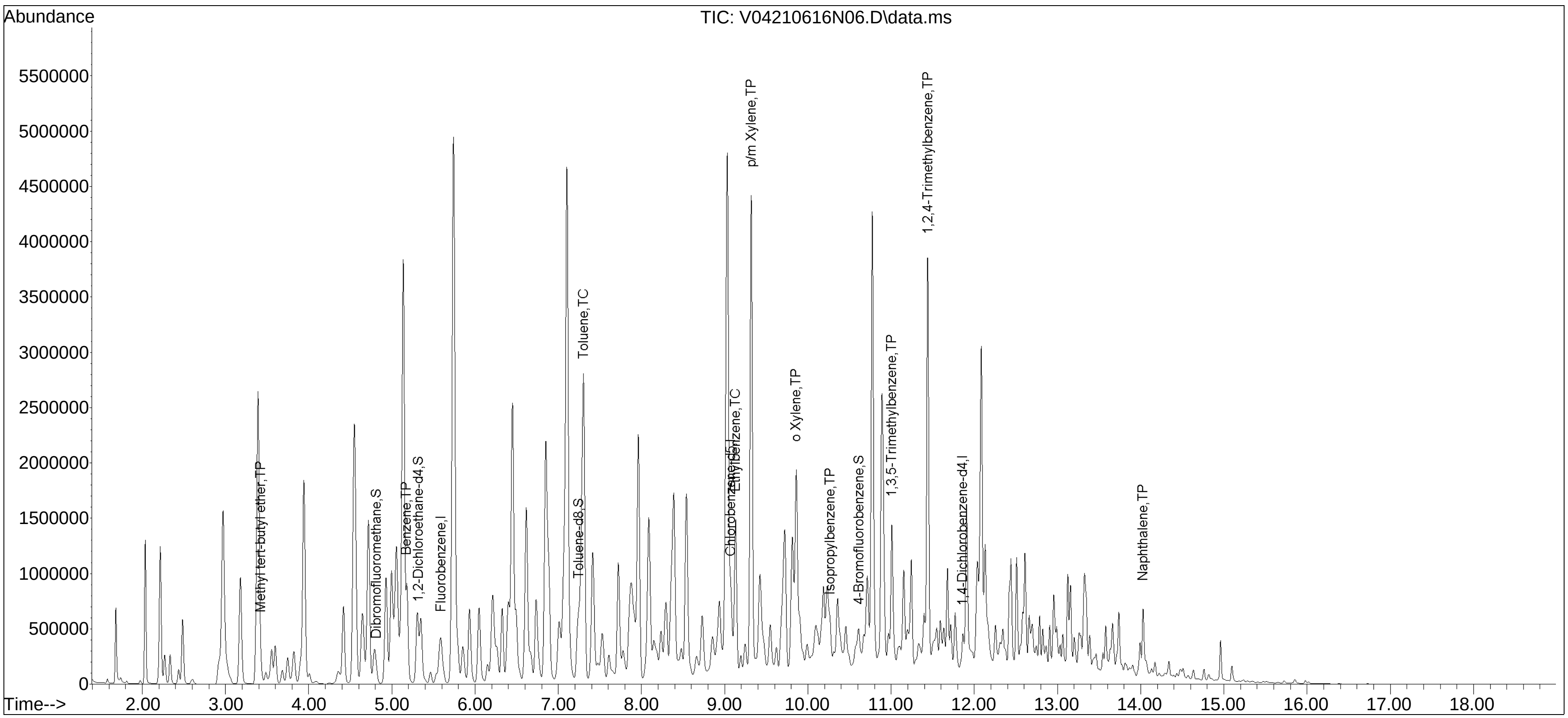


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\210616N\
Data File : V04210616N06.D
Acq On    : 16 Jun 2021   6:43 pm
Operator  : VOA104:JC
Sample    : L2130781-08D2,31H,6.41,5,0.020,,A
Misc      : WG1513068,ICAL18000
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Jun 17 09:41:59 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616N\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16N\V04210616N01.D•
```

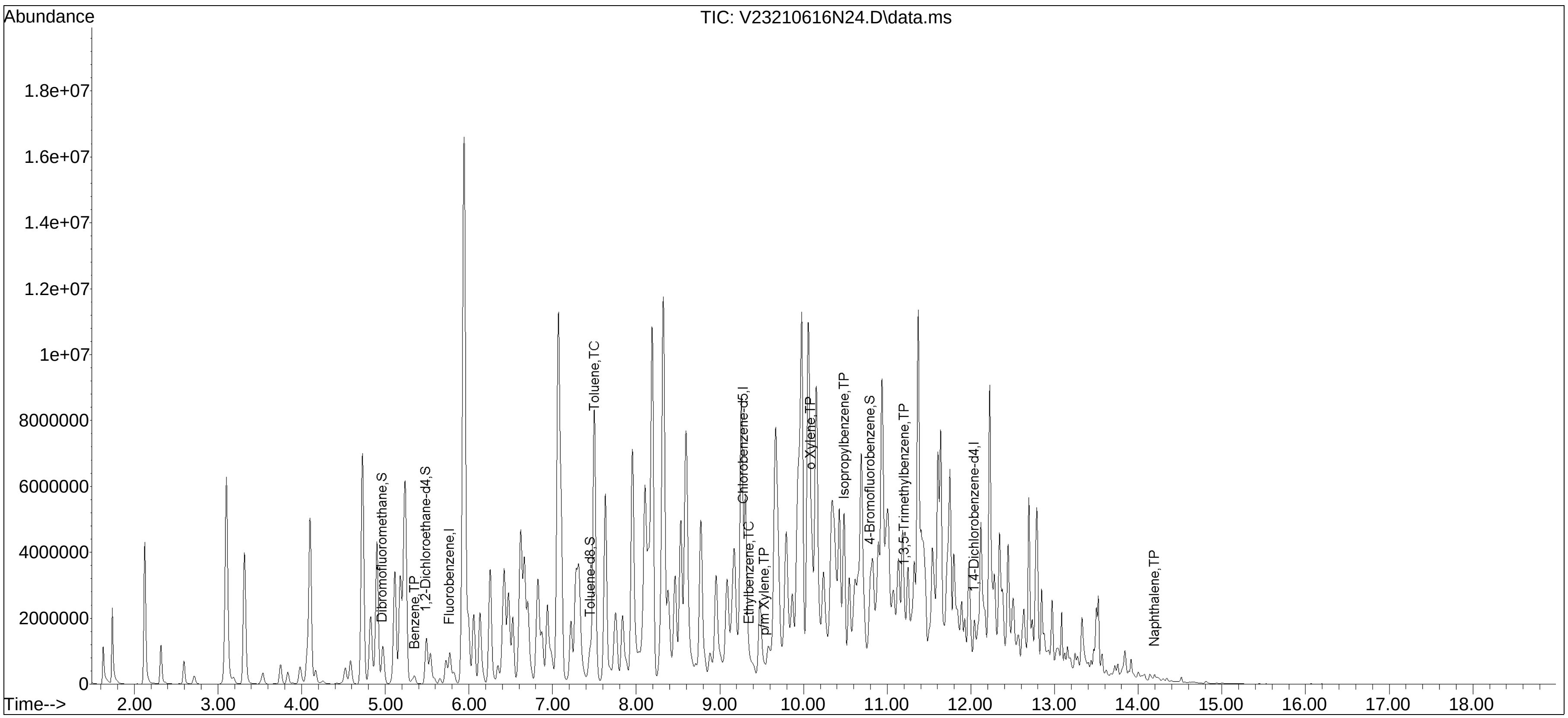


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N24.D
Acq On    : 17 Jun 2021  03:33 am
Operator  : VOA123:JC
Sample    : L2130781-09,31,6.14,5,,B
Misc      : WG1513390,ICAL18048
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Jun 17 07:35:06 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•
```

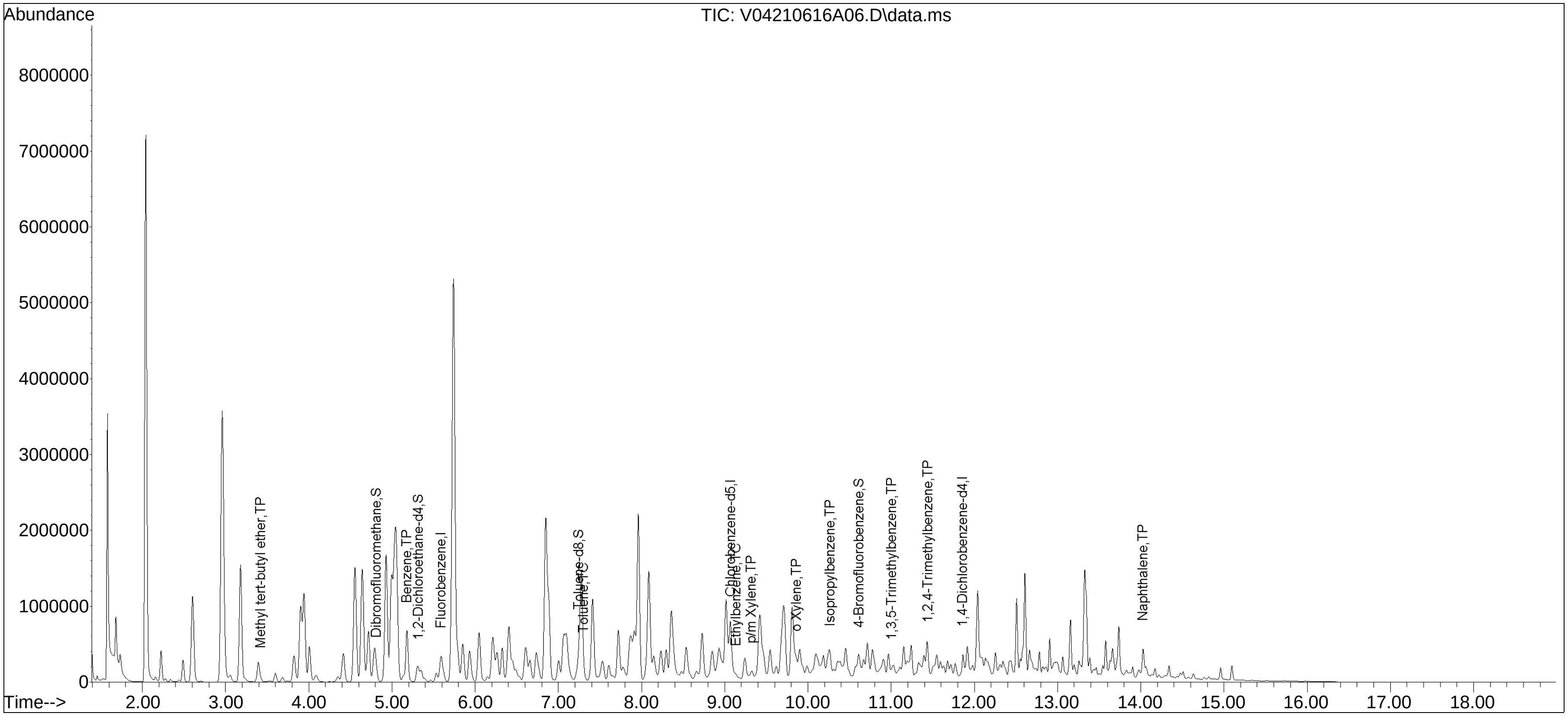


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A06.D
Acq On : 16 Jun 2021 6:58 am
Operator : VOA104:MV
Sample : L2130781-12,31,6.35,5,,B
Misc : WG1513067,ICAL18000
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 16 07:52:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•

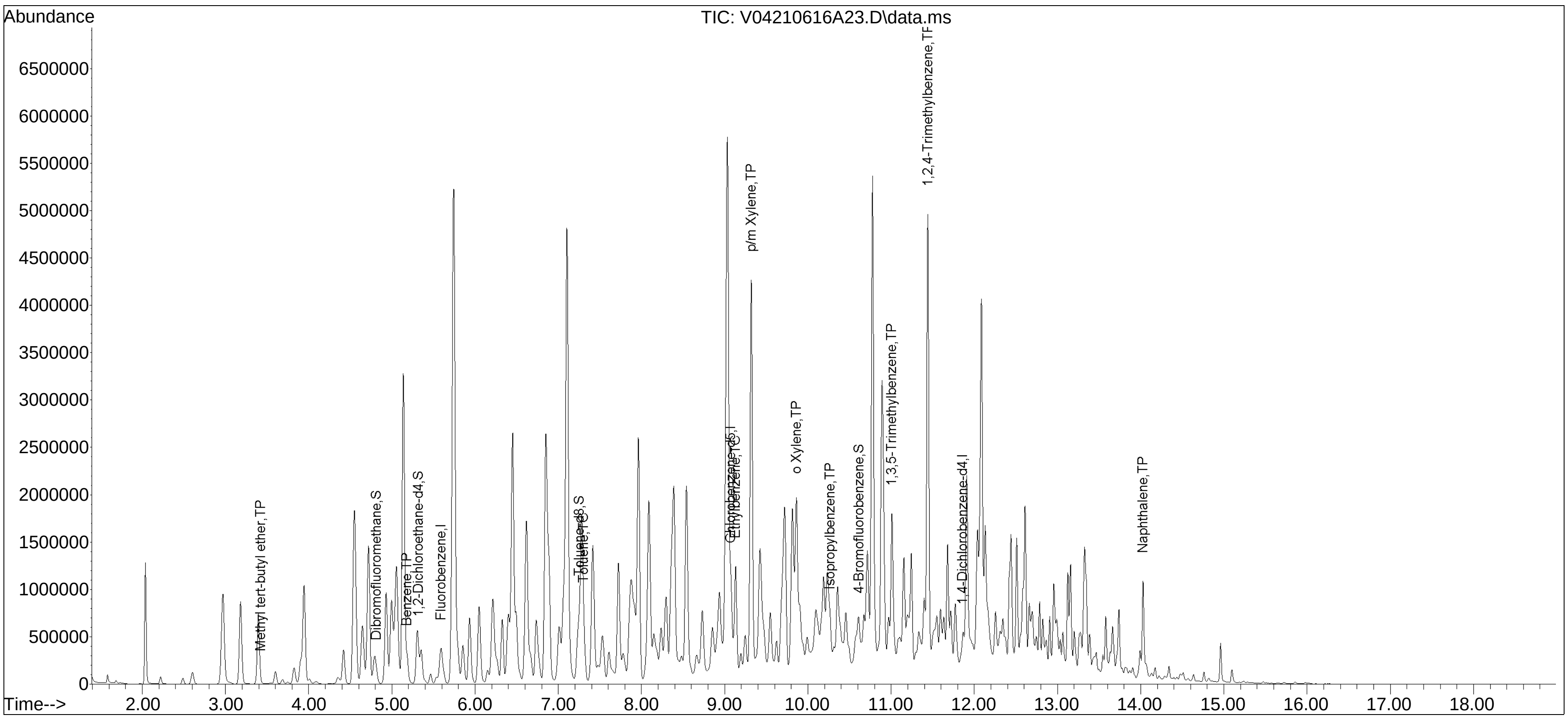


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A23.D
Acq On    : 16 Jun 2021   2:06 pm
Operator  : VOA104:AJK
Sample    : L2130781-13D,31H,6.21,5,0.010,,A
Misc      : WG1513068,ICAL18000
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jun 16 16:32:40 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•
```

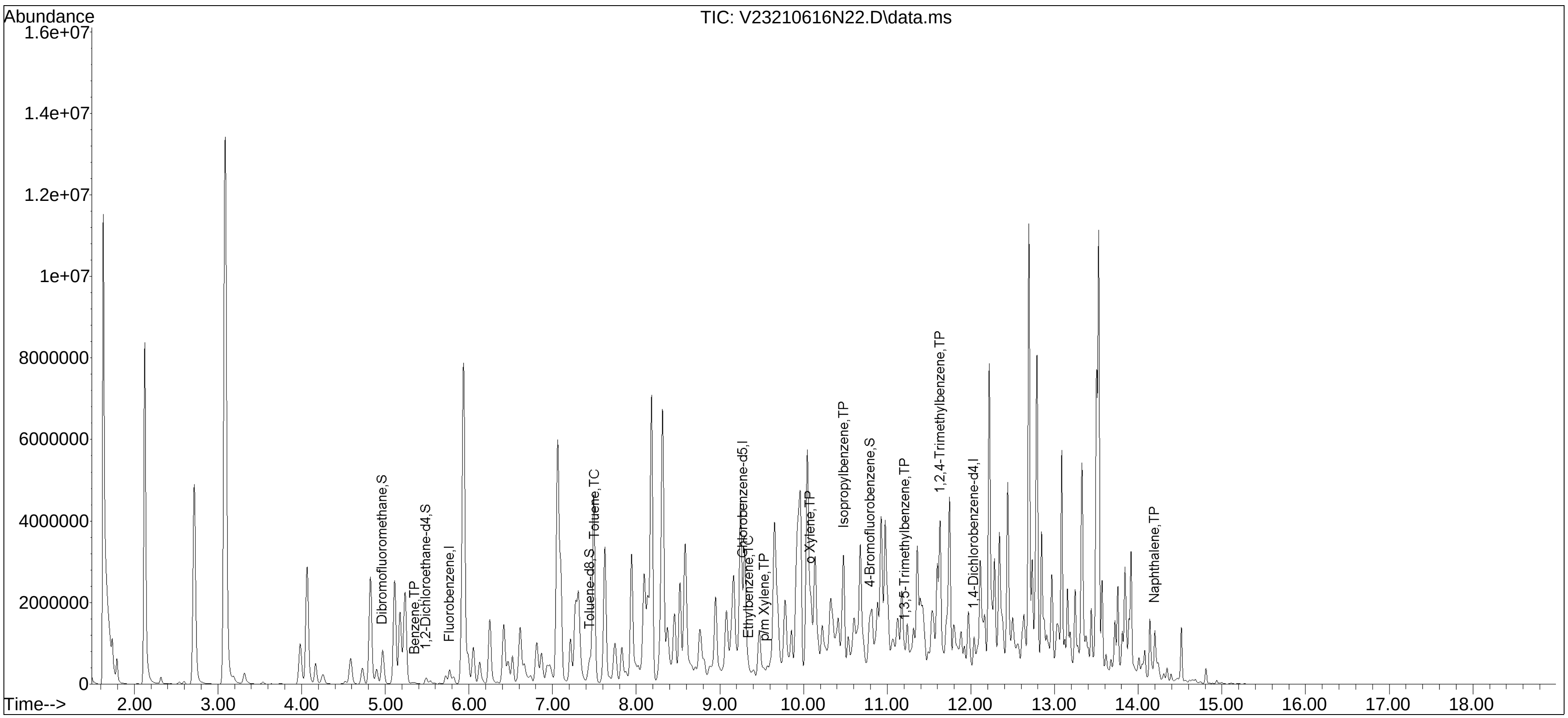


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210616N\
Data File : V23210616N22.D
Acq On   : 17 Jun 2021 02:43 am
Operator : VOA123:JC
Sample   : L2130781-14,31,5.46,5,,B
Misc   : WG1513390,ICAL18048
ALS Vial : 22   Sample Multiplier: 1

Quant Time: Jun 17 07:34:35 2021
Quant Method : I:\VOLATILES\VOA123\2021\210616N\V123_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 17:38:12 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list16N\V23210616N01.D•

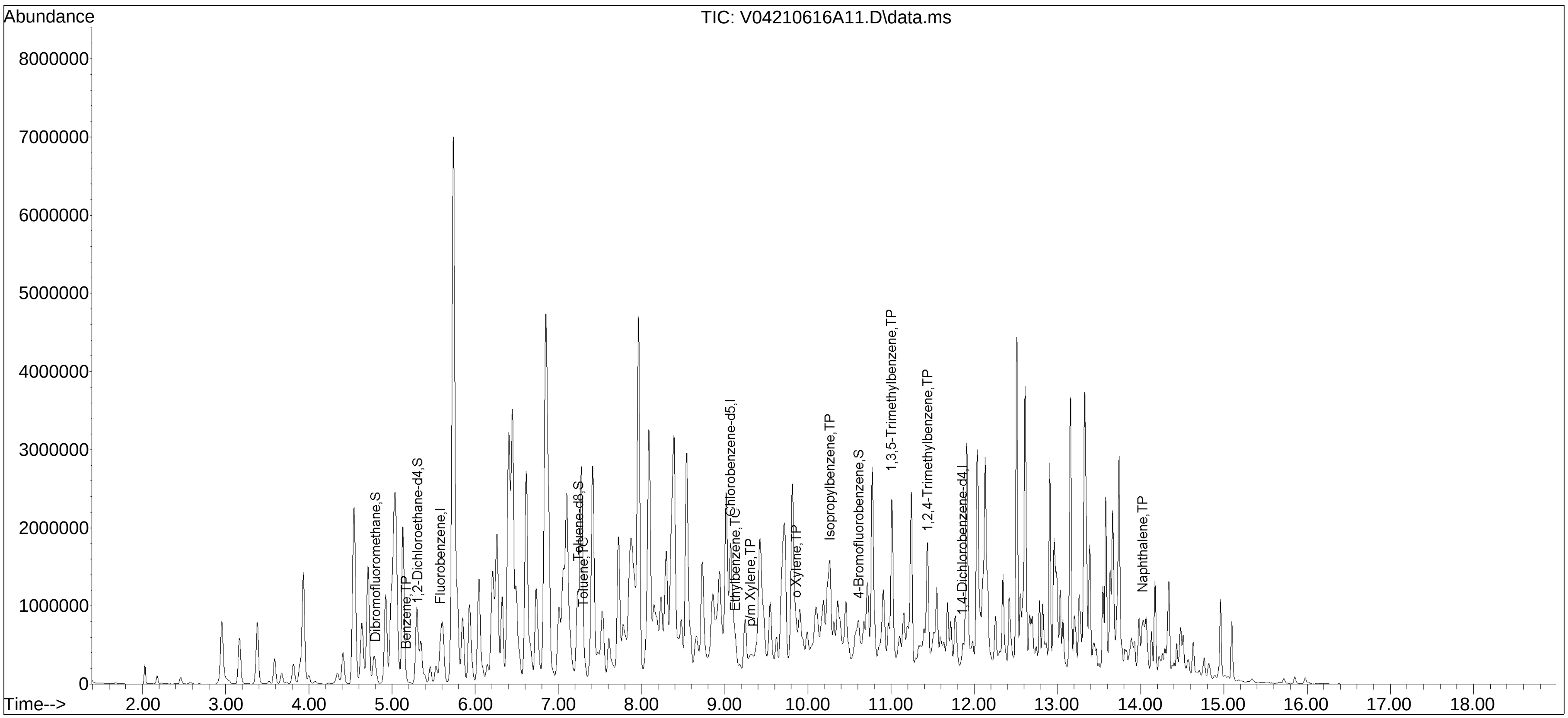


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210616A\
Data File : V04210616A11.D
Acq On   : 16 Jun 2021   9:04 am
Operator : VOA104:AJK
Sample   : L2130781-15,31H,7.35,5,0.100,,A
Misc   : WG1513068,ICAL18000
ALS Vial : 11   Sample Multiplier: 1

Quant Time: Jun 16 16:10:28 2021
Quant Method : I:\VOLATILES\VOA104\2021\210616A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list16A\V04210616A01.D•



ANALYTICAL REPORT

Lab Number:	L2131108
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY - AST CLOSURE
Project Number:	200.00135.005
Report Date:	07/08/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131108-01	PB28-16-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:00	06/09/21
L2131108-02	PB28-15-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:15	06/09/21
L2131108-03	PB28-12-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:30	06/09/21
L2131108-04	PB28-11-SS01	SOIL	PHILADELPHIA, PA	06/09/21 08:55	06/09/21
L2131108-05	PB28-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:05	06/09/21
L2131108-06	PB28-20-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:25	06/09/21
L2131108-07	PB28-21-SS01	SOIL	PHILADELPHIA, PA	06/09/21 09:40	06/09/21
L2131108-08	PB28-17-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:20	06/09/21
L2131108-09	PB28-18-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:40	06/09/21
L2131108-10	PB28-22-SS01	SOIL	PHILADELPHIA, PA	06/09/21 10:55	06/09/21
L2131108-11	PB29-01-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:10	06/09/21
L2131108-12	PB29-02-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:25	06/09/21
L2131108-13	PB29-03-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:45	06/09/21
L2131108-14	PB29-04-SS01	SOIL	PHILADELPHIA, PA	06/09/21 11:50	06/09/21
L2131108-15	PB29-05-SS01	SOIL	PHILADELPHIA, PA	06/09/21 12:50	06/09/21
L2131108-16	PB29-06-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:00	06/09/21
L2131108-17	PB29-07-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:15	06/09/21
L2131108-18	PB29-08-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:20	06/09/21
L2131108-19	PB29-09-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:35	06/09/21
L2131108-20	PB29-10-SS01	SOIL	PHILADELPHIA, PA	06/09/21 13:55	06/09/21
L2131108-21	FB-210609-1	WATER	PHILADELPHIA, PA	06/09/21 12:00	06/09/21
L2131108-22	FB-210609-2	WATER	PHILADELPHIA, PA	06/09/21 14:00	06/09/21
L2131108-23	DUP-4	SOIL	PHILADELPHIA, PA	06/09/21 08:10	06/09/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics
L2131108-05D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (147%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-07: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.
L2131108-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (152%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2131108-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (158%) and 4-bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131108-17: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (161%) and 4-

Case Narrative (continued)

bromofluorobenzene (154%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131108-17: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (61%) due to interference with the Internal Standard.

L2131108-20D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (137%) and 4-bromofluorobenzene (137%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics by SIM

L2131108-05D, -12D, -13D, -15D, -18D, -19D, and -20D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

L2131108-08D, -11D and -18D: The sample has elevated detection limits due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/08/21

ORGANICS

VOLATILES

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 09:38
Analyst: MKS
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	0.00064	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00064	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.014		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	93		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-02	Date Collected:	06/09/21 08:15
Client ID:	PB28-15-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 20:48
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0018	J	mg/kg	0.0019	0.00019	1
Benzene	0.0027		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	0.0041		mg/kg	0.00097	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.00052	J	mg/kg	0.00097	0.00014	1
p/m-Xylene	0.00070	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00028	J	mg/kg	0.00097	0.00028	1
Xylenes, Total	0.00098	J	mg/kg	0.00097	0.00028	1
Isopropylbenzene	0.0060		mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-03	Date Collected:	06/09/21 08:30
Client ID:	PB28-12-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 22:32
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	ND		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00093	0.00027	1
Xylenes, Total	ND		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00018	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-04	Date Collected:	06/09/21 08:55
Client ID:	PB28-11-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:14
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.0017		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.049		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0052		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.019		mg/kg	0.0018	0.00050	1
o-Xylene	0.0079		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.027		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.00037	J	mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.00093	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0028		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	96		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05 D
Client ID: PB28-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:05
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 23:25
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.47	0.048	4
Benzene	ND		mg/kg	0.12	0.039	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	ND		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.069	4
Ethylbenzene	6.9		mg/kg	0.24	0.033	4
p/m-Xylene	1.9		mg/kg	0.47	0.13	4
o-Xylene	0.092	J	mg/kg	0.24	0.069	4
Xylenes, Total	2.0	J	mg/kg	0.24	0.069	4
Isopropylbenzene	7.6		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	7.7		mg/kg	0.47	0.046	4
1,2,4-Trimethylbenzene	70.		mg/kg	0.47	0.079	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	**147**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06
Client ID: PB28-20-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 09:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 21:40
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.36		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.040	J	mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.7		mg/kg	0.064	0.0090	1
p/m-Xylene	0.32		mg/kg	0.13	0.036	1
o-Xylene	0.14		mg/kg	0.064	0.018	1
Xylenes, Total	0.46		mg/kg	0.064	0.018	1
Isopropylbenzene	1.6		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	90		70-130

SAMPLE RESULTS

Lab ID:	L2131108-07	Date Collected:	06/09/21 09:40
Client ID:	PB28-21-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/16/21 23:51
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.017	J	mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	1.3		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Client ID: PB28-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 10:04
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	0.00044	J	mg/kg	0.0011	0.00031	1
Xylenes, Total	0.00044	J	mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.027		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-08	Date Collected:	06/09/21 10:20
Client ID:	PB28-17-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 09:12
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00024	1
Benzene	0.0041		mg/kg	0.00059	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00034	1
Ethylbenzene	0.00052	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.0012		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0018	J	mg/kg	0.0023	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-09	Date Collected:	06/09/21 10:40
Client ID:	PB28-18-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:31
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00044	J	mg/kg	0.0035	0.00035	1
Benzene	0.0030		mg/kg	0.00088	0.00029	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00045	1
Toluene	0.0017	J	mg/kg	0.0018	0.00096	1
1,2-Dibromoethane	ND		mg/kg	0.00088	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.0038		mg/kg	0.0035	0.00099	1
o-Xylene	0.0016	J	mg/kg	0.0018	0.00051	1
Xylenes, Total	0.0054	J	mg/kg	0.0018	0.00051	1
Isopropylbenzene	0.00023	J	mg/kg	0.0018	0.00019	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0035	0.00034	1
1,2,4-Trimethylbenzene	0.0012	J	mg/kg	0.0035	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**152**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-10	Date Collected:	06/09/21 10:55
Client ID:	PB28-22-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 20:26
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	ND		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.015	J	mg/kg	0.063	0.0088	1
p/m-Xylene	0.086	J	mg/kg	0.12	0.035	1
o-Xylene	ND		mg/kg	0.063	0.018	1
Xylenes, Total	0.086	J	mg/kg	0.063	0.018	1
Isopropylbenzene	1.8		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:30
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.056	J	mg/kg	0.12	0.012	1
Benzene	3.5		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.28		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	14.		mg/kg	0.059	0.0083	1
p/m-Xylene	32.		mg/kg	0.12	0.033	1
o-Xylene	0.97		mg/kg	0.059	0.017	1
Xylenes, Total	33.		mg/kg	0.059	0.017	1
Isopropylbenzene	1.1		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	9.6		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	27.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	75		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-11 D	Date Collected:	06/09/21 11:10
Client ID:	PB29-01-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 20:51
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	32.		mg/kg	0.24	0.039	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-12 D2	Date Collected:	06/09/21 11:25
Client ID:	PB29-02-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 17:01
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	1.1	0.11	10
Benzene	8.6		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	110		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	62.		mg/kg	0.56	0.079	10
p/m-Xylene	280		mg/kg	1.1	0.32	10
o-Xylene	100		mg/kg	0.56	0.16	10
Xylenes, Total	380		mg/kg	0.56	0.16	10
Isopropylbenzene	4.5		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	60.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	180	E	mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-12	D	Date Collected:	06/09/21 11:25
Client ID:	PB29-02-SS01		Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 21:17
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	190		mg/kg	2.2	0.38	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13 D2	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 16:11
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	22.		mg/kg	2.4	0.24	20
Benzene	93.		mg/kg	0.61	0.20	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.31	20
Toluene	580	E	mg/kg	1.2	0.66	20
1,2-Dibromoethane	ND		mg/kg	0.61	0.36	20
Ethylbenzene	220		mg/kg	1.2	0.17	20
p/m-Xylene	850	E	mg/kg	2.4	0.68	20
o-Xylene	320		mg/kg	1.2	0.35	20
Isopropylbenzene	19.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	20
1,2,4-Trimethylbenzene	530	E	mg/kg	2.4	0.41	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13 D	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 21:42
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	540		mg/kg	3.0	1.6	50
p/m-Xylene	830		mg/kg	6.1	1.7	50
Xylenes, Total	1200		mg/kg	1.2	0.35	50
1,2,4-Trimethylbenzene	500		mg/kg	6.1	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:55
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.11	0.011	1
Benzene	1.1		mg/kg	0.028	0.0094	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.39		mg/kg	0.056	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	14.		mg/kg	0.056	0.0080	1
p/m-Xylene	57.	E	mg/kg	0.11	0.032	1
o-Xylene	23.		mg/kg	0.056	0.016	1
Isopropylbenzene	1.8		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	6.4		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	18.	E	mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-14 D	Date Collected:	06/09/21 11:50
Client ID:	PB29-04-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:07
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	60.		mg/kg	0.45	0.13	4
Xylenes, Total	83.		mg/kg	0.056	0.016	4
1,2,4-Trimethylbenzene	19.		mg/kg	0.45	0.075	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15 D2	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 16:36
Analyst: NLK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.3	0.24	20
Benzene	8.9		mg/kg	0.58	0.19	20
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	20
Toluene	0.67	J	mg/kg	1.2	0.64	20
1,2-Dibromoethane	ND		mg/kg	0.58	0.34	20
Ethylbenzene	190		mg/kg	1.2	0.16	20
p/m-Xylene	400		mg/kg	2.3	0.66	20
o-Xylene	5.1		mg/kg	1.2	0.34	20
Xylenes, Total	400		mg/kg	1.2	0.34	20
Isopropylbenzene	17.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	110		mg/kg	2.3	0.22	20
1,2,4-Trimethylbenzene	570	E	mg/kg	2.3	0.39	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15 D
Client ID: PB29-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:32
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	540		mg/kg	5.8	0.98	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-16 D2	Date Collected:	06/09/21 13:00
Client ID:	PB29-06-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 14:05
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.042	J	mg/kg	0.24	0.024	2
Benzene	5.5		mg/kg	0.060	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	40.	E	mg/kg	0.12	0.065	2
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	2
Ethylbenzene	19.		mg/kg	0.12	0.017	2
p/m-Xylene	78.	E	mg/kg	0.24	0.067	2
o-Xylene	25.		mg/kg	0.12	0.035	2
Isopropylbenzene	1.3		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	13.		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	39.	E	mg/kg	0.24	0.040	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	85		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-16 D	Date Collected:	06/09/21 13:00
Client ID:	PB29-06-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 22:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	37.		mg/kg	0.24	0.13	4
p/m-Xylene	75.		mg/kg	0.48	0.13	4
Xylenes, Total	100		mg/kg	0.12	0.035	4
1,2,4-Trimethylbenzene	37.		mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-17	Date Collected:	06/09/21 13:15
Client ID:	PB29-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 15:20
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.2		mg/kg	0.12	0.012	1
Benzene	12.		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.016	1
Toluene	7.7		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	10.		mg/kg	0.060	0.0085	1
p/m-Xylene	34.		mg/kg	0.12	0.034	1
o-Xylene	12.		mg/kg	0.060	0.018	1
Xylenes, Total	46.		mg/kg	0.060	0.018	1
Isopropylbenzene	3.0		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	7.9		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	**161**	Q	70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	**61**	Q	70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-17	D	Date Collected:	06/09/21 13:15
Client ID:	PB29-07-SS01		Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 23:23
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	24.		mg/kg	0.48	0.081	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-18 D2	Date Collected:	06/09/21 13:20
Client ID:	PB29-08-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 15:46
Analyst: NLK
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.6	0.36	25
Benzene	22.		mg/kg	0.91	0.30	25
1,2-Dichloroethane	ND		mg/kg	1.8	0.47	25
Toluene	5.0		mg/kg	1.8	0.99	25
1,2-Dibromoethane	ND		mg/kg	0.91	0.53	25
Ethylbenzene	290		mg/kg	1.8	0.26	25
p/m-Xylene	1300	E	mg/kg	3.6	1.0	25
o-Xylene	250		mg/kg	1.8	0.53	25
Isopropylbenzene	30.		mg/kg	1.8	0.20	25
1,3,5-Trimethylbenzene	260		mg/kg	3.6	0.35	25
1,2,4-Trimethylbenzene	720	E	mg/kg	3.6	0.61	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-18 D	Date Collected:	06/09/21 13:20
Client ID:	PB29-08-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/17/21 23:48
Analyst: JC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	1300		mg/kg	7.3	2.0	50
Xylenes, Total	1600		mg/kg	1.8	0.53	50
1,2,4-Trimethylbenzene	680		mg/kg	7.3	1.2	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19 D2
Client ID: PB29-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 17:26
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.2	0.12	10
Benzene	0.10	J	mg/kg	0.31	0.10	10
1,2-Dichloroethane	ND		mg/kg	0.62	0.16	10
Toluene	0.78		mg/kg	0.62	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.31	0.18	10
Ethylbenzene	150		mg/kg	0.62	0.087	10
p/m-Xylene	660	E	mg/kg	1.2	0.34	10
o-Xylene	170		mg/kg	0.62	0.18	10
Isopropylbenzene	18.		mg/kg	0.62	0.067	10
1,3,5-Trimethylbenzene	110		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	340	E	mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	82		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-19 D	Date Collected:	06/09/21 13:35
Client ID:	PB29-09-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 00:14
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	630		mg/kg	4.9	1.4	40
Xylenes, Total	800		mg/kg	0.62	0.18	40
1,2,4-Trimethylbenzene	320		mg/kg	4.9	0.82	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	91		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20 D2	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 13:40
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.48	0.048	4
Benzene	24.		mg/kg	0.12	0.040	4
1,2-Dichloroethane	ND		mg/kg	0.24	0.061	4
Toluene	1.5		mg/kg	0.24	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.070	4
Ethylbenzene	74.	E	mg/kg	0.24	0.034	4
p/m-Xylene	170	E	mg/kg	0.48	0.13	4
o-Xylene	2.8		mg/kg	0.24	0.069	4
Isopropylbenzene	8.5		mg/kg	0.24	0.026	4
1,3,5-Trimethylbenzene	26.		mg/kg	0.48	0.046	4
1,2,4-Trimethylbenzene	72.	E	mg/kg	0.48	0.080	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	**137**	Q	70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D
Client ID: PB29-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 00:39
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	77.		mg/kg	0.60	0.084	10
p/m-Xylene	180		mg/kg	1.2	0.33	10
Xylenes, Total	180		mg/kg	0.24	0.069	10
1,2,4-Trimethylbenzene	82.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-21	Date Collected:	06/09/21 12:00
Client ID:	FB-210609-1	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 13:57		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
Client ID: FB-210609-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	109		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-22	Date Collected:	06/09/21 14:00
Client ID:	FB-210609-2	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/15/21 11:25
Analytical Date:	06/15/21 14:03		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-22	Date Collected:	06/09/21 14:00
Client ID:	FB-210609-2	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:54
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	114		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23
Client ID: DUP-4
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:57
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00067	J	mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	0.00074	J	mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00074	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.016		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	128		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/15/21 12:36
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/15/21 11:25

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-22 Batch: WG1512228-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-04 Batch: WG1513396-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	103		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/16/21 15:59
Analyst: KTD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-07 Batch: WG1513397-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	102		70-130

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,07-08 Batch: WG1513560-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	101		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,23 Batch: WG1513938-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	107		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-22 Batch: WG1513956-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 13:15
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 11-20 Batch: WG1513964-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	109		70-130

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/17/21 19:36
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 10-20 Batch: WG1513964-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 21-22 Batch: WG1512228-2									
1,2-Dibromoethane	108		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-04 Batch: WG1513396-3 WG1513396-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-07 Batch: WG1513397-3 WG1513397-4								
Methyl tert butyl ether	78		79		66-130	1		30
Benzene	81		82		70-130	1		30
1,2-Dichloroethane	**68**	Q	**69**	Q	70-130	1		30
Toluene	82		81		70-130	1		30
1,2-Dibromoethane	88		89		70-130	1		30
Ethylbenzene	86		86		70-130	0		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	88		88		70-130	0		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	87		88		70-130	1		30
1,2,4-Trimethylbenzene	87		88		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	104		102		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,07-08 Batch: WG1513560-3 WG1513560-4								
Methyl tert butyl ether	94		95		66-130	1		30
Benzene	95		95		70-130	0		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	94		94		70-130	0		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	101		101		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		86		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,23 Batch: WG1513938-3 WG1513938-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	92		90		70-130	2		30
1,2-Dichloroethane	91		89		70-130	2		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	102		100		70-130	2		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	102		101		70-130	1		30
o-Xylene	102		100		70-130	2		30
Isopropylbenzene	100		98		70-130	2		30
1,3,5-Trimethylbenzene	99		98		70-130	1		30
1,2,4-Trimethylbenzene	99		98		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		100		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	102		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-22 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 10-20 Batch: WG1513964-3 WG1513964-4								
Methyl tert butyl ether	95		96		66-130	1		30
Benzene	101		99		70-130	2		30
1,2-Dichloroethane	95		96		70-130	1		30
Toluene	104		101		70-130	3		30
1,2-Dibromoethane	100		102		70-130	2		30
Ethylbenzene	106		103		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	99		97		70-130	2		30
Isopropylbenzene	111		107		70-130	4		30
1,3,5-Trimethylbenzene	106		105		70-130	1		30
1,2,4-Trimethylbenzene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	95		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 11-20 Batch: WG1513964-8 WG1513964-9								
Methyl tert butyl ether	103		106		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	102		104		70-130	2		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	107		110		70-130	3		30
Ethylbenzene	111		110		70-130	1		30
p/m-Xylene	107		107		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	115		113		70-130	2		30
1,3,5-Trimethylbenzene	112		109		70-130	3		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	96		97		70-130

SEMIVOLATILES

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 12:27		
Analyst:	JJW		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.042		mg/kg	0.0083	0.0015	1
Fluorene	0.28		mg/kg	0.0083	0.00099	1
Phenanthrene	0.32		mg/kg	0.0083	0.00070	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	0.0087		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.00099	J	mg/kg	0.0083	0.00078	1
Chrysene	0.0011	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
Client ID: PB28-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 12:44
Analyst: JJW
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0018	J	mg/kg	0.0083	0.0015	1
Fluorene	0.0011	J	mg/kg	0.0083	0.0010	1
Phenanthrene	0.0024	J	mg/kg	0.0083	0.00071	1
Anthracene	ND		mg/kg	0.0083	0.00066	1
Pyrene	ND		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	ND		mg/kg	0.0083	0.00079	1
Chrysene	ND		mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	ND		mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	69		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:30
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 13:01
Analyst: JJW
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		mg/kg	0.0082	0.0015	1
Fluorene	ND		mg/kg	0.0082	0.00098	1
Phenanthrene	ND		mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	ND		mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	77		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-04	Date Collected:	06/09/21 08:55
Client ID:	PB28-11-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 13:17		
Analyst:	JJW		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0015	J	mg/kg	0.0078	0.0014	1
Fluorene	0.0013	J	mg/kg	0.0078	0.00094	1
Phenanthrene	ND		mg/kg	0.0078	0.00066	1
Anthracene	ND		mg/kg	0.0078	0.00062	1
Pyrene	ND		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	ND		mg/kg	0.0078	0.00074	1
Chrysene	ND		mg/kg	0.0078	0.00058	1
Benzo(b)fluoranthene	ND		mg/kg	0.0078	0.00074	1
Benzo(a)pyrene	ND		mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	ND		mg/kg	0.0078	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-05 D
Client ID: PB28-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 09:05
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 16:47
Analyst: JJW
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	21.		mg/kg	0.32	0.058	40
Fluorene	0.64		mg/kg	0.32	0.038	40
Phenanthrene	0.92		mg/kg	0.32	0.027	40
Anthracene	ND		mg/kg	0.32	0.026	40
Pyrene	0.12	J	mg/kg	0.32	0.022	40
Benzo(a)anthracene	0.030	J	mg/kg	0.32	0.030	40
Chrysene	0.045	J	mg/kg	0.32	0.024	40
Benzo(b)fluoranthene	ND		mg/kg	0.32	0.030	40
Benzo(a)pyrene	ND		mg/kg	0.32	0.038	40
Benzo(ghi)perylene	ND		mg/kg	0.32	0.027	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-06 D	Date Collected:	06/09/21 09:25
Client ID:	PB28-20-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/23/21 17:04		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.34		mg/kg	0.040	0.0072	5
Fluorene	2.0		mg/kg	0.040	0.0048	5
Phenanthrene	3.0		mg/kg	0.040	0.0034	5
Anthracene	ND		mg/kg	0.040	0.0032	5
Pyrene	0.098		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.0064	J	mg/kg	0.040	0.0038	5
Chrysene	0.0042	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	ND		mg/kg	0.040	0.0038	5
Benzo(a)pyrene	ND		mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	ND		mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**235**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	91		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-07	Date Collected:	06/09/21 09:40
Client ID:	PB28-21-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 14:56		
Analyst:	JJW		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0081	0.0014	1
Fluorene	0.47		mg/kg	0.0081	0.00097	1
Phenanthrene	0.36		mg/kg	0.0081	0.00069	1
Anthracene	ND		mg/kg	0.0081	0.00065	1
Pyrene	0.018		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0023	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0033	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0014	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0011	J	mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	46		30-120
4-Terphenyl-d14	49		18-120

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-08 D	Date Collected:	06/09/21 10:20
Client ID:	PB28-17-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 19:18		
Analyst:	JJW		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.078		mg/kg	0.039	0.0071	5
Fluorene	0.040		mg/kg	0.039	0.0047	5
Phenanthrene	0.36		mg/kg	0.039	0.0033	5
Anthracene	0.11		mg/kg	0.039	0.0031	5
Pyrene	0.62		mg/kg	0.039	0.0028	5
Benzo(a)anthracene	0.61		mg/kg	0.039	0.0037	5
Chrysene	0.53		mg/kg	0.039	0.0030	5
Benzo(b)fluoranthene	0.95		mg/kg	0.039	0.0037	5
Benzo(a)pyrene	0.82		mg/kg	0.039	0.0047	5
Benzo(ghi)perylene	0.46		mg/kg	0.039	0.0033	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	74		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-09	Date Collected:	06/09/21 10:40
Client ID:	PB28-18-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:51
Analytical Date:	06/22/21 16:34		
Analyst:	JJW		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.016		mg/kg	0.0084	0.00071	1
Anthracene	0.0036	J	mg/kg	0.0084	0.00067	1
Pyrene	0.019		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.021		mg/kg	0.0084	0.00080	1
Chrysene	0.017		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.031		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.029		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.027		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	60		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
Client ID: PB28-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 10:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/22/21 13:34
Analyst: JJW
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.13		mg/kg	0.0081	0.0014	1
Fluorene	0.0038	J	mg/kg	0.0081	0.00097	1
Phenanthrene	0.0051	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0012	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0032	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0019	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0015	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0011	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11 D
Client ID: PB29-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 17:20
Analyst: JJW
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	3.6		mg/kg	0.080	0.014	10
Fluorene	0.022	J	mg/kg	0.080	0.0096	10
Phenanthrene	0.062	J	mg/kg	0.080	0.0068	10
Anthracene	0.015	J	mg/kg	0.080	0.0064	10
Pyrene	0.038	J	mg/kg	0.080	0.0056	10
Benzo(a)anthracene	0.024	J	mg/kg	0.080	0.0076	10
Chrysene	0.013	J	mg/kg	0.080	0.0060	10
Benzo(b)fluoranthene	0.017	J	mg/kg	0.080	0.0076	10
Benzo(a)pyrene	0.013	J	mg/kg	0.080	0.0096	10
Benzo(ghi)perylene	ND		mg/kg	0.080	0.0068	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**185**	Q	23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	97		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 D
Client ID: PB29-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:25
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 17:36
Analyst: JJW
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:51

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	41.		mg/kg	0.41	0.074	50
Fluorene	0.36	J	mg/kg	0.41	0.050	50
Phenanthrene	0.49		mg/kg	0.41	0.035	50
Anthracene	0.083	J	mg/kg	0.41	0.033	50
Pyrene	0.19	J	mg/kg	0.41	0.029	50
Benzo(a)anthracene	0.068	J	mg/kg	0.41	0.039	50
Chrysene	0.048	J	mg/kg	0.41	0.031	50
Benzo(b)fluoranthene	ND		mg/kg	0.41	0.039	50
Benzo(a)pyrene	ND		mg/kg	0.41	0.050	50
Benzo(ghi)perylene	0.056	J	mg/kg	0.41	0.035	50

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13 D
Client ID: PB29-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:45
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 17:53
Analyst: JJW
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	27.		mg/kg	0.39	0.071	50
Fluorene	0.12	J	mg/kg	0.39	0.047	50
Phenanthrene	0.24	J	mg/kg	0.39	0.034	50
Anthracene	0.047	J	mg/kg	0.39	0.032	50
Pyrene	0.12	J	mg/kg	0.39	0.028	50
Benzo(a)anthracene	0.063	J	mg/kg	0.39	0.038	50
Chrysene	0.036	J	mg/kg	0.39	0.030	50
Benzo(b)fluoranthene	0.041	J	mg/kg	0.39	0.038	50
Benzo(a)pyrene	ND		mg/kg	0.39	0.047	50
Benzo(ghi)perylene	ND		mg/kg	0.39	0.034	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14 D
Client ID: PB29-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 11:50
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 18:09
Analyst: JJW
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.1		mg/kg	0.041	0.0074	5
Fluorene	0.0076	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.012	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0064	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	0.0066	J	mg/kg	0.041	0.0039	5
Chrysene	0.0031	J	mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	0.0051	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**207**	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	75		18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15 D	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/20/21 10:52
Analytical Date:	06/23/21 18:25		
Analyst:	JJW		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	24.		mg/kg	0.31	0.055	40
Fluorene	0.20	J	mg/kg	0.31	0.037	40
Phenanthrene	0.35		mg/kg	0.31	0.026	40
Anthracene	0.060	J	mg/kg	0.31	0.024	40
Pyrene	0.18	J	mg/kg	0.31	0.021	40
Benzo(a)anthracene	0.077	J	mg/kg	0.31	0.029	40
Chrysene	0.054	J	mg/kg	0.31	0.023	40
Benzo(b)fluoranthene	0.087	J	mg/kg	0.31	0.029	40
Benzo(a)pyrene	0.072	J	mg/kg	0.31	0.037	40
Benzo(ghi)perylene	0.083	J	mg/kg	0.31	0.026	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16 D
Client ID: PB29-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 18:42
Analyst: JJW
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.4		mg/kg	0.041	0.0073	5
Fluorene	0.017	J	mg/kg	0.041	0.0049	5
Phenanthrene	0.032	J	mg/kg	0.041	0.0035	5
Anthracene	0.0081	J	mg/kg	0.041	0.0032	5
Pyrene	0.015	J	mg/kg	0.041	0.0028	5
Benzo(a)anthracene	0.0086	J	mg/kg	0.041	0.0039	5
Chrysene	0.0049	J	mg/kg	0.041	0.0030	5
Benzo(b)fluoranthene	0.0063	J	mg/kg	0.041	0.0039	5
Benzo(a)pyrene	0.0049	J	mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	0.0035	J	mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**161**	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	89		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17 D
Client ID: PB29-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 18:58
Analyst: JJW
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.5		mg/kg	0.040	0.0073	5
Fluorene	0.018	J	mg/kg	0.040	0.0048	5
Phenanthrene	0.058		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.030	J	mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.014	J	mg/kg	0.040	0.0038	5
Chrysene	0.010	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.0099	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.0083	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.0038	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**185**	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	79		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18 D
Client ID: PB29-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 17:11
Analyst: DV
Percent Solids: 77%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	79.		mg/kg	2.1	0.38	250
Fluorene	0.72	J	mg/kg	2.1	0.25	250
Phenanthrene	1.2	J	mg/kg	2.1	0.18	250
Anthracene	0.20	J	mg/kg	2.1	0.17	250
Pyrene	0.52	J	mg/kg	2.1	0.15	250
Benzo(a)anthracene	0.25	J	mg/kg	2.1	0.20	250
Chrysene	ND		mg/kg	2.1	0.16	250
Benzo(b)fluoranthene	ND		mg/kg	2.1	0.20	250
Benzo(a)pyrene	ND		mg/kg	2.1	0.25	250
Benzo(ghi)perylene	ND		mg/kg	2.1	0.18	250

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19 D
Client ID: PB29-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 19:31
Analyst: JJW
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	25.		mg/kg	0.38	0.069	50
Fluorene	0.075	J	mg/kg	0.38	0.046	50
Phenanthrene	0.11	J	mg/kg	0.38	0.033	50
Anthracene	ND		mg/kg	0.38	0.031	50
Pyrene	0.048	J	mg/kg	0.38	0.027	50
Benzo(a)anthracene	ND		mg/kg	0.38	0.036	50
Chrysene	ND		mg/kg	0.38	0.029	50
Benzo(b)fluoranthene	ND		mg/kg	0.38	0.036	50
Benzo(a)pyrene	ND		mg/kg	0.38	0.046	50
Benzo(ghi)perylene	ND		mg/kg	0.38	0.033	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20 D
Client ID: PB29-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/23/21 19:47
Analyst: JJW
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 06/20/21 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	16.		mg/kg	0.16	0.029	20
Fluorene	0.084	J	mg/kg	0.16	0.019	20
Phenanthrene	0.14	J	mg/kg	0.16	0.014	20
Anthracene	0.029	J	mg/kg	0.16	0.013	20
Pyrene	0.067	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.034	J	mg/kg	0.16	0.015	20
Chrysene	0.018	J	mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	0.018	J	mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108

Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21
Client ID: FB-210609-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 12:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/16/21 12:26
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 06/15/21 23:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	90		41-149

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
Client ID: FB-210609-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 14:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/16/21 12:46
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 06/15/21 23:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	80		15-120
4-Terphenyl-d14	98		41-149

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108
Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-23	Date Collected:	06/09/21 08:10
Client ID:	DUP-4	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 20:18
Analytical Date:	06/24/21 22:53		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0095		mg/kg	0.0081	0.0015	1
Fluorene	0.13		mg/kg	0.0081	0.00098	1
Phenanthrene	0.16		mg/kg	0.0081	0.00069	1
Anthracene	0.020		mg/kg	0.0081	0.00065	1
Pyrene	0.0045	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0011	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00061	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00081	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/15/21 16:48
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 06/15/21 03:32

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 21-22 Batch: WG1512041-1					
Naphthalene	0.10	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	66		21-120
Phenol-d6	57		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	82		15-120
2,4,6-Tribromophenol	**123**	Q	10-120
4-Terphenyl-d14	100		41-149

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3546
Analytical Date:	06/22/21 12:11	Extraction Date:	06/20/21 10:51
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-20 Batch: WG1514486-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	84		10-120
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	73		30-120
2,4,6-Tribromophenol	85		10-136
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 22:36
Analyst: DV

Extraction Method: EPA 3546
Extraction Date: 06/23/21 20:18

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23 Batch: WG1516237-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	81		25-120
Phenol-d6	86		10-120
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	60		30-120
2,4,6-Tribromophenol	65		10-136
4-Terphenyl-d14	61		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 21-22 Batch: WG1512041-2 WG1512041-3								
Naphthalene	81		92		40-140	13		40
Fluorene	84		95		40-140	12		40
Phenanthrene	82		90		40-140	9		40
Anthracene	89		100		40-140	12		40
Pyrene	89		97		26-127	9		40
Benzo(a)anthracene	85		91		40-140	7		40
Chrysene	89		98		40-140	10		40
Benzo(b)fluoranthene	85		92		40-140	8		40
Benzo(a)pyrene	90		99		40-140	10		40
Benzo(ghi)perylene	91		99		40-140	8		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		79		21-120
Phenol-d6	58		67		10-120
Nitrobenzene-d5	78		88		23-120
2-Fluorobiphenyl	75		90		15-120
2,4,6-Tribromophenol	**131**	Q	**144**	Q	10-120
4-Terphenyl-d14	95		103		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-20 Batch: WG1514486-2 WG1514486-3								
Naphthalene	61		73		40-140	18		50
Fluorene	67		74		40-140	10		50
Phenanthrene	66		72		40-140	9		50
Anthracene	72		78		40-140	8		50
Pyrene	72		78		35-142	8		50
Benzo(a)anthracene	74		80		40-140	8		50
Chrysene	66		74		40-140	11		50
Benzo(b)fluoranthene	72		80		40-140	11		50
Benzo(a)pyrene	75		83		40-140	10		50
Benzo(ghi)perylene	70		76		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	70		80		25-120
Phenol-d6	71		81		10-120
Nitrobenzene-d5	72		82		23-120
2-Fluorobiphenyl	62		69		30-120
2,4,6-Tribromophenol	79		85		10-136
4-Terphenyl-d14	62		68		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005
Lab Number: L2131108
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23 Batch: WG1516237-2 WG1516237-3								
Naphthalene	82		79		40-140	4		50
Fluorene	89		87		40-140	2		50
Phenanthrene	89		86		40-140	3		50
Anthracene	98		96		40-140	2		50
Pyrene	86		81		35-142	6		50
Benzo(a)anthracene	95		96		40-140	1		50
Chrysene	77		76		40-140	1		50
Benzo(b)fluoranthene	104		97		40-140	7		50
Benzo(a)pyrene	98		95		40-140	3		50
Benzo(ghi)perylene	91		88		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	95		92		25-120
Phenol-d6	100		97		10-120
Nitrobenzene-d5	**121**	Q	117		23-120
2-Fluorobiphenyl	67		66		30-120
2,4,6-Tribromophenol	76		74		10-136
4-Terphenyl-d14	73		70		18-120

METALS

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-01	Date Collected:	06/09/21 08:00
Client ID:	PB28-16-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.88		mg/kg	2.41	0.129	1	06/17/21 10:25	07/05/21 13:15	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02 Date Collected: 06/09/21 08:15
Client ID: PB28-15-SS01 Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.85		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 13:02	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-03	Date Collected:	06/09/21 08:30
Client ID:	PB28-12-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.70		mg/kg	2.42	0.129	1	06/17/21 10:25	07/05/21 13:06	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-04	Date Collected:	06/09/21 08:55
Client ID:	PB28-11-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.22		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 13:11	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-05	Date Collected:	06/09/21 09:05
Client ID:	PB28-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.9		mg/kg	2.36	0.126	1	06/17/21 10:25	07/05/21 13:45	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-06	Date Collected:	06/09/21 09:25
Client ID:	PB28-20-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.59		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 13:52	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108
Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Client ID: PB28-21-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 09:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.90		mg/kg	2.35	0.126	1	06/17/21 10:25	07/05/21 13:56	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-08 Date Collected: 06/09/21 10:20

Client ID: PB28-17-SS01 Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	19.0		mg/kg	2.25	0.120	1	06/17/21 10:25	07/05/21 14:01	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-09	Date Collected:	06/09/21 10:40
Client ID:	PB28-18-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	313		mg/kg	2.43	0.130	1	06/17/21 10:25	07/05/21 14:05	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-10
Date Collected: 06/09/21 10:55
Client ID: PB28-22-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.34		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:09	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11
Date Collected: 06/09/21 11:10
Client ID: PB29-01-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.55		mg/kg	2.40	0.129	1	06/17/21 10:25	07/05/21 14:39	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-12 Date Collected: 06/09/21 11:25

Client ID: PB29-02-SS01 Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1180		mg/kg	2.40	0.128	1	06/17/21 10:25	07/05/21 14:43	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-13	Date Collected:	06/09/21 11:45
Client ID:	PB29-03-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.53		mg/kg	2.39	0.128	1	06/17/21 10:25	07/05/21 14:47	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-14
Date Collected: 06/09/21 11:50
Client ID: PB29-04-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.20		mg/kg	2.37	0.127	1	06/17/21 10:25	07/05/21 14:52	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-15	Date Collected:	06/09/21 12:50
Client ID:	PB29-05-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	282		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 14:56	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-16
Client ID: PB29-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.52		mg/kg	2.32	0.125	1	06/17/21 10:25	07/05/21 15:00	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17
Client ID: PB29-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.23		mg/kg	2.38	0.128	1	06/17/21 10:25	07/05/21 15:05	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-18	Date Collected:	06/09/21 13:20
Client ID:	PB29-08-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	98.7		mg/kg	2.48	0.133	1	06/17/21 10:25	07/05/21 15:09	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19
Date Collected: 06/09/21 13:35
Client ID: PB29-09-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	17.2		mg/kg	2.33	0.125	1	06/17/21 10:25	07/05/21 15:14	EPA 3050B	1,6010D	SV

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-20	Date Collected:	06/09/21 13:55
Client ID:	PB29-10-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.69		mg/kg	2.30	0.123	1	06/17/21 10:25	07/05/21 15:18	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108

Project Number: 200.00135.005 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-21 Date Collected: 06/09/21 12:00

Client ID: FB-210609-1 Date Received: 06/09/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	07/01/21 16:09	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-22
Client ID: FB-210609-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 14:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	07/01/21 17:15	EPA 3005A	1,6020B	CD

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-23	Date Collected:	06/09/21 08:10
Client ID:	DUP-4	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.15		mg/kg	2.37	0.127	1	06/18/21 10:10	07/07/21 17:43	EPA 3050B	1,6010D	SV

Project Name: PES REFINERY - AST CLOSURE **Lab Number:** L2131108
Project Number: 200.00135.005 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1511378-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/16/21 05:38	06/23/21 16:01	1,6020B	BM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1513004-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/17/21 10:25	07/05/21 12:53	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23 Batch: WG1513009-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/18/21 10:10	07/07/21 15:30	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1511378-2								
Lead, Total	113		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1513004-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 23 Batch: WG1513009-2 SRM Lot Number: D109-540								
Lead, Total	90		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1511378-3 WG1511378-4 QC Sample: L2131451-01 Client ID: MS Sample												
Lead, Total	ND	510	531.4	104		532.1	104		75-125	0		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-3 QC Sample: L2131108-01 Client ID: PB28-16-SS01												
Lead, Total	7.88	48.5	46.4	79		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-3 QC Sample: L2129359-01 Client ID: MS Sample												
Lead, Total	14.0	54.3	61.9	88		-	-		75-125	-		20

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1513004-4 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Lead, Total	7.88	7.47	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 23 QC Batch ID: WG1513009-4 QC Sample: L2129359-01 Client ID: DUP Sample						
Lead, Total	14.0	18.1	mg/kg	**26**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-01
Client ID: PB28-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:00
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-02
Client ID: PB28-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 08:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-03
Client ID: PB28-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 08:30
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-04	Date Collected:	06/09/21 08:55
Client ID:	PB28-11-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-05	Date Collected:	06/09/21 09:05
Client ID:	PB28-07-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108
Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-06 | Date Collected: 06/09/21 09:25
Client ID: PB28-20-SS01 | Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-07
Date Collected: 06/09/21 09:40
Client ID: PB28-21-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-08	Date Collected:	06/09/21 10:20
Client ID:	PB28-17-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-09
Client ID: PB28-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 10:40
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-10	Date Collected:	06/09/21 10:55
Client ID:	PB28-22-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-11
Client ID: PB29-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 11:10
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-12	Date Collected:	06/09/21 11:25
Client ID:	PB29-02-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-13
Client ID: PB29-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 11:45
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-14	Date Collected:	06/09/21 11:50
Client ID:	PB29-04-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-15
Date Collected: 06/09/21 12:50
Client ID: PB29-05-SS01
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name:	PES REFINERY - AST CLOSURE	**Lab Number:**	L2131108
Project Number:	200.00135.005	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2131108-16	Date Collected:	06/09/21 13:00
Client ID:	PB29-06-SS01	Date Received:	06/09/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Project Number: 200.00135.005

Lab Number: L2131108

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-17
Client ID: PB29-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:15
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-18
Client ID: PB29-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:20
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE

Lab Number: L2131108

Project Number: 200.00135.005

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-19
Client ID: PB29-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/09/21 13:35
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE | **Lab Number:** L2131108
Project Number: 200.00135.005 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-20
Client ID: PB29-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/09/21 13:55
Date Received: 06/09/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/11/21 08:50	121,2540G	RI

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2131108-23
Date Collected: 06/09/21 08:10
Client ID: DUP-4
Date Received: 06/09/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/11/21 09:01	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1510726-1 QC Sample: L2131108-01 Client ID: PB28-16-SS01						
Solids, Total	80.2	79.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 23 QC Batch ID: WG1510727-1 QC Sample: L2130982-05 Client ID: DUP Sample						
Solids, Total	56.8	52.2	%	8		20

Serial_No:07082119:02

Project Name: PES REFINERY - AST CLOSURE
Project Number: 200.00135.005

Lab Number: L2131108
Report Date: 07/08/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-01A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-01B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-01D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-01F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-02A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-02B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-02D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-02F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-03A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-03B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-03D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-03F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-04A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-04B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-04D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-04F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-05A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-05B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-05D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-05F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-06A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-06B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-06D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-06F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-07A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131108-07B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260H(14),PA-8260HLW(14)
L2131108-07D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-07F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-08A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-08B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-08D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-08F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-09A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-09B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-09C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-09D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-09F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-10A	Vial MeOH preserved	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2131108-10B	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10C	Vial water preserved	A	NA		3.5	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-10D	Plastic 120ml unpreserved	A	NA		3.5	Y	Absent		TS(7)
L2131108-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.5	Y	Absent		PB-TI(180)
L2131108-10F	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-8270SIM(14)
L2131108-11A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-11B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-11D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-11F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-12A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-12B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-12D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-12F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-13A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-13B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-13D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-13F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-14A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-14B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-14D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-14F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-15A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-15B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-15D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-15F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-16A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-16B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-16D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-16F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-17A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-17B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-17D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-17F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-18A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-18B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-18D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY - AST CLOSURE
Lab Number: L2131108
Project Number: 200.00135.005
Report Date: 07/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-18F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-19A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-19B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-19D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-19F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-20A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-20B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-20D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-20F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)
L2131108-21A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-21D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-21F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-21H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-22A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2131108-22D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2131108-22F	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131108-22G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-8270SIM-LVI(7)
L2131108-22H	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020T-PPB(180)
L2131108-23A	Vial MeOH preserved	B	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131108-23B	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23C	Vial water preserved	B	NA		4.2	Y	Absent	10-JUN-21 08:41	PA-8260HLW(14)
L2131108-23D	Plastic 120ml unpreserved	B	NA		4.2	Y	Absent		TS(7)
L2131108-23E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.2	Y	Absent		PB-TI(180)
L2131108-23F	Glass 120ml/4oz unpreserved	B	NA		4.2	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/10/21

ALPHA Job #: L2131108

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
31108-01	PB28-16-SS01	6/9	0800	S	TS	☑	☑	☑		6
-02	PB28-15-SS01		0815		TS	☑	☑	☑		
-03	PB28-12-SS01		0830		TS	☑	☑	☑		
-04	PB28-11-SS01		0855		TS	☑	☑	☑		
-05	PB28-07-SS01		0905		TS	☑	☑	☑		
-06	PB28-20-SS01		0925		TS	☑	☑	☑		
-07	PB28-21-SS01		0940		TS	☑	☑	☑		
-08	PB28-17-SS01		1020		TS	☑	☑	☑		
-09	PB28-18-SS01		1040		TS	☑	☑	☑		
-10	PB28-22-SS01		1055		TS	☑	☑	☑		
					Container Type	G	G	G		
					Preservative	F	A	A		

2 COLD
3 COC

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/9 1500	Tom Carr AAL	6-9 1500
Tom Carr AAL	6-9 1800	[signature]	6-9-1800
[signature]	6-9 2030	[signature]	6/9 2230
[signature]	6/10 0150	[signature]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/10/21

ALPHA Job #: L2131108

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	Sample Specific Comments	TOTAL # BOTTLES
31108-11	PB29-01-5501	6/9	1110	S	TS	☑	☑	☑		6
-12	PB29-02-5501		1125		TS	☑	☑	☑		
-13	PB29-03-5501		1145		TS	☑	☑	☑		
-14	PB29-04-5501		1150		TS	☑	☑	☑		
-15	PB29-05-5501		1250		TS	☑	☑	☑		
-16	PB29-06-5501		1300		TS	☑	☑	☑		
-17	PB29-07-5501		1315		TS	☑	☑	☑		
-18	PB29-08-5501		1320		TS	☑	☑	☑		
-19	PB29-09-5501		1335		TS	☑	☑	☑		
-20	PB29-10-5501		1355		TS	☑	☑	☑		
	Container Type					G	G	G		
	Preservative					F	A	A		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/9 1500	Ryan Cook AAL	6-9 1500
Tom Cook AAL	6-9-21 1800	[illegible]	6-9-21 1800
[illegible]	6-9-21 2230	[illegible]	6/9 2230
[illegible]	6/10 0130	[illegible]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF COUNTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/10/21

ALPHA Job #: L2131108

Project Information

Project Name: PES Refinery - AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3562

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist. Run Naphthalene using Method 8270 ONLY!! Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs (8260)	SVOCs (8270)	Lead (6010B)	PA-8260 (SHORTLIST 1-5)	TOTAL LEAD	8011	PA-8270						Sample Specific Comments	TOTAL # BOTTLES
31108-21	FB-210609-1	6/9	1200	W	TS	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐		
-22	FB-210609-2	6/9	1400	W	TS	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐	☐	☐		
-23	DUP-4	6/9	0810	S	TS	☑	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
				Container Type		G	G	G	-	-	-	-	-	-	-	-	-		
				Preservative		F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	6/9 1500	Tom Clay AAL	6-9-1506
Tom Clay AAL	6-9-21 1800	[illegible signature]	6-9-1800
[illegible signature]	6-9-2030	[illegible signature] 6/9 2030	
[illegible signature] 0130		[illegible signature]	6/10/21 0130

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

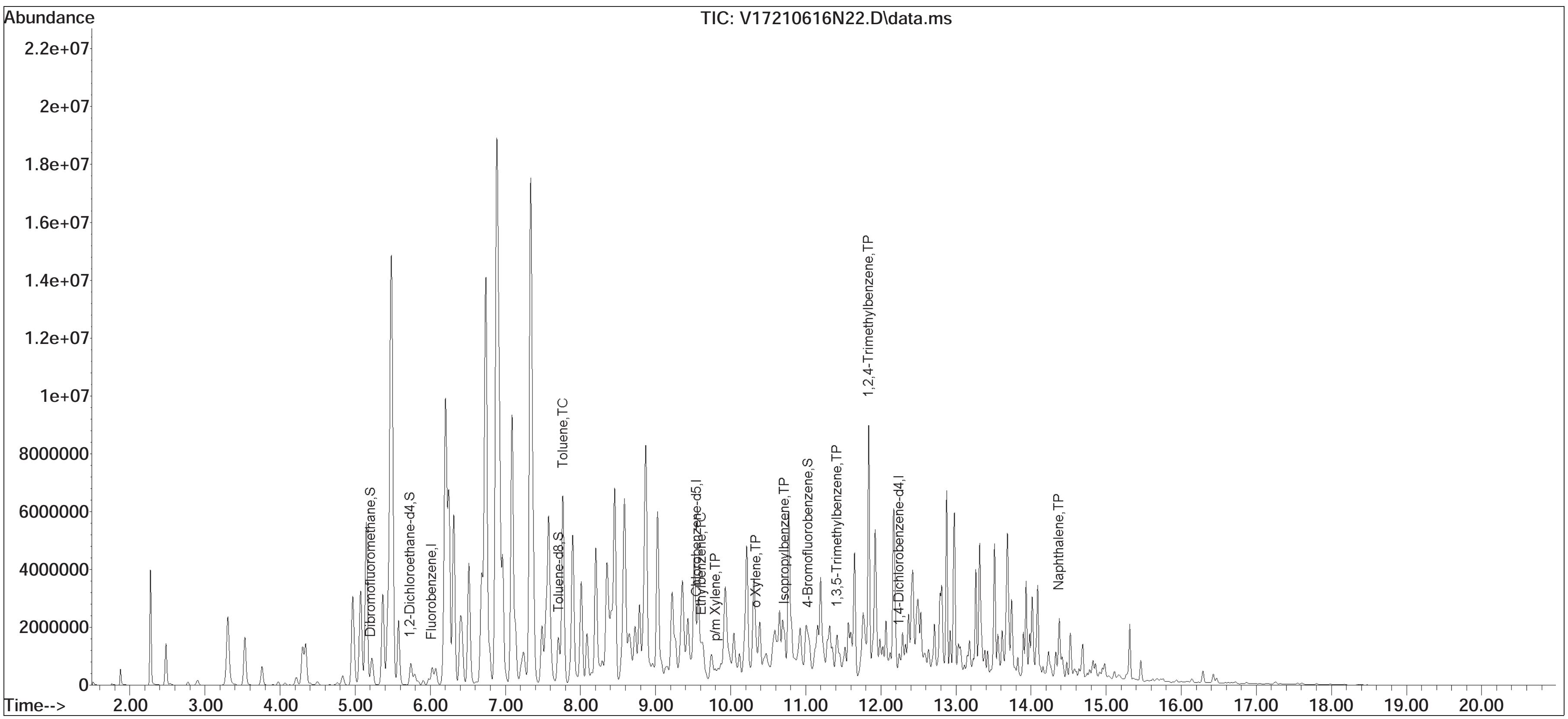
FORM NO: 01-01 (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210616N\
Data File : V17210616N22.D
Acq On : 16 Jun 2021 11:25 pm
Operator : VOA117:JC
Sample : L2131108-05D,31H,6.21,5,0.025,,A
Misc : WG1513397,ICAL18005
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 17 11:38:20 2021
Quant Method : I:\VOLATILES\VOA117\2021\210616N\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16N\V17210616N01.D•

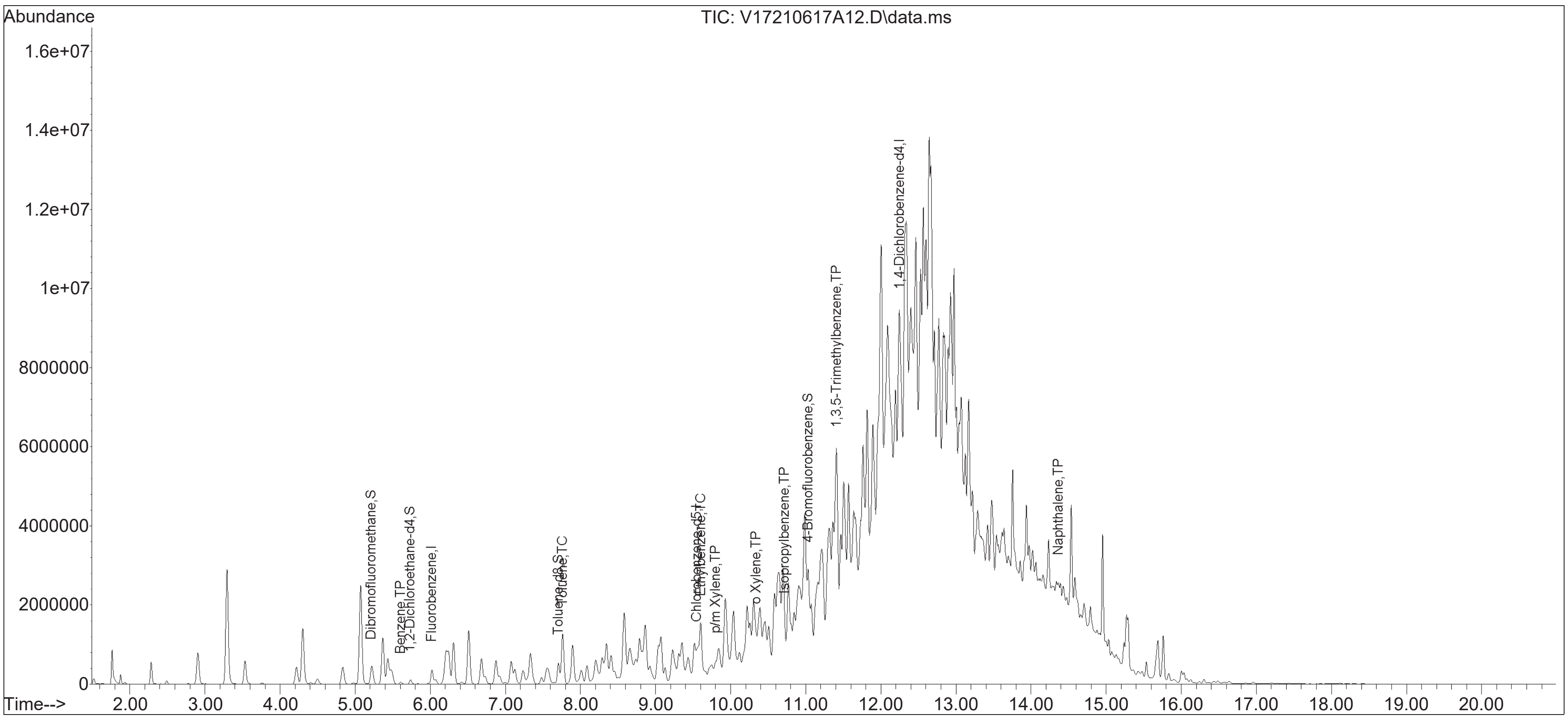


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210617A\
Data File : V17210617A12.D
Acq On    : 17 Jun 2021  09:12 am
Operator  : VOA117:MKS
Sample    : L2131108-08,31,5.04,5,,B
Misc      : WG1513560,ICAL18005
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Jun 17 14:50:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\210617A\V117_210527A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list17A\V17210617A01.D•
```

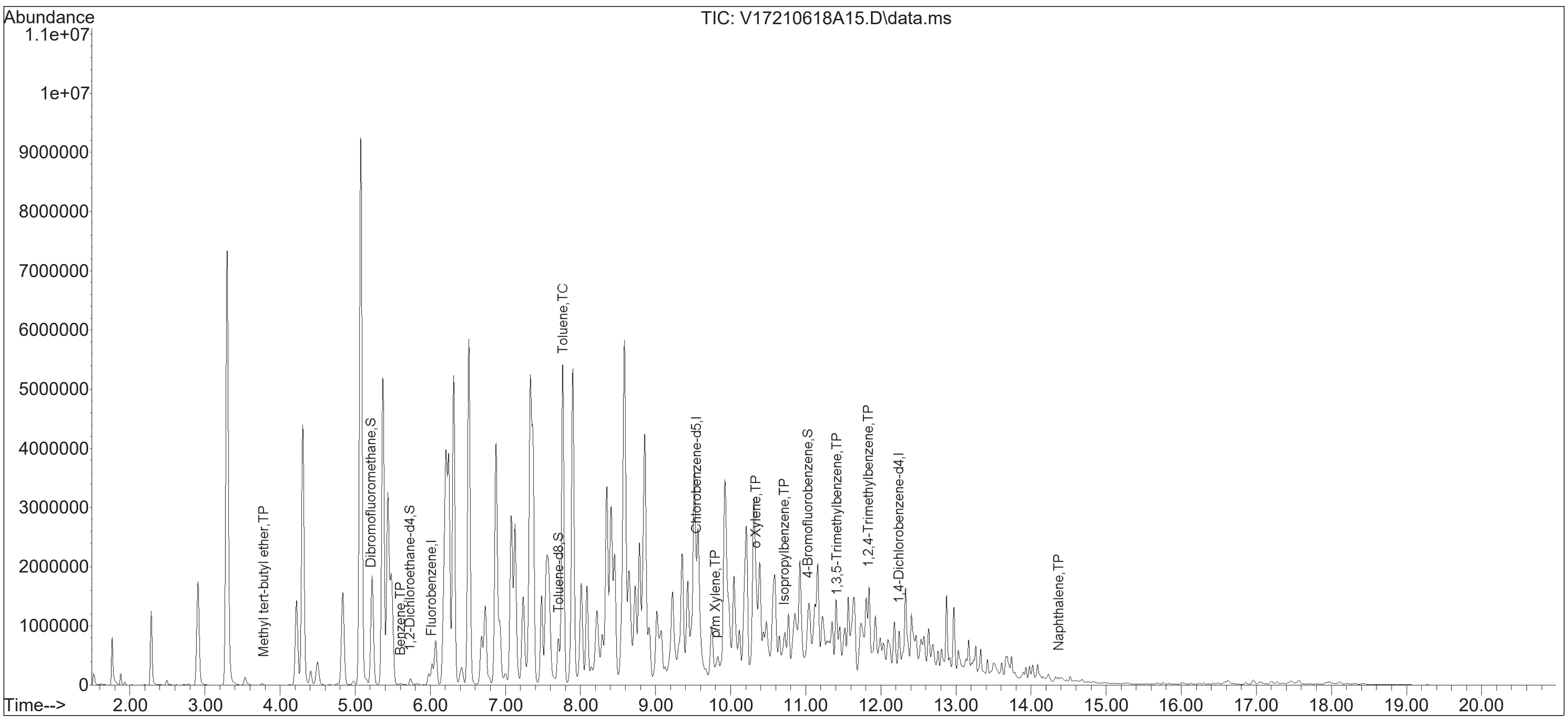


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210618A\
Data File : V17210618A15.D
Acq On : 18 Jun 2021 10:31 am
Operator : VOA117:JC
Sample : L2131108-09,31,3.63,5,,B
Misc : WG1513938,ICAL18005
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 18 14:04:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210618A\V117_210527A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Sun May 30 10:00:21 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V17210618A01.D•

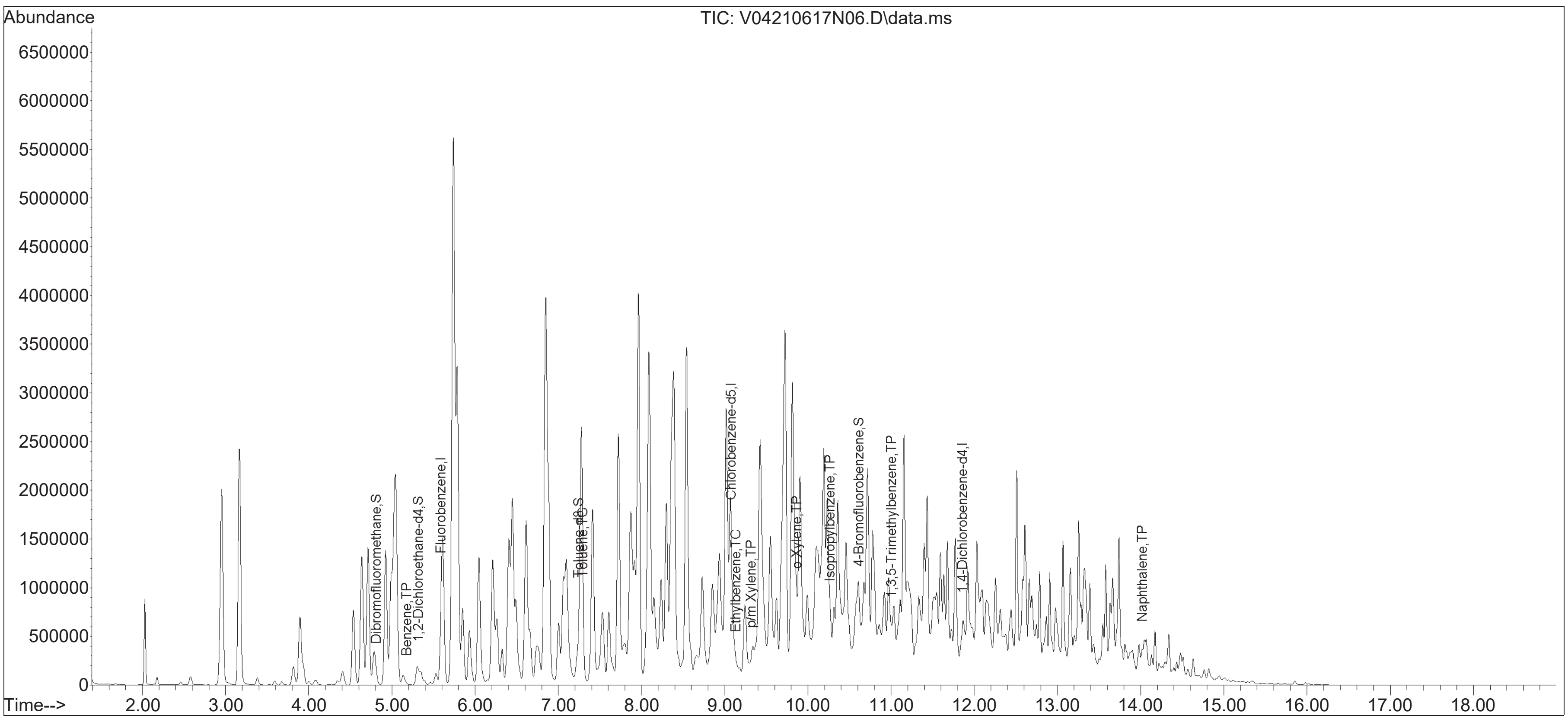


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210617N\
Data File : V04210617N06.D
Acq On   : 17 Jun 2021   8:26 pm
Operator : VOA104:JC
Sample   : L2131108-10,31H,5.84,5,0.100,,A
Misc   : WG1513964,ICAL18000
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Jun 18 08:20:51 2021
Quant Method : I:\VOLATILES\VOA104\2021\210617N\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list17N\V04210617N01.D•

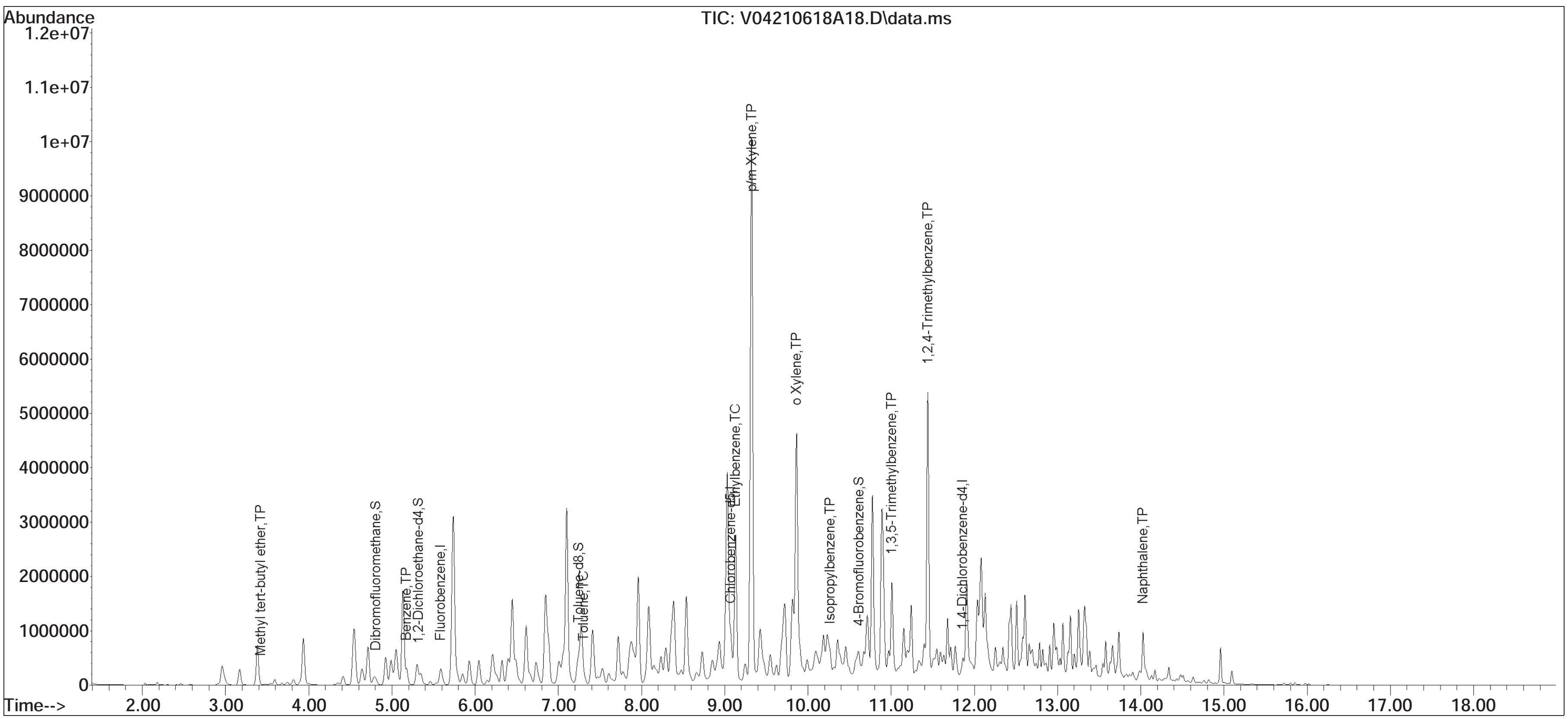


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A18.D
Acq On   : 18 Jun 2021   2:55 pm
Operator : VOA104:NLK
Sample   : L2131108-14,31H,6.89,5,0.100,,A
Misc   : WG1513964,ICAL18000
ALS Vial : 18   Sample Multiplier: 1

Quant Time: Jun 19 09:06:27 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

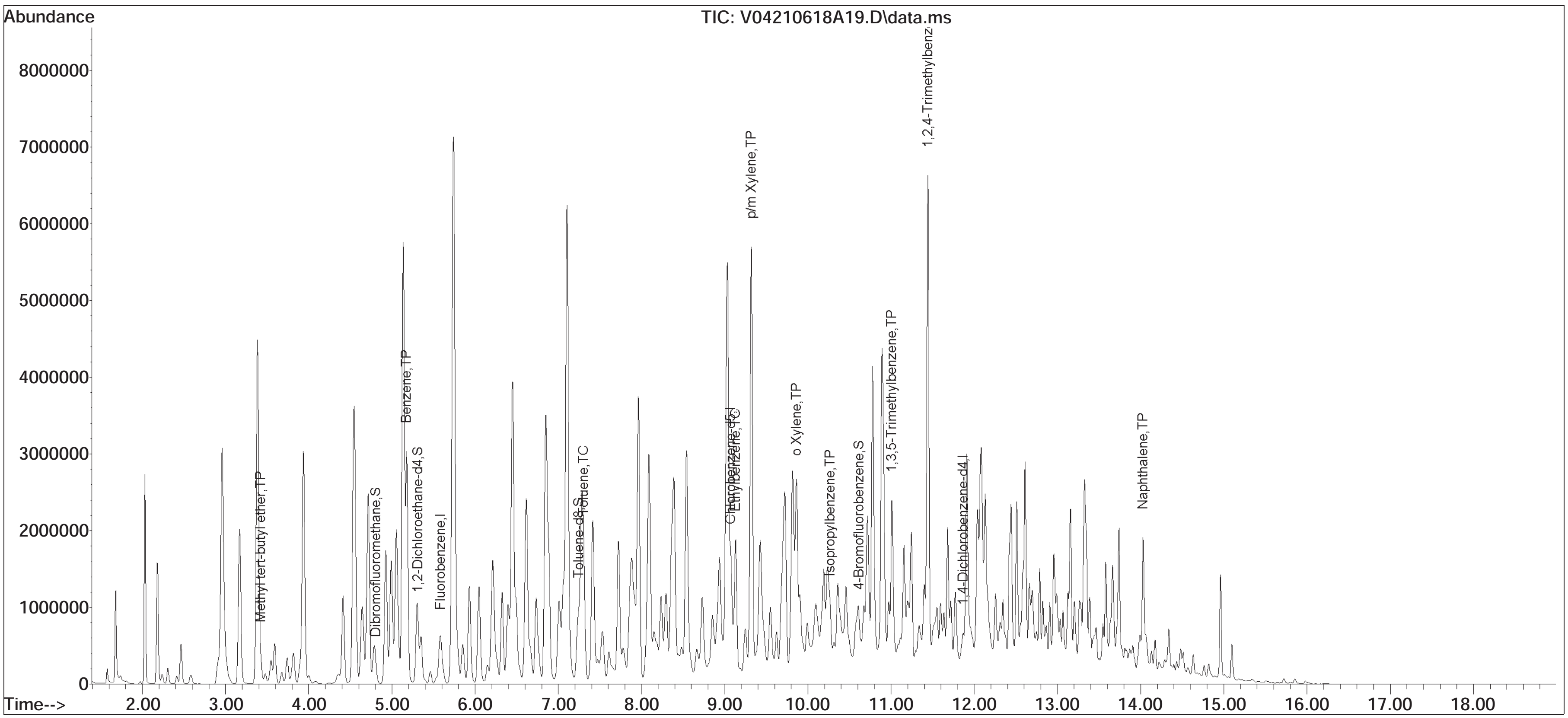


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A19.D
Acq On : 18 Jun 2021 3:20 pm
Operator : VOA104:NLK
Sample : L2131108-17,31H,6.29,5,0.100,,A
Misc : WG1513964,ICAL18000
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jun 19 09:07:02 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•

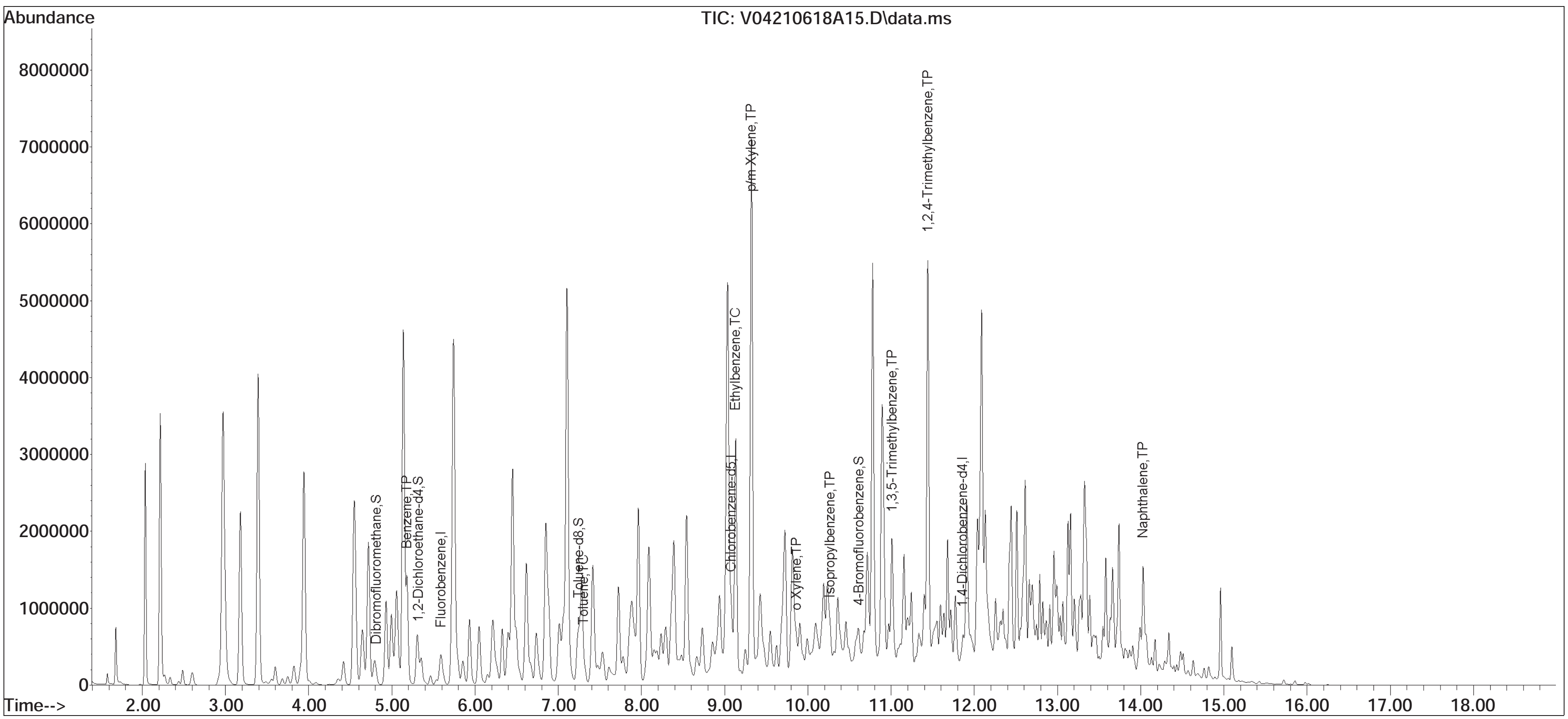


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210618A\
Data File : V04210618A15.D
Acq On : 18 Jun 2021 1:40 pm
Operator : VOA104:NLK
Sample : L2131108-20D2,31H,6.26,5,0.025,,A
Misc : WG1513964,ICAL18000
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 19 09:03:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210618A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18A\V04210618A01.D•



ANALYTICAL REPORT

Lab Number:	L2131453
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-01	PB29-11-SS01	SOIL	PHILADELPHIA, PA	06/10/21 07:40	06/10/21
L2131453-02	PB29-12-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:00	06/10/21
L2131453-03	PB29-13-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:10	06/10/21
L2131453-04	PB29-16-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:15	06/10/21
L2131453-05	PB29-21-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:40	06/10/21
L2131453-06	PB29-20-SS01	SOIL	PHILADELPHIA, PA	06/10/21 08:55	06/10/21
L2131453-07	PB29-22-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:10	06/10/21
L2131453-08	PB29-23-SS01	SOIL	PHILADELPHIA, PA	06/10/21 09:20	06/10/21
L2131453-09	PB29-19-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:05	06/10/21
L2131453-10	PB29-25-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:35	06/10/21
L2131453-11	PB29-26-SS01	SOIL	PHILADELPHIA, PA	06/10/21 10:45	06/10/21
L2131453-12	PB29-27-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:00	06/10/21
L2131453-13	PB29-24-SS01	SOIL	PHILADELPHIA, PA	06/10/21 11:40	06/10/21
L2131453-14	PB29-14-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:35	06/10/21
L2131453-15	PB29-15-SS01	SOIL	PHILADELPHIA, PA	06/10/21 12:55	06/10/21
L2131453-16	PB29-18-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:05	06/10/21
L2131453-17	PB29-17-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:20	06/10/21
L2131453-18	PB33-01-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:40	06/10/21
L2131453-19	PB33-02-SS01	SOIL	PHILADELPHIA, PA	06/10/21 13:50	06/10/21
L2131453-20	PB33-03-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:05	06/10/21
L2131453-21	PB33-04-SS01	SOIL	PHILADELPHIA, PA	06/10/21 14:10	06/10/21
L2131453-22	DUP-5	SOIL	PHILADELPHIA, PA	06/10/21 07:50	06/10/21
L2131453-23	FB-210610-1	WATER	PHILADELPHIA, PA	06/10/21 12:00	06/10/21
L2131453-24	FB-210610-2	WATER	PHILADELPHIA, PA	06/10/21 14:00	06/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131453-25	TB	WATER	PHILADELPHIA, PA	06/10/21 00:00	06/10/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2131453-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (159%) and 4-bromofluorobenzene (173%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2131453-06: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2131453-08D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-10: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131453-11: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (228%) and 4-bromofluorobenzene (138%); however, the sample was not re-analyzed due to coelution with an obvious

Case Narrative (continued)

interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-12 and -17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2131453-12: The surrogate recovery is outside the acceptance criteria for toluene-d8 (175%) and 4-bromofluorobenzene (163%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.
L2131453-18D: The surrogate recovery is outside the acceptance criteria for toluene-d8 (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-21D2: The surrogate recovery is outside the acceptance criteria for toluene-d8 (143%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131453-22: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2131453-25: The sample was collected in a pre-preserved vial; however, the pH of the sample was determined to be greater than two.

Semivolatile Organics by SIM
L2131453-05D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.
L2131453-07D and -16D: The sample has elevated detection limits due to the dilution required by the sample

Case Narrative (continued)

matrix.

The WG1512751-2/-3 LCS/LCSD RPD, associated with L2131453-23 and -24, is above the acceptance criteria for naphthalene (41%).

Total Metals

The WG1514044-3 MS recoveries, performed on L2131453-01, are outside the acceptance criteria for lead (47%). A post digestion spike was performed and yielded unacceptable recoveries for lead (41%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1514044-4 Laboratory Duplicate RPD for lead (28%), performed on L2131453-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01 Date Collected: 06/10/21 07:40
Client ID: PB29-11-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:51
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92		mg/kg	0.12	0.012	1
Benzene	1.2		mg/kg	0.030	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.53		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	1.3		mg/kg	0.059	0.0083	1
p/m-Xylene	4.6		mg/kg	0.12	0.033	1
o-Xylene	1.8		mg/kg	0.059	0.017	1
Xylenes, Total	6.4		mg/kg	0.059	0.017	1
Isopropylbenzene	0.17		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.6		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-02	Date Collected:	06/10/21 08:00
Client ID:	PB29-12-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:18
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	12.		mg/kg	0.12	0.012	1
Benzene	6.6		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.10		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.75		mg/kg	0.062	0.0087	1
p/m-Xylene	1.2		mg/kg	0.12	0.034	1
o-Xylene	0.56		mg/kg	0.062	0.018	1
Xylenes, Total	1.8		mg/kg	0.062	0.018	1
Isopropylbenzene	0.30		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.64		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
Client ID: PB29-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 16:59
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.020	J	mg/kg	0.16	0.016	1
Benzene	0.84		mg/kg	0.039	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.078	0.020	1
Toluene	0.14		mg/kg	0.078	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.039	0.023	1
Ethylbenzene	6.3		mg/kg	0.078	0.011	1
p/m-Xylene	22.		mg/kg	0.16	0.044	1
o-Xylene	5.8		mg/kg	0.078	0.023	1
Xylenes, Total	28.		mg/kg	0.078	0.023	1
Isopropylbenzene	0.78		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	4.0		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-04	Date Collected:	06/10/21 08:15
Client ID:	PB29-16-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/20/21 17:02
Analyst:	JC
Percent Solids:	82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	8.3		mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.062	0.016	1
Toluene	0.42		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	14.		mg/kg	0.062	0.0088	1
p/m-Xylene	3.0		mg/kg	0.12	0.035	1
o-Xylene	0.89		mg/kg	0.062	0.018	1
Xylenes, Total	3.9		mg/kg	0.062	0.018	1
Isopropylbenzene	2.2		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	**159**	Q	70-130
4-Bromofluorobenzene	**173**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D2
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:13
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	350		mg/kg	5.5	1.6	50
Xylenes, Total	460		mg/kg	0.55	0.16	50
1,2,4-Trimethylbenzene	210		mg/kg	5.5	0.92	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:22
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.1	0.11	10
Benzene	29.		mg/kg	0.28	0.092	10
1,2-Dichloroethane	ND		mg/kg	0.55	0.14	10
Toluene	150		mg/kg	0.55	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	100		mg/kg	0.55	0.078	10
p/m-Xylene	350	E	mg/kg	1.1	0.31	10
o-Xylene	110		mg/kg	0.55	0.16	10
Isopropylbenzene	9.9		mg/kg	0.55	0.060	10
1,3,5-Trimethylbenzene	79.		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	220	E	mg/kg	1.1	0.18	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
Client ID: PB29-20-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 16:11
Analyst: NLK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.30	E	mg/kg	0.0018	0.00019	1
Benzene	0.41	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.0035		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.49	E	mg/kg	0.00093	0.00013	1
p/m-Xylene	0.30		mg/kg	0.0018	0.00052	1
o-Xylene	0.0084		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.31		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.057		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.30	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	1.1	E	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-06	Date Collected:	06/10/21 08:55
Client ID:	PB29-20-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:21
Analyst: MV
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.57		mg/kg	0.090	0.0090	1
Benzene	1.4		mg/kg	0.022	0.0075	1
1,2-Dichloroethane	ND		mg/kg	0.045	0.012	1
Toluene	0.088		mg/kg	0.045	0.024	1
1,2-Dibromoethane	ND		mg/kg	0.022	0.013	1
Ethylbenzene	1.1		mg/kg	0.045	0.0064	1
p/m-Xylene	0.87		mg/kg	0.090	0.025	1
o-Xylene	0.054		mg/kg	0.045	0.013	1
Xylenes, Total	0.92		mg/kg	0.045	0.013	1
Isopropylbenzene	0.11		mg/kg	0.045	0.0049	1
1,3,5-Trimethylbenzene	0.70		mg/kg	0.090	0.0087	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.090	0.015	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D2
Client ID: PB29-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:33
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.064	5
Benzene	25.		mg/kg	0.16	0.053	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.082	5
Toluene	3.6		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	72.		mg/kg	0.32	0.045	5
p/m-Xylene	270	E	mg/kg	0.64	0.18	5
o-Xylene	42.		mg/kg	0.32	0.093	5
Xylenes, Total	310		mg/kg	0.32	0.093	5
Isopropylbenzene	7.0		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	50.		mg/kg	0.64	0.061	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.64	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D
Client ID: PB29-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:47
Analyst: NLK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	270		mg/kg	1.3	0.36	10
1,2,4-Trimethylbenzene	140		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D2
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:08
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	5
Benzene	30.		mg/kg	0.17	0.056	5
1,2-Dichloroethane	ND		mg/kg	0.33	0.086	5
Toluene	58.		mg/kg	0.33	0.18	5
1,2-Dibromoethane	ND		mg/kg	0.17	0.098	5
Ethylbenzene	110	E	mg/kg	0.33	0.047	5
p/m-Xylene	340	E	mg/kg	0.67	0.19	5
o-Xylene	100		mg/kg	0.33	0.097	5
Isopropylbenzene	7.4		mg/kg	0.33	0.036	5
1,3,5-Trimethylbenzene	70.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	190	E	mg/kg	0.67	0.11	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:12
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	110		mg/kg	0.67	0.094	10
p/m-Xylene	350		mg/kg	1.3	0.38	10
Xylenes, Total	450		mg/kg	0.33	0.097	10
1,2,4-Trimethylbenzene	190		mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-09 D2	Date Collected:	06/10/21 10:05
Client ID:	PB29-19-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:58
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.63	0.064	5
Benzene	23.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	22.		mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	82.		mg/kg	0.32	0.045	5
p/m-Xylene	280	E	mg/kg	0.63	0.18	5
o-Xylene	73.		mg/kg	0.32	0.092	5
Isopropylbenzene	5.9		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	66.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	170	E	mg/kg	0.63	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	79		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-09 D	Date Collected:	06/10/21 10:05
Client ID:	PB29-19-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 13:56
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	380		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	190		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10 Date Collected: 06/10/21 10:35
Client ID: PB29-25-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:27
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.016	1
Benzene	2.0		mg/kg	0.038	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.077	0.020	1
Toluene	0.49		mg/kg	0.077	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.038	0.023	1
Ethylbenzene	0.71		mg/kg	0.077	0.011	1
p/m-Xylene	0.69		mg/kg	0.15	0.043	1
o-Xylene	0.17		mg/kg	0.077	0.022	1
Xylenes, Total	0.86		mg/kg	0.077	0.022	1
Isopropylbenzene	5.2		mg/kg	0.077	0.0084	1
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.63		mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	**166**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11
Client ID: PB29-26-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 10:45
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:52
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.43		mg/kg	0.15	0.015	1
Benzene	11.		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.074	0.019	1
Toluene	1.5		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	1.6		mg/kg	0.074	0.010	1
p/m-Xylene	7.9		mg/kg	0.15	0.041	1
o-Xylene	2.8		mg/kg	0.074	0.021	1
Xylenes, Total	11.		mg/kg	0.074	0.021	1
Isopropylbenzene	5.1		mg/kg	0.074	0.0080	1
1,3,5-Trimethylbenzene	0.52		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.1		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**228**	Q	70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-12	Date Collected:	06/10/21 11:00
Client ID:	PB29-27-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:18
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.012	J	mg/kg	0.066	0.0094	1
p/m-Xylene	0.039	J	mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	0.039	J	mg/kg	0.066	0.019	1
Isopropylbenzene	1.8		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	0.68		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	1.7		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	**175**	Q	70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D2
Date Collected: 06/10/21 11:40
Client ID: PB29-24-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:56
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.3	0.13	10
Benzene	76.		mg/kg	0.32	0.11	10
1,2-Dichloroethane	ND		mg/kg	0.65	0.17	10
Toluene	6.3		mg/kg	0.65	0.35	10
1,2-Dibromoethane	ND		mg/kg	0.32	0.19	10
Ethylbenzene	270	E	mg/kg	0.65	0.092	10
p/m-Xylene	690	E	mg/kg	1.3	0.36	10
o-Xylene	200		mg/kg	0.65	0.19	10
Isopropylbenzene	18.		mg/kg	0.65	0.071	10
1,3,5-Trimethylbenzene	150		mg/kg	1.3	0.12	10
1,2,4-Trimethylbenzene	430	E	mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D
Client ID: PB29-24-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:38
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	220		mg/kg	3.2	0.46	50
p/m-Xylene	630		mg/kg	6.5	1.8	50
Xylenes, Total	830		mg/kg	0.65	0.19	50
1,2,4-Trimethylbenzene	380		mg/kg	6.5	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
Client ID: PB29-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:35
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:27
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	ND		mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	ND		mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	105		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-15	Date Collected:	06/10/21 12:55
Client ID:	PB29-15-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 14:53
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00029	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	0.00025	J	mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.00022	J	mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00033	J	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-16
Date Collected: 06/10/21 13:05
Client ID: PB29-18-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:19
Analyst: NLK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.00094		mg/kg	0.00055	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00055	0.00032	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00060	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-17	Date Collected:	06/10/21 13:20
Client ID:	PB29-17-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:43
Analyst: NLK
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.032	J	mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.026	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.025	J	mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18 D
Client ID: PB33-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 13:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:43
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.093	J	mg/kg	0.24	0.024	2
Benzene	1.2		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	ND		mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.17		mg/kg	0.12	0.017	2
p/m-Xylene	0.20	J	mg/kg	0.24	0.068	2
o-Xylene	ND		mg/kg	0.12	0.036	2
Xylenes, Total	0.20	J	mg/kg	0.12	0.036	2
Isopropylbenzene	2.6		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.24	0.041	2
Naphthalene	0.34	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	**133**	Q	70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19 D2
Client ID: PB33-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 13:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 09:47
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	6.6		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	0.53		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	29.		mg/kg	0.12	0.017	2
p/m-Xylene	70.		mg/kg	0.25	0.069	2
o-Xylene	1.7		mg/kg	0.12	0.036	2
Xylenes, Total	72.		mg/kg	0.12	0.036	2
Isopropylbenzene	2.7		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	16.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	45.	E	mg/kg	0.25	0.041	2
Naphthalene	7.0		mg/kg	0.49	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19 D
Client ID: PB33-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 13:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:48
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	51.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-20	Date Collected:	06/10/21 14:05
Client ID:	PB33-03-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:37
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.14	0.014	1
Benzene	0.038		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.22		mg/kg	0.069	0.0097	1
p/m-Xylene	0.83		mg/kg	0.14	0.039	1
o-Xylene	0.29		mg/kg	0.069	0.020	1
Xylenes, Total	1.1		mg/kg	0.069	0.020	1
Isopropylbenzene	1.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	2.2		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	5.7		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-21 D2	Date Collected:	06/10/21 14:10
Client ID:	PB33-04-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 09:22
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.57	0.057	5
Benzene	12.		mg/kg	0.14	0.047	5
1,2-Dichloroethane	ND		mg/kg	0.28	0.073	5
Toluene	0.52		mg/kg	0.28	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.083	5
Ethylbenzene	85.	E	mg/kg	0.28	0.040	5
p/m-Xylene	280	E	mg/kg	0.57	0.16	5
o-Xylene	19.		mg/kg	0.28	0.083	5
Isopropylbenzene	13.		mg/kg	0.28	0.031	5
1,3,5-Trimethylbenzene	43.		mg/kg	0.57	0.055	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.57	0.095	5
Naphthalene	8.6		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-21 D	Date Collected:	06/10/21 14:10
Client ID:	PB33-04-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:23
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	91.		mg/kg	0.57	0.080	10
p/m-Xylene	310		mg/kg	1.1	0.32	10
Xylenes, Total	330		mg/kg	0.28	0.083	10
1,2,4-Trimethylbenzene	130		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Client ID: DUP-5
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 07:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/19/21 15:45
Analyst: NLK
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	1.4	E	mg/kg	0.0018	0.00018	1
Benzene	2.2	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	0.12		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.32	E	mg/kg	0.00092	0.00013	1
p/m-Xylene	0.42		mg/kg	0.0018	0.00051	1
o-Xylene	0.25		mg/kg	0.00092	0.00027	1
Xylenes, Total	0.67		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.020		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.27		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-22	Date Collected:	06/10/21 07:50
Client ID:	DUP-5	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:47
Analyst: MV
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.0		mg/kg	0.11	0.011	1
Benzene	3.6		mg/kg	0.027	0.0090	1
1,2-Dichloroethane	ND		mg/kg	0.054	0.014	1
Toluene	0.16		mg/kg	0.054	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	0.52		mg/kg	0.054	0.0077	1
p/m-Xylene	0.59		mg/kg	0.11	0.030	1
o-Xylene	0.35		mg/kg	0.054	0.016	1
Xylenes, Total	0.94		mg/kg	0.054	0.016	1
Isopropylbenzene	0.028	J	mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.44		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
Client ID: FB-210610-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 12:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:22
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-23	Date Collected:	06/10/21 12:00
Client ID:	FB-210610-1	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 11:19
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	123		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
Client ID: FB-210610-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 14:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:28
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
Client ID: FB-210610-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 11:45
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-25
Client ID: TB
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 00:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/18/21 12:10
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	115		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/18/21 10:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-25 Batch: WG1513956-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	119		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,07-13,18-21 Batch: WG1514499-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,19,21 Batch: WG1514499-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:30
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,07-09 Batch: WG1514499-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06,14-16,22 Batch: WG1514511-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/19/21 08:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,17 Batch: WG1514517-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 13:08
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,22 Batch: WG1514630-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-25 Batch: WG1513956-3 WG1513956-4								
Methyl tert butyl ether	94		89		63-130	5		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		97		70-130	3		20
Toluene	94		94		70-130	0		20
1,2-Dibromoethane	94		96		70-130	2		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	95		92		70-130	3		20
1,3,5-Trimethylbenzene	91		92		64-130	1		20
1,2,4-Trimethylbenzene	94		92		70-130	2		20
Naphthalene	92		94		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	92		95		70-130
4-Bromofluorobenzene	90		91		70-130
Dibromofluoromethane	108		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,19,21 Batch: WG1514499-13 WG1514499-14								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,07-09 Batch: WG1514499-3 WG1514499-4								
Methyl tert butyl ether	102		99		66-130	3		30
Benzene	107		106		70-130	1		30
1,2-Dichloroethane	100		101		70-130	1		30
Toluene	109		108		70-130	1		30
1,2-Dibromoethane	105		106		70-130	1		30
Ethylbenzene	111		111		70-130	0		30
p/m-Xylene	108		108		70-130	0		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	112		113		70-130	1		30
1,3,5-Trimethylbenzene	108		109		70-130	1		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30
Naphthalene	91		94		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,07-13,18-21 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06,14-16,22 Batch: WG1514511-3 WG1514511-4								
Methyl tert butyl ether	96		94		66-130	2		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	92		90		70-130	2		30
Toluene	84		84		70-130	0		30
1,2-Dibromoethane	89		88		70-130	1		30
Ethylbenzene	85		86		70-130	1		30
p/m-Xylene	86		87		70-130	1		30
o-Xylene	87		89		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	87		86		70-130	1		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		91		70-130
Toluene-d8	93		94		70-130
4-Bromofluorobenzene	101		97		70-130
Dibromofluoromethane	103		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,17 Batch: WG1514517-3 WG1514517-4								
Methyl tert butyl ether	95		95		66-130	0		30
Benzene	85		83		70-130	2		30
1,2-Dichloroethane	89		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		95		70-130	1		30
Ethylbenzene	102		101		70-130	1		30
p/m-Xylene	93		91		70-130	2		30
o-Xylene	93		92		70-130	1		30
Isopropylbenzene	105		100		70-130	5		30
1,3,5-Trimethylbenzene	107		102		70-130	5		30
1,2,4-Trimethylbenzene	107		102		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	112		113		70-130
4-Bromofluorobenzene	116		114		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,22 Batch: WG1514630-3 WG1514630-4								
Methyl tert butyl ether	109		106		66-130	3		30
Benzene	115		110		70-130	4		30
1,2-Dichloroethane	106		102		70-130	4		30
Toluene	101		97		70-130	4		30
1,2-Dibromoethane	100		99		70-130	1		30
Ethylbenzene	104		100		70-130	4		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	104		102		70-130	2		30
Isopropylbenzene	106		100		70-130	6		30
1,3,5-Trimethylbenzene	105		99		70-130	6		30
1,2,4-Trimethylbenzene	106		99		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		93		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		105		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-01 D	Date Collected:	06/10/21 07:40
Client ID:	PB29-11-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 16:46		
Analyst:	RP		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	2.6		mg/kg	0.040	0.0073	5
Fluorene	0.040		mg/kg	0.040	0.0048	5
Phenanthrene	0.073		mg/kg	0.040	0.0034	5
Anthracene	0.014	J	mg/kg	0.040	0.0032	5
Pyrene	0.044		mg/kg	0.040	0.0028	5
Benzo(a)anthracene	0.031	J	mg/kg	0.040	0.0038	5
Chrysene	0.018	J	mg/kg	0.040	0.0030	5
Benzo(b)fluoranthene	0.022	J	mg/kg	0.040	0.0038	5
Benzo(a)pyrene	0.018	J	mg/kg	0.040	0.0048	5
Benzo(ghi)perylene	0.016	J	mg/kg	0.040	0.0034	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-02	Date Collected:	06/10/21 08:00
Client ID:	PB29-12-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 17:28		
Analyst:	RP		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0011	J	mg/kg	0.0081	0.00068	1
Anthracene	ND		mg/kg	0.0081	0.00064	1
Pyrene	0.0010	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.00085	J	mg/kg	0.0081	0.00077	1
Chrysene	ND		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.00089	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	ND		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03
Client ID: PB29-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 17:44
Analyst: RP
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.16		mg/kg	0.0084	0.0015	1
Fluorene	0.0013	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0018	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.00080	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	ND		mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**126**	Q	23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
Client ID: PB29-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:15
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 18:00
Analyst: RP
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 09:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.27		mg/kg	0.0080	0.0014	1
Fluorene	0.0024	J	mg/kg	0.0080	0.00096	1
Phenanthrene	0.0032	J	mg/kg	0.0080	0.00068	1
Anthracene	0.00088	J	mg/kg	0.0080	0.00064	1
Pyrene	0.0020	J	mg/kg	0.0080	0.00056	1
Benzo(a)anthracene	0.0013	J	mg/kg	0.0080	0.00076	1
Chrysene	0.00072	J	mg/kg	0.0080	0.00060	1
Benzo(b)fluoranthene	ND		mg/kg	0.0080	0.00076	1
Benzo(a)pyrene	ND		mg/kg	0.0080	0.00096	1
Benzo(ghi)perylene	ND		mg/kg	0.0080	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**137**	Q	23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	68		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05 D
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/25/21 17:03
Analyst: RP
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	13.		mg/kg	0.16	0.028	20
Fluorene	0.064	J	mg/kg	0.16	0.019	20
Phenanthrene	0.098	J	mg/kg	0.16	0.014	20
Anthracene	0.016	J	mg/kg	0.16	0.013	20
Pyrene	0.044	J	mg/kg	0.16	0.011	20
Benzo(a)anthracene	0.046	J	mg/kg	0.16	0.015	20
Chrysene	ND		mg/kg	0.16	0.012	20
Benzo(b)fluoranthene	ND		mg/kg	0.16	0.015	20
Benzo(a)pyrene	ND		mg/kg	0.16	0.019	20
Benzo(ghi)perylene	ND		mg/kg	0.16	0.014	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-06 D	Date Collected:	06/10/21 08:55
Client ID:	PB29-20-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 17:35		
Analyst:	RP		
Percent Solids:	88%		

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.90		mg/kg	0.015	0.0027	2
Fluorene	0.0084	J	mg/kg	0.015	0.0018	2
Phenanthrene	0.018		mg/kg	0.015	0.0013	2
Anthracene	0.0038	J	mg/kg	0.015	0.0012	2
Pyrene	0.011	J	mg/kg	0.015	0.0011	2
Benzo(a)anthracene	0.011	J	mg/kg	0.015	0.0014	2
Chrysene	0.0056	J	mg/kg	0.015	0.0011	2
Benzo(b)fluoranthene	0.011	J	mg/kg	0.015	0.0014	2
Benzo(a)pyrene	0.010	J	mg/kg	0.015	0.0018	2
Benzo(ghi)perylene	0.013	J	mg/kg	0.015	0.0013	2

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	59		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 D
Client ID: PB29-22-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:10
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/28/21 14:28
Analyst: JJW
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.6		mg/kg	0.041	0.0074	5
Fluorene	ND		mg/kg	0.041	0.0049	5
Phenanthrene	0.011	J	mg/kg	0.041	0.0035	5
Anthracene	ND		mg/kg	0.041	0.0033	5
Pyrene	0.0069	J	mg/kg	0.041	0.0029	5
Benzo(a)anthracene	ND		mg/kg	0.041	0.0039	5
Chrysene	ND		mg/kg	0.041	0.0031	5
Benzo(b)fluoranthene	ND		mg/kg	0.041	0.0039	5
Benzo(a)pyrene	ND		mg/kg	0.041	0.0049	5
Benzo(ghi)perylene	ND		mg/kg	0.041	0.0035	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 D
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/25/21 18:08
Analyst: RP
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.3		mg/kg	0.017	0.0030	2
Fluorene	0.0056	J	mg/kg	0.017	0.0020	2
Phenanthrene	0.0074	J	mg/kg	0.017	0.0014	2
Anthracene	0.0014	J	mg/kg	0.017	0.0013	2
Pyrene	0.0030	J	mg/kg	0.017	0.0012	2
Benzo(a)anthracene	0.0037	J	mg/kg	0.017	0.0016	2
Chrysene	ND		mg/kg	0.017	0.0012	2
Benzo(b)fluoranthene	ND		mg/kg	0.017	0.0016	2
Benzo(a)pyrene	ND		mg/kg	0.017	0.0020	2
Benzo(ghi)perylene	ND		mg/kg	0.017	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-09	Date Collected:	06/10/21 10:05
Client ID:	PB29-19-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/25/21 18:24		
Analyst:	RP		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.38		mg/kg	0.0084	0.0015	1
Fluorene	0.0021	J	mg/kg	0.0084	0.0010	1
Phenanthrene	0.0037	J	mg/kg	0.0084	0.00071	1
Anthracene	ND		mg/kg	0.0084	0.00067	1
Pyrene	0.0012	J	mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.0016	J	mg/kg	0.0084	0.00080	1
Chrysene	ND		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	ND		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	ND		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	ND		mg/kg	0.0084	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	40		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-10	Date Collected:	06/10/21 10:35
Client ID:	PB29-25-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 19:38		
Analyst:	RP		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.21		mg/kg	0.0082	0.0015	1
Fluorene	0.014		mg/kg	0.0082	0.00098	1
Phenanthrene	0.020		mg/kg	0.0082	0.00069	1
Anthracene	0.0043	J	mg/kg	0.0082	0.00065	1
Pyrene	0.014		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.0082		mg/kg	0.0082	0.00077	1
Chrysene	0.0070	J	mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	0.0095		mg/kg	0.0082	0.00077	1
Benzo(a)pyrene	0.0071	J	mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.0072	J	mg/kg	0.0082	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**144**	Q	23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-11	Date Collected:	06/10/21 10:45
Client ID:	PB29-26-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:23
Analytical Date:	06/24/21 19:54		
Analyst:	RP		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.12		mg/kg	0.0083	0.0015	1
Fluorene	0.088		mg/kg	0.0083	0.0010	1
Phenanthrene	0.18		mg/kg	0.0083	0.00071	1
Anthracene	0.044		mg/kg	0.0083	0.00066	1
Pyrene	0.028		mg/kg	0.0083	0.00058	1
Benzo(a)anthracene	0.0092		mg/kg	0.0083	0.00079	1
Chrysene	0.0079	J	mg/kg	0.0083	0.00062	1
Benzo(b)fluoranthene	0.0064	J	mg/kg	0.0083	0.00079	1
Benzo(a)pyrene	0.0043	J	mg/kg	0.0083	0.0010	1
Benzo(ghi)perylene	0.0020	J	mg/kg	0.0083	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**167**	Q	23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12
Client ID: PB29-27-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 11:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 20:10
Analyst: RP
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0082	0.0015	1
Fluorene	0.0020	J	mg/kg	0.0082	0.00098	1
Phenanthrene	0.0022	J	mg/kg	0.0082	0.00070	1
Anthracene	ND		mg/kg	0.0082	0.00066	1
Pyrene	ND		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.00082	J	mg/kg	0.0082	0.00078	1
Chrysene	ND		mg/kg	0.0082	0.00061	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	**152**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	89		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 D
Client ID: PB29-24-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 11:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/25/21 18:41
Analyst: RP
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.0		mg/kg	0.016	0.0030	2
Fluorene	0.0074	J	mg/kg	0.016	0.0020	2
Phenanthrene	0.011	J	mg/kg	0.016	0.0014	2
Anthracene	0.0022	J	mg/kg	0.016	0.0013	2
Pyrene	0.0056	J	mg/kg	0.016	0.0012	2
Benzo(a)anthracene	0.0077	J	mg/kg	0.016	0.0016	2
Chrysene	0.0052	J	mg/kg	0.016	0.0012	2
Benzo(b)fluoranthene	0.0074	J	mg/kg	0.016	0.0016	2
Benzo(a)pyrene	0.0049	J	mg/kg	0.016	0.0020	2
Benzo(ghi)perylene	0.0040	J	mg/kg	0.016	0.0014	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-14	Date Collected:	06/10/21 12:35
Client ID:	PB29-14-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:24
Analytical Date:	06/24/21 20:43		
Analyst:	RP		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.011		mg/kg	0.0079	0.0014	1
Fluorene	0.016		mg/kg	0.0079	0.00095	1
Phenanthrene	0.19		mg/kg	0.0079	0.00068	1
Anthracene	0.043		mg/kg	0.0079	0.00064	1
Pyrene	0.22		mg/kg	0.0079	0.00056	1
Benzo(a)anthracene	0.17		mg/kg	0.0079	0.00075	1
Chrysene	0.14		mg/kg	0.0079	0.00060	1
Benzo(b)fluoranthene	0.25		mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.20		mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.12		mg/kg	0.0079	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**147**	Q	23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-15	Date Collected:	06/10/21 12:55
Client ID:	PB29-15-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:24
Analytical Date:	06/24/21 20:59		
Analyst:	RP		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0062	J	mg/kg	0.0081	0.0014	1
Fluorene	ND		mg/kg	0.0081	0.00097	1
Phenanthrene	0.0043	J	mg/kg	0.0081	0.00068	1
Anthracene	0.0013	J	mg/kg	0.0081	0.00064	1
Pyrene	0.0079	J	mg/kg	0.0081	0.00056	1
Benzo(a)anthracene	0.012		mg/kg	0.0081	0.00077	1
Chrysene	0.0095		mg/kg	0.0081	0.00060	1
Benzo(b)fluoranthene	0.023		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.019		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.015		mg/kg	0.0081	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**142**	Q	23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	79		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-16 D	Date Collected:	06/10/21 13:05
Client ID:	PB29-18-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	06/23/21 01:24
Analytical Date:	06/24/21 21:15		
Analyst:	RP		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012	J	mg/kg	0.038	0.0068	5
Fluorene	ND		mg/kg	0.038	0.0045	5
Phenanthrene	0.044		mg/kg	0.038	0.0032	5
Anthracene	0.017	J	mg/kg	0.038	0.0030	5
Pyrene	0.076		mg/kg	0.038	0.0026	5
Benzo(a)anthracene	0.076		mg/kg	0.038	0.0036	5
Chrysene	0.080		mg/kg	0.038	0.0028	5
Benzo(b)fluoranthene	0.28		mg/kg	0.038	0.0036	5
Benzo(a)pyrene	0.20		mg/kg	0.038	0.0045	5
Benzo(ghi)perylene	0.22		mg/kg	0.038	0.0032	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
Date Collected: 06/10/21 13:20
Client ID: PB29-17-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Extraction Method: EPA 3546
Analytical Method: 1,8270D-SIM
Extraction Date: 06/23/21 01:24
Analytical Date: 06/24/21 21:32
Analyst: RP
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0027	J	mg/kg	0.0084	0.0015	1
Fluorene	ND		mg/kg	0.0084	0.0010	1
Phenanthrene	0.0064	J	mg/kg	0.0084	0.00072	1
Anthracene	0.0026	J	mg/kg	0.0084	0.00068	1
Pyrene	0.013		mg/kg	0.0084	0.00059	1
Benzo(a)anthracene	0.029		mg/kg	0.0084	0.00080	1
Chrysene	0.019		mg/kg	0.0084	0.00063	1
Benzo(b)fluoranthene	0.061		mg/kg	0.0084	0.00080	1
Benzo(a)pyrene	0.050		mg/kg	0.0084	0.0010	1
Benzo(ghi)perylene	0.041		mg/kg	0.0084	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**146**	Q	23-120
2-Fluorobiphenyl	87		30-120
4-Terphenyl-d14	83		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Client ID: DUP-5
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 07:50
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 21:48
Analyst: RP
Percent Solids: 87%
Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.44		mg/kg	0.0075	0.0014	1
Fluorene	0.0056	J	mg/kg	0.0075	0.00090	1
Phenanthrene	0.011		mg/kg	0.0075	0.00064	1
Anthracene	0.0020	J	mg/kg	0.0075	0.00060	1
Pyrene	0.0055	J	mg/kg	0.0075	0.00053	1
Benzo(a)anthracene	0.0036	J	mg/kg	0.0075	0.00072	1
Chrysene	0.0029	J	mg/kg	0.0075	0.00056	1
Benzo(b)fluoranthene	0.0040	J	mg/kg	0.0075	0.00072	1
Benzo(a)pyrene	0.0029	J	mg/kg	0.0075	0.00090	1
Benzo(ghi)perylene	0.0035	J	mg/kg	0.0075	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**149**	Q	23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-23
Client ID: FB-210610-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 12:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/18/21 18:18
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 06/17/21 08:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	87		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24
Client ID: FB-210610-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 14:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 06/18/21 18:38
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 06/17/21 08:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	89		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/17/21 11:45
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 06/16/21 09:34

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 23-24 Batch: WG1512751-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	36		21-120
Phenol-d6	28		10-120
Nitrobenzene-d5	43		23-120
2-Fluorobiphenyl	42		15-120
2,4,6-Tribromophenol	57		10-120
4-Terphenyl-d14	49		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 06/24/21 16:39
Analyst: RP

Extraction Method: EPA 3546
Extraction Date: 06/23/21 01:23

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-17,22 Batch: WG1515702-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00079
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00052
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	0.00082	J	mg/kg	0.0066	0.00062
Chrysene	0.00079	J	mg/kg	0.0066	0.00049
Benzo(b)fluoranthene	0.0017	J	mg/kg	0.0066	0.00062
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00079
Benzo(ghi)perylene	0.0015	J	mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	100		25-120
Phenol-d6	106		10-120
Nitrobenzene-d5	**128**	Q	23-120
2-Fluorobiphenyl	77		30-120
2,4,6-Tribromophenol	88		10-136
4-Terphenyl-d14	93		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 23-24 Batch: WG1512751-2 WG1512751-3								
Naphthalene	41		62		40-140	**41**	Q	40
Fluorene	48		69		40-140	36		40
Phenanthrene	48		64		40-140	29		40
Anthracene	52		69		40-140	28		40
Pyrene	50		66		26-127	28		40
Benzo(a)anthracene	50		64		40-140	25		40
Chrysene	54		75		40-140	33		40
Benzo(b)fluoranthene	53		68		40-140	25		40
Benzo(a)pyrene	54		71		40-140	27		40
Benzo(ghi)perylene	52		68		40-140	27		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	35		53		21-120
Phenol-d6	31		44		10-120
Nitrobenzene-d5	40		62		23-120
2-Fluorobiphenyl	42		60		15-120
2,4,6-Tribromophenol	66		95		10-120
4-Terphenyl-d14	51		66		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-17,22 Batch: WG1515702-2 WG1515702-3								
Naphthalene	51		53		40-140	4		50
Fluorene	52		54		40-140	4		50
Phenanthrene	49		51		40-140	4		50
Anthracene	52		55		40-140	6		50
Pyrene	52		57		35-142	9		50
Benzo(a)anthracene	51		56		40-140	9		50
Chrysene	46		50		40-140	8		50
Benzo(b)fluoranthene	53		57		40-140	7		50
Benzo(a)pyrene	55		57		40-140	4		50
Benzo(ghi)perylene	50		51		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	57		60		25-120
Phenol-d6	55		58		10-120
Nitrobenzene-d5	56		58		23-120
2-Fluorobiphenyl	49		50		30-120
2,4,6-Tribromophenol	48		51		10-136
4-Terphenyl-d14	46		49		18-120

METALS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-01	Date Collected:	06/10/21 07:40
Client ID:	PB29-11-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.15		mg/kg	2.35	0.126	1	06/18/21 21:00	06/24/21 22:41	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02 Date Collected: 06/10/21 08:00
Client ID: PB29-12-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.89		mg/kg	2.40	0.128	1	06/18/21 21:00	06/24/21 23:00	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03 Date Collected: 06/10/21 08:10
Client ID: PB29-13-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.68		mg/kg	2.45	0.131	1	06/18/21 21:00	06/24/21 23:04	EPA 3050B	1,6010D	BV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-04	Date Collected:	06/10/21 08:15
Client ID:	PB29-16-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.72		mg/kg	2.34	0.126	1	06/18/21 21:00	06/24/21 23:09	EPA 3050B	1,6010D	BV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-05	Date Collected:	06/10/21 08:40
Client ID:	PB29-21-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	11.9		mg/kg	2.29	0.122	1	06/18/21 21:00	06/24/21 23:13	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06 Date Collected: 06/10/21 08:55
Client ID: PB29-20-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	37.3		mg/kg	2.18	0.117	1	06/18/21 21:00	06/28/21 18:50	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07 Date Collected: 06/10/21 09:10
Client ID: PB29-22-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.7		mg/kg	2.33	0.125	1	06/18/21 21:00	06/28/21 18:55	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08 | Date Collected: 06/10/21 09:20

Client ID: PB29-23-SS01 | Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.46		mg/kg	2.53	0.136	1	06/18/21 21:00	06/28/21 19:00	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09 Date Collected: 06/10/21 10:05

Client ID: PB29-19-SS01 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.8		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:05	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10 Date Collected: 06/10/21 10:35

Client ID: PB29-25-SS01 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.6		mg/kg	2.42	0.130	1	06/18/21 21:00	06/28/21 19:10	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11 Date Collected: 06/10/21 10:45
Client ID: PB29-26-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.93		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:15	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-12	Date Collected:	06/10/21 11:00
Client ID:	PB29-27-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.15		mg/kg	2.40	0.129	1	06/18/21 21:00	06/28/21 19:20	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13 | Date Collected: 06/10/21 11:40

Client ID: PB29-24-SS01 | Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.0		mg/kg	2.39	0.128	1	06/18/21 21:00	06/28/21 19:25	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
Date Collected: 06/10/21 12:35
Client ID: PB29-14-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	84.5		mg/kg	2.38	0.128	1	06/18/21 21:00	06/28/21 19:29	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
Date Collected: 06/10/21 12:55
Client ID: PB29-15-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2110		mg/kg	2.32	0.124	1	06/18/21 21:00	07/02/21 15:33	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-16	Date Collected:	06/10/21 13:05
Client ID:	PB29-18-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	96.2		mg/kg	2.28	0.122	1	06/18/21 21:00	07/02/21 15:48	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-17	Date Collected:	06/10/21 13:20
Client ID:	PB29-17-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	105		mg/kg	2.49	0.133	1	06/18/21 21:00	07/02/21 15:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18
Date Collected: 06/10/21 13:40
Client ID: PB33-01-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.89		mg/kg	2.42	0.130	1	06/18/21 21:00	07/02/21 15:58	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-19	Date Collected:	06/10/21 13:50
Client ID:	PB33-02-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.41		mg/kg	2.44	0.131	1	06/18/21 21:00	07/02/21 16:02	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20 Date Collected: 06/10/21 14:05

Client ID: PB33-03-SS01 Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.57		mg/kg	2.56	0.137	1	06/18/21 21:00	07/02/21 16:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131453

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21

Date Collected: 06/10/21 14:10

Client ID: PB33-04-SS01

Date Received: 06/10/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.30	0.123	1	06/19/21 09:25	06/22/21 13:36	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Date Collected: 06/10/21 07:50
Client ID: DUP-5
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.85		mg/kg	2.23	0.119	1	06/19/21 09:25	06/22/21 13:40	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-23	Date Collected:	06/10/21 12:00
Client ID:	FB-210610-1	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 23:03	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-24 Date Collected: 06/10/21 14:00
Client ID: FB-210610-2 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 23:08	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1512604-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/18/21 07:27	06/18/21 18:30	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1514044-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/18/21 21:00	06/24/21 22:23	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1514081-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/19/21 09:25	06/22/21 11:57	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1512604-2								
Lead, Total	104		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514044-2 SRM Lot Number: D109-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1514081-2 SRM Lot Number: D109-540								
Lead, Total	88		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1512604-3 QC Sample: L2129208-01 Client ID: MS Sample												
Lead, Total	1.145	510	510.7	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-3 QC Sample: L2131453-01 Client ID: PB29-11-SS01												
Lead, Total	5.15	47.2	27.4	**47**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-3 QC Sample: L2131446-01 Client ID: MS Sample												
Lead, Total	35.5	47.3	97.3	**131**	Q	-	-		75-125	-		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2131453
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514044-4 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Lead, Total	5.15	6.83	mg/kg	**28**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1514081-4 QC Sample: L2131446-01 Client ID: DUP Sample						
Lead, Total	35.5	78.4	mg/kg	**75**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-01
Client ID: PB29-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 07:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-02
Date Collected: 06/10/21 08:00
Client ID: PB29-12-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-03 Date Collected: 06/10/21 08:10
Client ID: PB29-13-SS01 Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.1		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-04
Client ID: PB29-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 08:15
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-05
Client ID: PB29-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-06
Client ID: PB29-20-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 08:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-07
Date Collected: 06/10/21 09:10
Client ID: PB29-22-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-08
Client ID: PB29-23-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 09:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-09
Client ID: PB29-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 10:05
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-10
Date Collected: 06/10/21 10:35
Client ID: PB29-25-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131453
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-11 | Date Collected: 06/10/21 10:45
Client ID: PB29-26-SS01 | Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131453
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-12
Client ID: PB29-27-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 11:00
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-13
Client ID: PB29-24-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 11:40
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-14
Client ID: PB29-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/10/21 12:35
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-15
Client ID: PB29-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 12:55
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131453-16	Date Collected:	06/10/21 13:05
Client ID:	PB29-18-SS01	Date Received:	06/10/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-17
Client ID: PB29-17-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/10/21 13:20
Date Received: 06/10/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	06/12/21 08:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-18
Date Collected: 06/10/21 13:40
Client ID: PB33-01-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.4		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-19
Date Collected: 06/10/21 13:50
Client ID: PB33-02-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-20
Date Collected: 06/10/21 14:05
Client ID: PB33-03-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-21
Date Collected: 06/10/21 14:10
Client ID: PB33-04-SS01
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131453
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131453-22
Date Collected: 06/10/21 07:50
Client ID: DUP-5
Date Received: 06/10/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	06/12/21 12:28	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131453

Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,05-17 QC Batch ID: WG1511236-1 QC Sample: L2131453-01 Client ID: PB29-11-SS01						
Solids, Total	81.4	80.7	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 04,18-22 QC Batch ID: WG1511291-1 QC Sample: L2127720-05 Client ID: DUP Sample						
Solids, Total	69.1	69.2	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-01A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-01B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-01D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-01F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-02A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-02B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-02D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-02F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-03A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-03B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-03D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-03F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-04A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-04B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-04C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-04E	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		TS(7),PA-8270SIM(14)
L2131453-05A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2131453-05B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-05D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-05F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-06A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-06B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-06D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-06F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-07A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-07B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-07D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-07F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-08A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-08B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-08D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-08F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-09A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-09B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-09C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-09D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-09F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-10A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-10B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-10D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-10F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-11A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-11B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-11D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-11F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-12A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-12B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-12D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-12F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)
L2131453-13A	Vial MeOH preserved	A	NA		4.5	Y	Absent		PA-8260HLW(14)
L2131453-13B	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13C	Vial water preserved	A	NA		4.5	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-13D	Plastic 120ml unpreserved	A	NA		4.5	Y	Absent		TS(7)
L2131453-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.5	Y	Absent		PB-TI(180)
L2131453-13F	Glass 120ml/4oz unpreserved	A	NA		4.5	Y	Absent		PA-8270SIM(14)

*Values in parentheses indicate holding time in days

Serial_No:07062117:08

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-14A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-14B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-14D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-14E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-14F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-15A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-15B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-15D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-15F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-16A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-16B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-16D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-16E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-16F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-17A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-17B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-17D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-17E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-17F	Glass 120ml/4oz unpreserved	C	NA		3.0	Y	Absent		PA-8270SIM(14)
L2131453-18A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-18B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-18D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131453
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-18E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-19A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-19B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-19D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-19E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-20A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-20B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-20D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-20E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-21A	Vial MeOH preserved	C	NA		3.0	Y	Absent		PA-8260HLW(14)
L2131453-21B	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21C	Vial water preserved	C	NA		3.0	Y	Absent	11-JUN-21 09:42	PA-8260HLW(14)
L2131453-21D	Plastic 120ml unpreserved	C	NA		3.0	Y	Absent		PB-TI(180)
L2131453-21E	Glass 60mL/2oz unpreserved	C	NA		3.0	Y	Absent		TS(7)
L2131453-22A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131453-22B	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22C	Vial water preserved	B	NA		2.6	Y	Absent	11-JUN-21 09:42	PA-8260H(14),PA-8260HLW(14)
L2131453-22D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2131453-22E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.6	Y	Absent		PB-TI(180)
L2131453-22F	Glass 120ml/4oz unpreserved	B	NA		2.6	Y	Absent		PA-8270SIM(14)
L2131453-23A	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23B	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23C	Vial HCl preserved	B	NA		2.6	Y	Absent		PA-8260(14)
L2131453-23D	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23E	Vial Na2S2O3 preserved	B	NA		2.6	Y	Absent		8011(14)
L2131453-23F	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131453-23G	Amber 250ml unpreserved	B	7	7	2.6	Y	Absent		PA-8270SIM-LVI(7)
L2131453-23H	Plastic 250ml HNO3 preserved	B	<2	<2	2.6	Y	Absent		PB-6020T-PPB(180)
L2131453-24A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24C	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-24D	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24E	Vial Na2S2O3 preserved	C	NA		3.0	Y	Absent		8011(14)
L2131453-24F	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24G	Amber 250ml unpreserved	C	7	7	3.0	Y	Absent		PA-8270SIM-LVI(7)
L2131453-24H	Plastic 250ml HNO3 preserved	C	<2	<2	3.0	Y	Absent		PB-6020T-PPB(180)
L2131453-25A	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)
L2131453-25B	Vial HCl preserved	C	NA		3.0	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131453
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF COUSTODY

PAGE 1 OF 3

Date Rec'd in Lab: 06 | 11 | 21 | ALPHA Job #: L2131453

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31453-01	PB29-11-SS01	6/10	740	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-02	PB29-12-SS01	↓	800	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB29-13-SS01		810			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB29-16-SS01		815			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB29-21-SS01		840			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB29-20-SS01		855			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB29-22-SS01		910			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB29-23-SS01		920			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB29-19-SS01		1005			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB29-25-SS01	↓	1035	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/10/1540	[signature]	6/10/21 1540
[signature]	6/10/21/1800	[signature]	6/10/21 1800
[signature]	6/10 2400	[signature]	6/11/21 0220
[signature] 7/6/11 0200		[signature]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 06/11/21

ALPHA Job #: L2131453

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31453-11	PB29-26-SS01	6/10	1045	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-12	PB29-27-SS01	↓	1100	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-13	PB29-2A-SS01	↓	1140	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-14	PB29-~~14~~-SS01	↓	1235	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-15	PB29-15-SS01	↓	1255	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-16	PB29-18-SS01	↓	1305	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-17	PB29-17-SS01	↓	1320	↓	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-18	PB33-01-SS01	↓	1340	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB33-02-SS01	↓	TS ~~1405~~ 1350	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	PB33-03-SS01	↓	1405	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/10 1540	[signature] AAC	6/10/21 1540
AAC	6/10/21 1800	[signature] AAC	6-10 1800
[signature] AAC	6-10 2200	[signature]	6/10 2200
[signature]	6/11 0200	[signature]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Serial_No:07062117:08

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 06/11/21

ALPHA Job #: L2131453

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist	SHORTLIST 1-5	Sample Specific Comments	TOTAL # BOTTLES
31453-21	PB33-04-SS01	6/10	1410	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	DUP-5	6/10	750	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	FB-210610-1	6/10	1200	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-24	FB-210610-2	6/10	1400	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-25	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑		2

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/10 1540	[signature] AAC	6/10/21 1540
[signature] AAC	6/10/21 1800	[signature] AAC	6-10-1800
[signature] AAC	6-10 2210	[signature] 6/10 2200	
[signature] 6/11 0200		[signature]	6/11/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

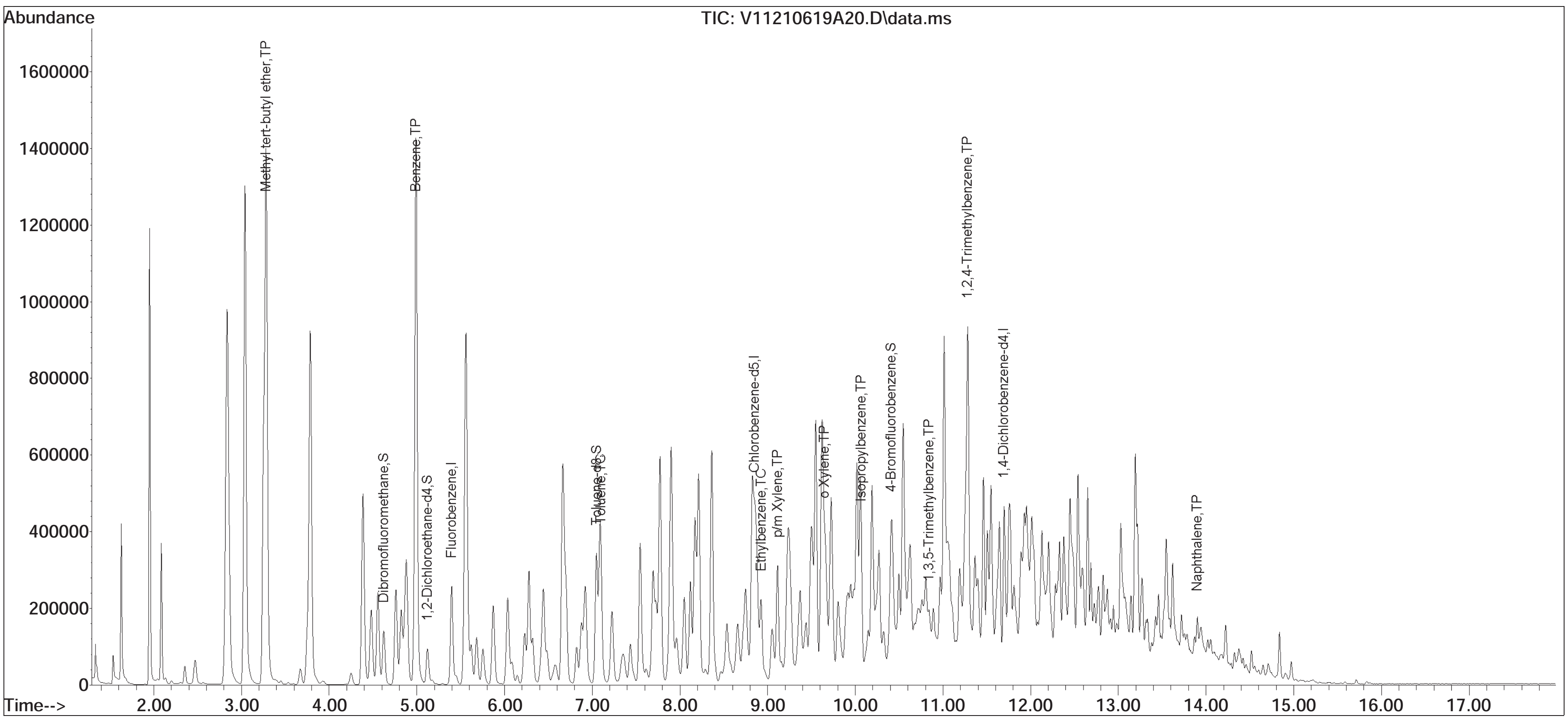
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A20.D
Acq On    : 19 Jun 2021  03:18 pm
Operator  : VOA111:NLK
Sample    : L2131453-02,31H,6.12,5,0.100,,A
Misc      : WG1514517,ICAL18049
ALS Vial  : 20   Sample Multiplier: 1

Quant Time: Jun 20 08:23:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•
```

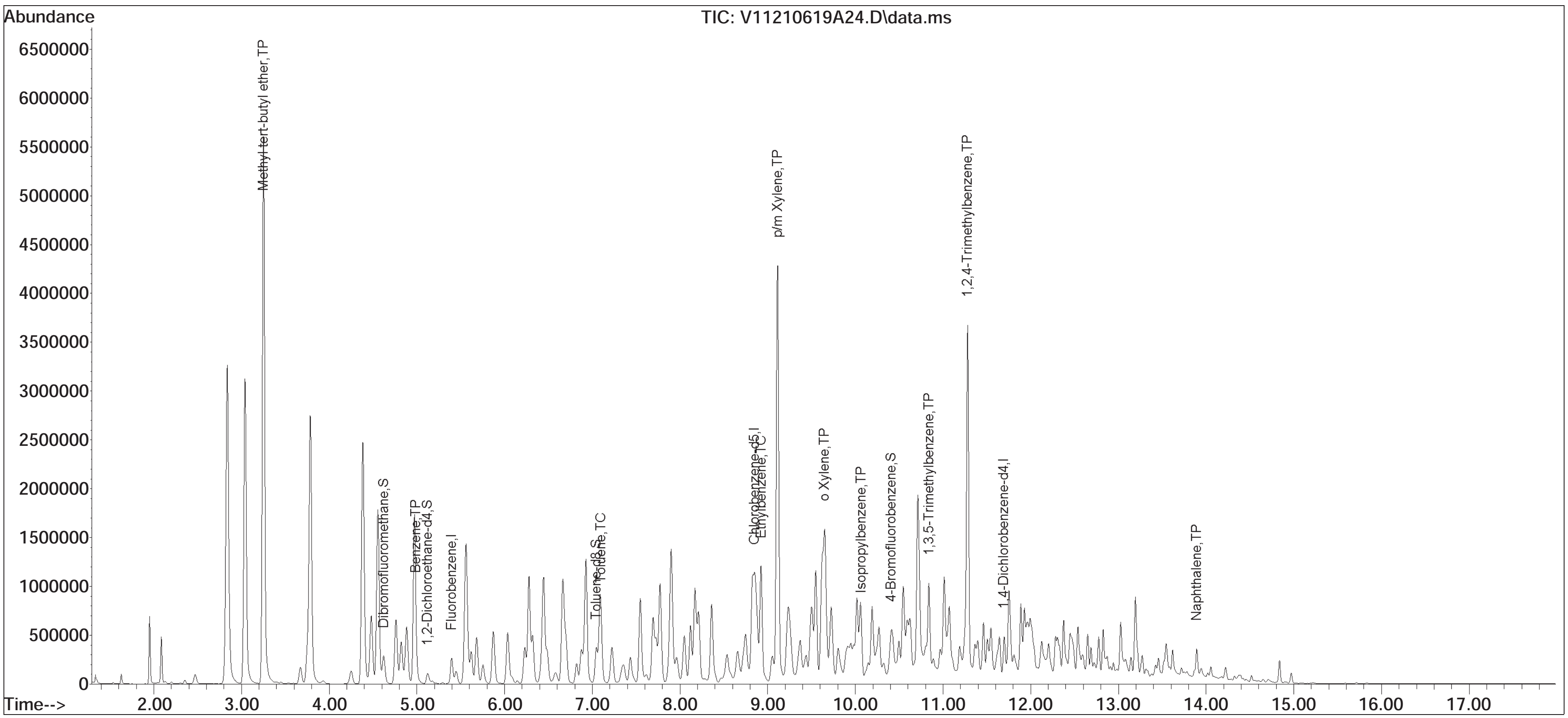


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A24.D
Acq On : 19 Jun 2021 04:59 pm
Operator : VOA111:NLK
Sample : L2131453-03,31H,5.02,5,0.100,,A
Misc : WG1514517,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 20 08:23:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

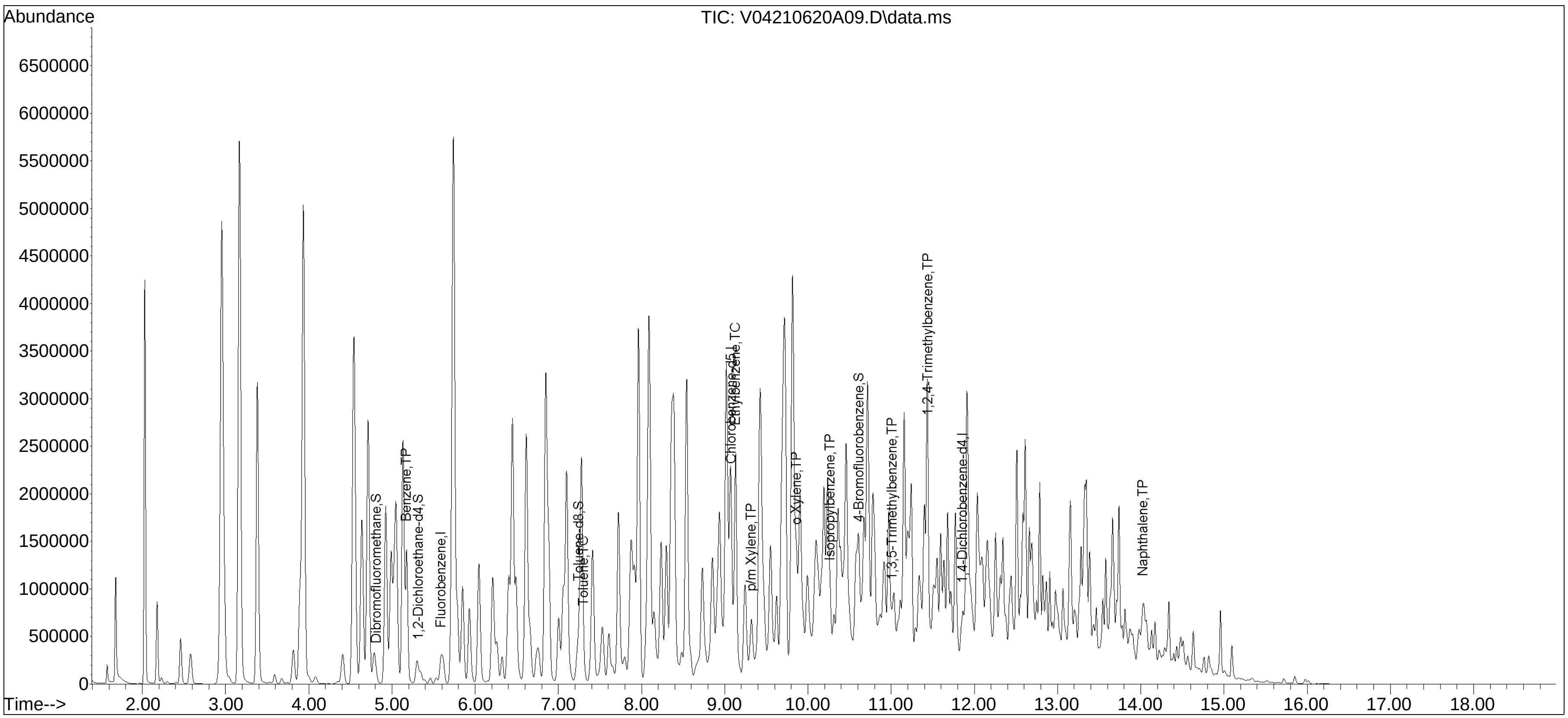


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A09.D
Acq On : 20 Jun 2021 5:02 pm
Operator : VOA104:JC
Sample : L2131453-04,31H,6.00,5,0.100,,A
Misc : WG1514499,ICAL18000
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 21 06:29:15 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

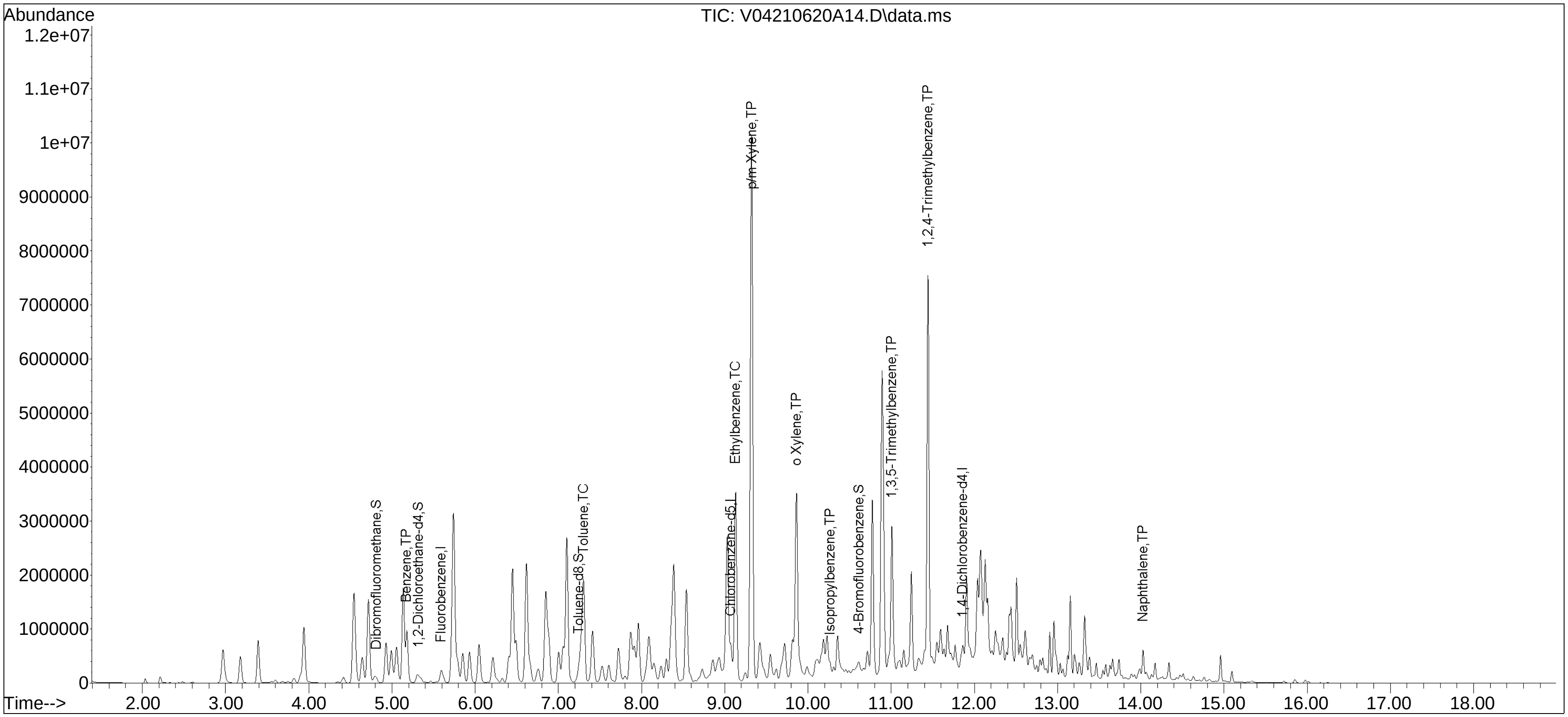


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A14.D
Acq On : 20 Jun 2021 7:08 pm
Operator : VOA104:JC
Sample : L2131453-08D2,31H,6.06,5,0.020,,A
Misc : WG1514499,ICAL18000
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 21 06:03:38 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•



Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A10.D
Acq On    : 20 Jun 2021   5:27 pm
Operator  : VOA104:JC
Sample    : L2131453-10,31H,4.83,5,0.100,,A
Misc      : WG1514499,ICAL18000
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Jun 21 06:31:08 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•
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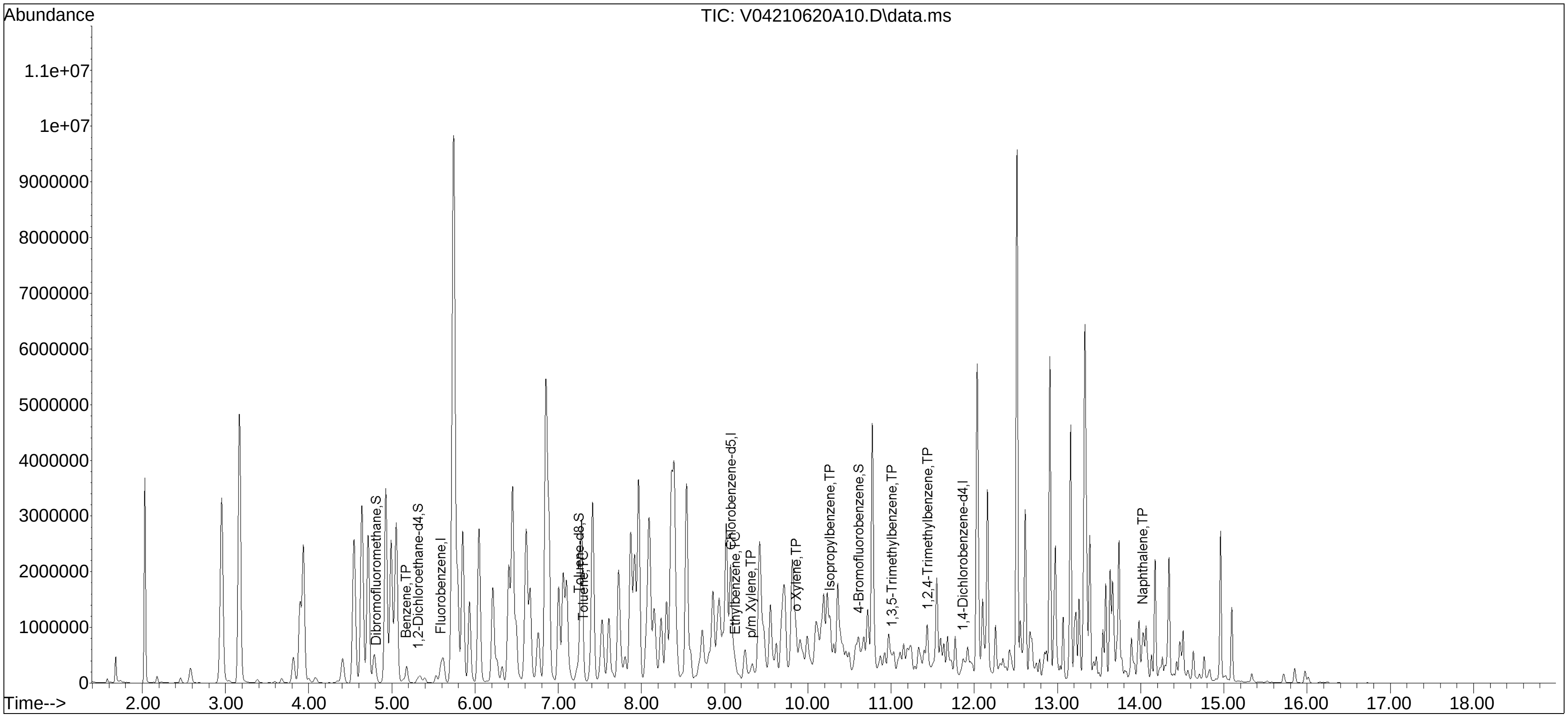
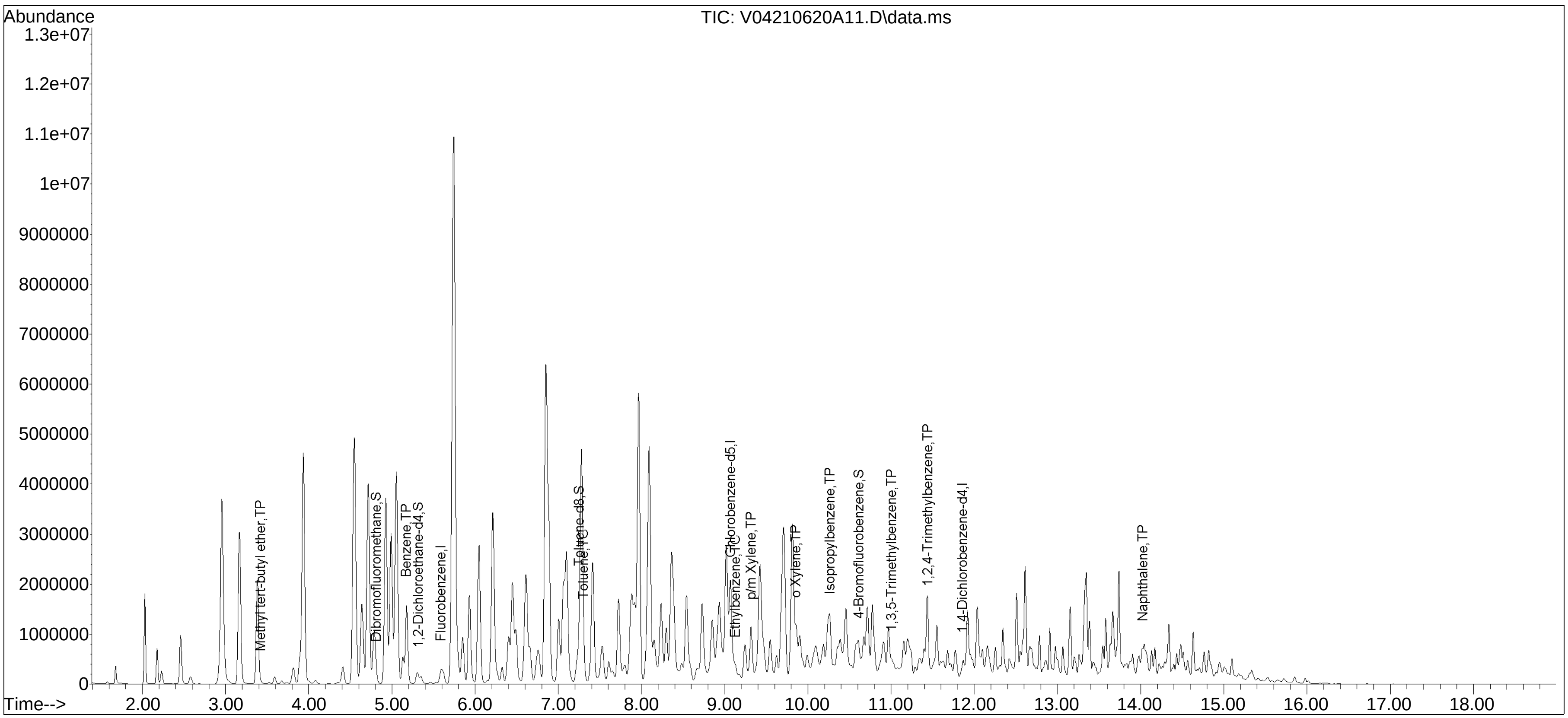


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A11.D
Acq On : 20 Jun 2021 5:52 pm
Operator : VOA104:JC
Sample : L2131453-11,31H,5.21,5,0.100,,A
Misc : WG1514499,ICAL18000
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jun 21 06:31:51 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

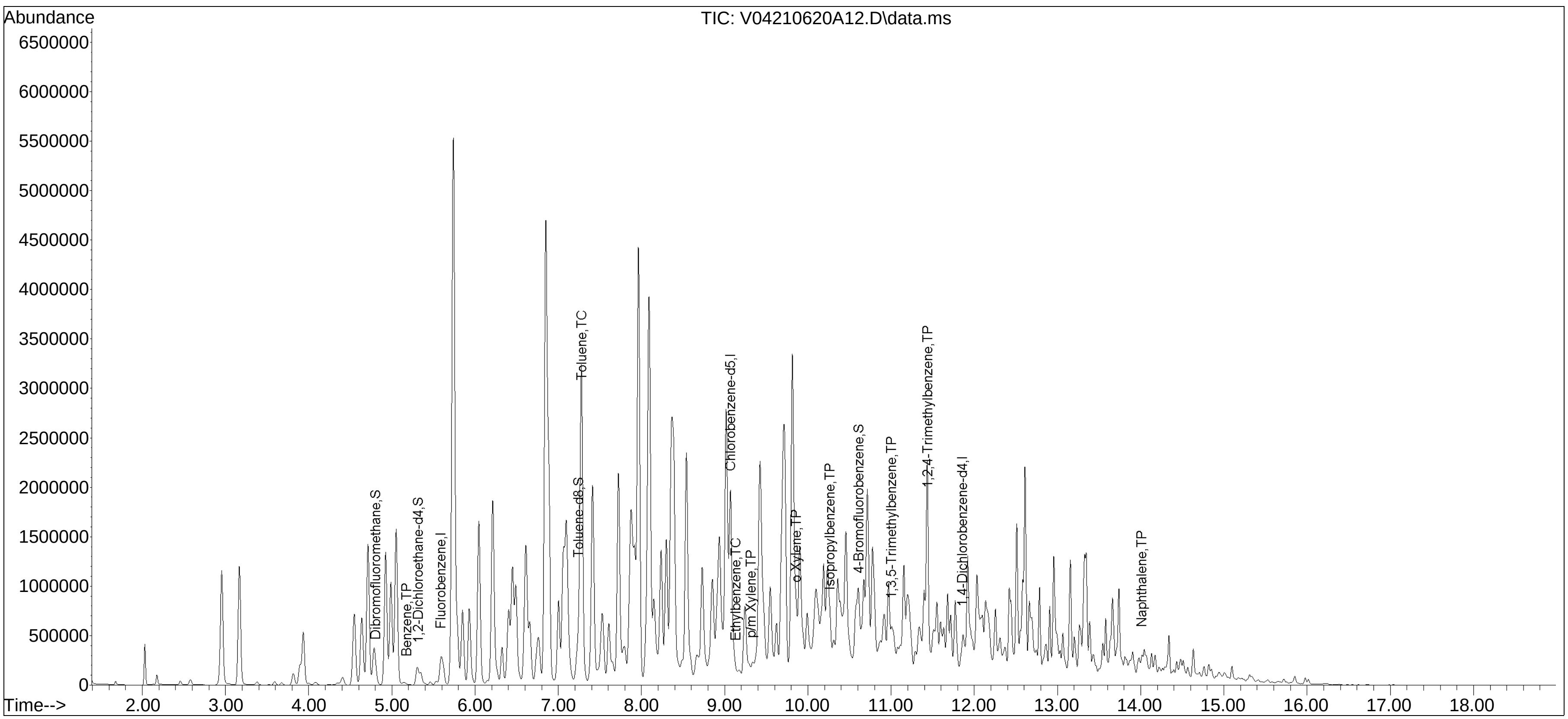


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A12.D
Acq On : 20 Jun 2021 6:18 pm
Operator : VOA104:JC
Sample : L2131453-12,31H,5.71,5,0.100,,A
Misc : WG1514499,ICAL18000
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jun 21 06:32:33 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

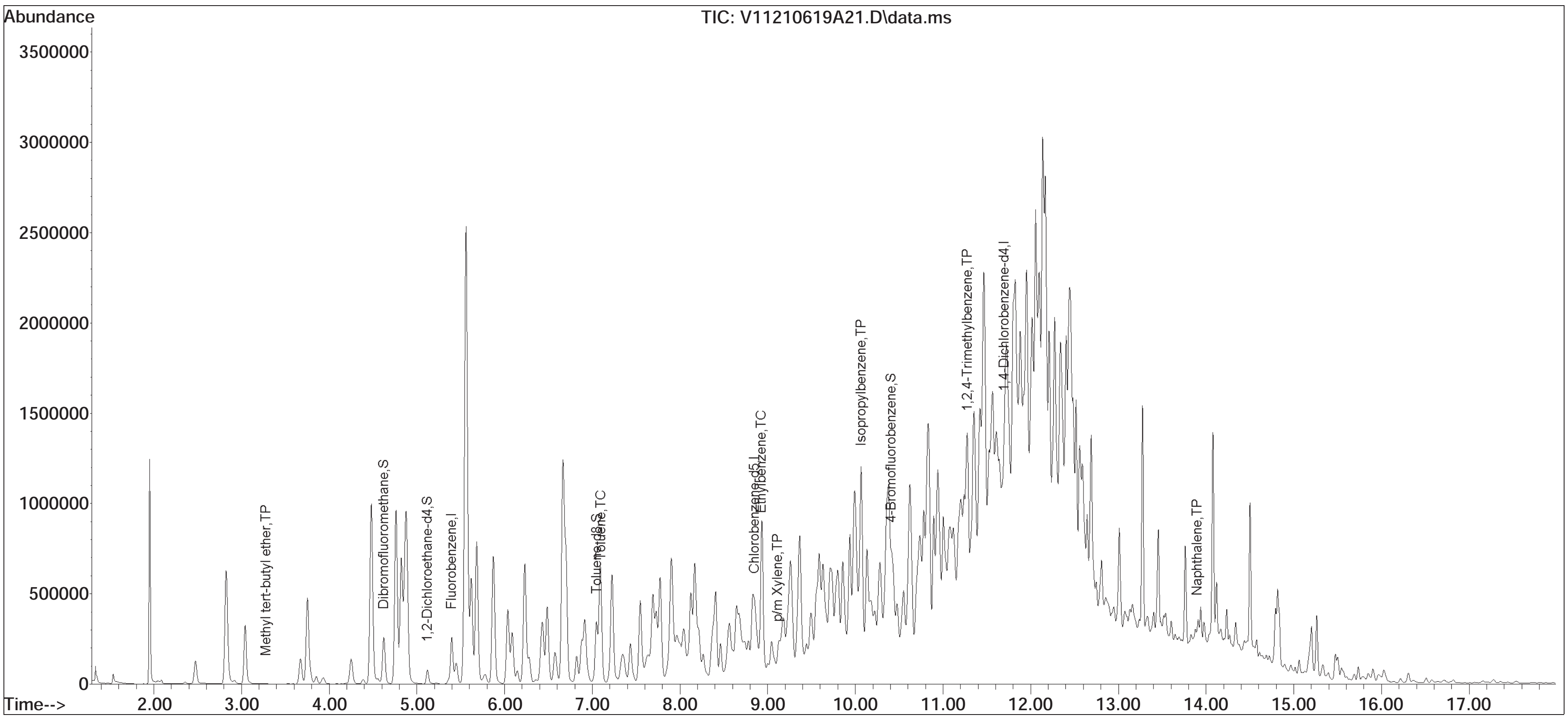


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210619A\
Data File : V11210619A21.D
Acq On   : 19 Jun 2021 03:43 pm
Operator : VOA111:NLK
Sample   : L2131453-17,31H,5.79,5,0.100,,A
Misc   : WG1514517,ICAL18049
ALS Vial : 21   Sample Multiplier: 1

Quant Time: Jun 20 13:27:50 2021
Quant Method : I:\VOLATILES\VOA111\2021\210619A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list19A\V11210619A01.D•

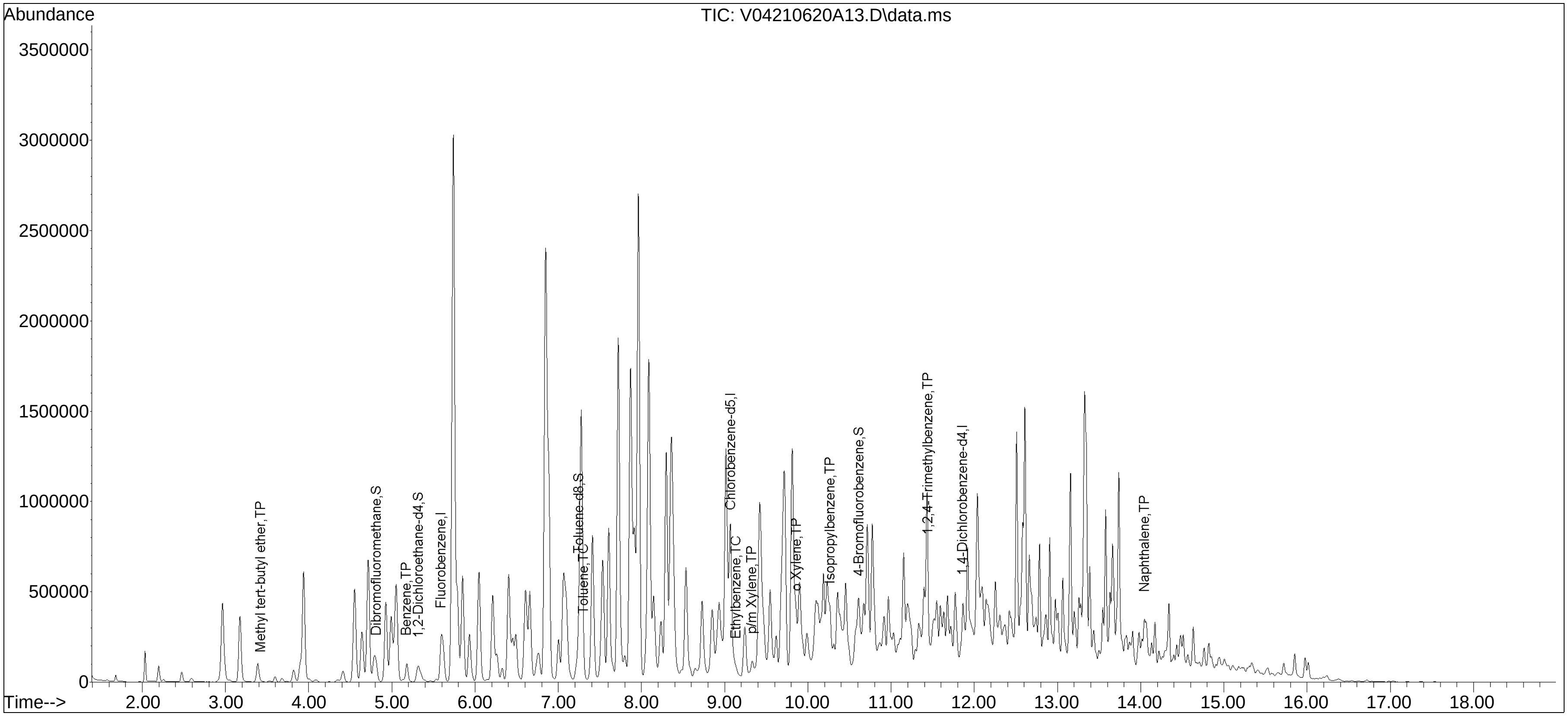


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210620A\
Data File : V04210620A13.D
Acq On : 20 Jun 2021 6:43 pm
Operator : VOA104:JC
Sample : L2131453-18D,31H,6.54,5,0.050,,A
Misc : WG1514499,ICAL18000
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 21 06:03:34 2021
Quant Method : I:\VOLATILES\VOA104\2021\210620A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V04210620A01.D•

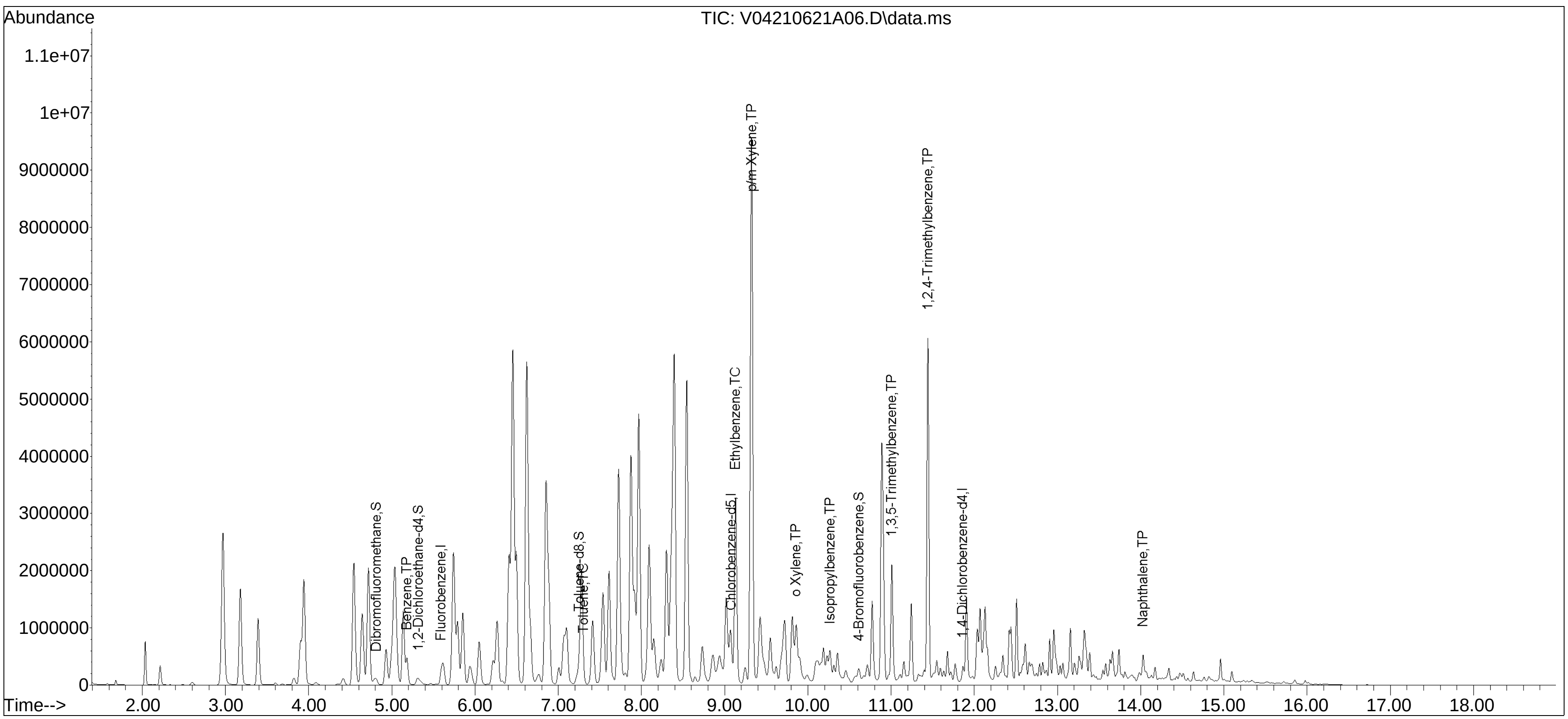


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\210621A\
Data File : V04210621A06.D
Acq On   : 21 Jun 2021   9:22 am
Operator : VOA104:JC
Sample   : L2131453-21D2,31H,6.42,5,0.020,,A
Misc   : WG1514499,ICAL18000
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Jun 21 11:54:30 2021
Quant Method : I:\VOLATILES\VOA104\2021\210621A\V104_210526A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list21A\V04210621A01.D•



ANALYTICAL REPORT

Lab Number:	L2131595
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2131595-01	PB33-05-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:30	06/11/21
L2131595-02	PB33-06-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:40	06/11/21
L2131595-03	PB33-07-SS01	SOIL	PHILADELPHIA, PA	06/11/21 07:50	06/11/21
L2131595-04	PB33-08-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:10	06/11/21
L2131595-05	PB33-09-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:20	06/11/21
L2131595-06	PB33-10-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:35	06/11/21
L2131595-07	PB33-11-SS01	SOIL	PHILADELPHIA, PA	06/11/21 08:45	06/11/21
L2131595-08	PB33-12-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:00	06/11/21
L2131595-09	PB33-13-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:10	06/11/21
L2131595-10	PB33-14-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:20	06/11/21
L2131595-11	PB33-15-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:30	06/11/21
L2131595-12	PB33-16-SS01	SOIL	PHILADELPHIA, PA	06/11/21 09:45	06/11/21
L2131595-13	PB33-17-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:00	06/11/21
L2131595-14	PB33-18-SS01	SOIL	PHILADELPHIA, PA	06/11/21 10:10	06/11/21
L2131595-15	PB33-19-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:20	06/11/21
L2131595-16	PB33-20-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:40	06/11/21
L2131595-17	PB33-21-SS01	SOIL	PHILADELPHIA, PA	06/11/21 11:50	06/11/21
L2131595-18	PB33-22-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:05	06/11/21
L2131595-19	PB33-23-SS01	SOIL	PHILADELPHIA, PA	06/11/21 12:20	06/11/21
L2131595-20	DUP-6	SOIL	PHILADELPHIA, PA	06/11/21 07:35	06/11/21
L2131595-21	FB-210611-1	WATER	PHILADELPHIA, PA	06/11/21 12:30	06/11/21
L2131595-22	FB-210611-2	WATER	PHILADELPHIA, PA	06/11/21 13:00	06/11/21
L2131595-23	TB	WATER	PHILADELPHIA, PA	06/11/21 07:30	06/11/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2131595-23: Headspace was noted in the sample containers submitted for PA Volatile Organics - EPA 8260C. The analysis was performed.

Volatile Organics

L2131595-02 and -06: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2131595-02 and -06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (137%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-04: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (143%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (131%) and 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-07D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (135%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2131595-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (292%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (465%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-12: The internal standard (IS) response(s) for fluorobenzene (265%) and the surrogate recoveries for dibromofluoromethane (59%) and 1,2-dichloroethane-d4 (140%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2131595-14D: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2131595-14D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/06/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01 D2
Client ID: PB33-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 14:18
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.53	J	mg/kg	0.63	0.064	5
Benzene	46.		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.32	0.081	5
Toluene	190	E	mg/kg	0.32	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.093	5
Ethylbenzene	83.		mg/kg	0.32	0.045	5
p/m-Xylene	310	E	mg/kg	0.63	0.18	5
o-Xylene	100		mg/kg	0.32	0.092	5
Isopropylbenzene	12.		mg/kg	0.32	0.034	5
1,3,5-Trimethylbenzene	53.		mg/kg	0.63	0.061	5
1,2,4-Trimethylbenzene	180	E	mg/kg	0.63	0.10	5
Naphthalene	15.		mg/kg	1.3	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01 D
Client ID: PB33-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:43
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	180		mg/kg	1.3	0.69	20
p/m-Xylene	310		mg/kg	2.5	0.71	20
Xylenes, Total	410		mg/kg	0.32	0.092	20
1,2,4-Trimethylbenzene	180		mg/kg	2.5	0.42	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-02	Date Collected:	06/11/21 07:40
Client ID:	PB33-06-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 19:10
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0085	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.051	0.0072	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.051	0.015	1
Xylenes, Total	ND		mg/kg	0.051	0.015	1
Isopropylbenzene	0.31		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1
Naphthalene	0.078	J	mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03
Client ID: PB33-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:50
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:26
Analyst: JC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0074		mg/kg	0.0018	0.00018	1
Benzene	0.14		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.056		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.060		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.060		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.010		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0018		mg/kg	0.0018	0.00030	1
Naphthalene	0.0019	J	mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04
Client ID: PB33-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 08:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 15:40
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.15		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.56		mg/kg	0.052	0.0074	1
p/m-Xylene	0.054	J	mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	0.054	J	mg/kg	0.052	0.015	1
Isopropylbenzene	2.7		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.044	J	mg/kg	0.10	0.017	1
Naphthalene	0.14	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05 D2
Client ID: PB33-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 08:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 14:46
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.53	0.054	5
Benzene	7.9		mg/kg	0.13	0.044	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.069	5
Toluene	2.7		mg/kg	0.27	0.14	5
1,2-Dibromoethane	ND		mg/kg	0.13	0.078	5
Ethylbenzene	53.		mg/kg	0.27	0.038	5
p/m-Xylene	210	E	mg/kg	0.53	0.15	5
o-Xylene	8.3		mg/kg	0.27	0.078	5
Isopropylbenzene	6.6		mg/kg	0.27	0.029	5
1,3,5-Trimethylbenzene	26.		mg/kg	0.53	0.052	5
1,2,4-Trimethylbenzene	67.		mg/kg	0.53	0.089	5
Naphthalene	7.4		mg/kg	1.1	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	83		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-05 D	Date Collected:	06/11/21 08:20
Client ID:	PB33-09-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:05
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	200		mg/kg	1.1	0.30	10
Xylenes, Total	210		mg/kg	0.27	0.078	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-06	Date Collected:	06/11/21 08:35
Client ID:	PB33-10-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 20:33
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.015	J	mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1
Naphthalene	0.056	J	mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**137**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Client ID: PB33-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:45
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:00
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.6		mg/kg	0.11	0.011	1
Benzene	12.		mg/kg	0.028	0.0091	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	7.0		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	3.6		mg/kg	0.055	0.0078	1
p/m-Xylene	16.		mg/kg	0.11	0.031	1
o-Xylene	6.5		mg/kg	0.055	0.016	1
Xylenes, Total	22.		mg/kg	0.055	0.016	1
Isopropylbenzene	1.6		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	12.		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.11	0.018	1
Naphthalene	4.3		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**131**	Q	70-130
4-Bromofluorobenzene	**191**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-07 D	Date Collected:	06/11/21 08:45
Client ID:	PB33-11-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 15:13
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	34.		mg/kg	0.55	0.092	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-08	Date Collected:	06/11/21 09:00
Client ID:	PB33-12-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:27
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.56		mg/kg	0.11	0.011	1
Benzene	2.7		mg/kg	0.027	0.0089	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	0.036	J	mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	2.4		mg/kg	0.053	0.0075	1
p/m-Xylene	1.9		mg/kg	0.11	0.030	1
o-Xylene	0.036	J	mg/kg	0.053	0.016	1
Xylenes, Total	1.9	J	mg/kg	0.053	0.016	1
Isopropylbenzene	0.67		mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	4.9		mg/kg	0.11	0.018	1
Naphthalene	0.72		mg/kg	0.21	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	**135**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09
Client ID: PB33-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 09:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 16:53
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0023		mg/kg	0.0017	0.00017	1
Benzene	0.00053		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	0.00021	J	mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	ND		mg/kg	0.00086	0.00025	1
Xylenes, Total	ND		mg/kg	0.00086	0.00025	1
Isopropylbenzene	0.0069		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1
Naphthalene	0.00070	J	mg/kg	0.0034	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-10	Date Collected:	06/11/21 09:20
Client ID:	PB33-14-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:21
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00066	J	mg/kg	0.0019	0.00019	1
Benzene	0.0011		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	0.00084	J	mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	0.00019	J	mg/kg	0.00095	0.00013	1
p/m-Xylene	0.00082	J	mg/kg	0.0019	0.00053	1
o-Xylene	0.00086	J	mg/kg	0.00095	0.00028	1
Xylenes, Total	0.0017	J	mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.086		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.010		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**292**	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
Client ID: PB33-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 17:48
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00083	J	mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.0055		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.017		mg/kg	0.0020	0.00056	1
o-Xylene	0.0065		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.024		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.016		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.015		mg/kg	0.0020	0.00033	1
Naphthalene	0.0043		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**465**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-12
Client ID: PB33-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:45
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 18:15
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0026		mg/kg	0.0018	0.00018	1
Benzene	0.0099		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0038		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.0018		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0057		mg/kg	0.0018	0.00050	1
o-Xylene	0.0021		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0078		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.034		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0048		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00058	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0033	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**140**	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	**59**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-12	Date Collected:	06/11/21 09:45
Client ID:	PB33-16-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 16:08
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.13		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	ND		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.028	J	mg/kg	0.068	0.0095	1
p/m-Xylene	0.065	J	mg/kg	0.14	0.038	1
o-Xylene	ND		mg/kg	0.068	0.020	1
Xylenes, Total	0.065	J	mg/kg	0.068	0.020	1
Isopropylbenzene	0.10		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.022	1
Naphthalene	0.047	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13
Client ID: PB33-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:00
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:59
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00041	J	mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.00042	J	mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	124		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-14	D	Date Collected:	06/11/21 10:10
Client ID:	PB33-18-SS01		Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 21:54
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.1	0.11	10
Benzene	18.		mg/kg	0.27	0.090	10
1,2-Dichloroethane	ND		mg/kg	0.54	0.14	10
Toluene	ND		mg/kg	0.54	0.29	10
1,2-Dibromoethane	ND		mg/kg	0.27	0.16	10
Ethylbenzene	7.2		mg/kg	0.54	0.076	10
p/m-Xylene	2.2		mg/kg	1.1	0.30	10
o-Xylene	0.17	J	mg/kg	0.54	0.16	10
Xylenes, Total	2.4	J	mg/kg	0.54	0.16	10
Isopropylbenzene	8.5		mg/kg	0.54	0.059	10
1,3,5-Trimethylbenzene	1.7		mg/kg	1.1	0.10	10
1,2,4-Trimethylbenzene	29.		mg/kg	1.1	0.18	10
Naphthalene	8.0		mg/kg	2.2	0.35	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15
Client ID: PB33-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:22
Analyst: JC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.10		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	1.7		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.32		mg/kg	0.067	0.0094	1
p/m-Xylene	7.2		mg/kg	0.13	0.037	1
o-Xylene	4.0		mg/kg	0.067	0.019	1
Xylenes, Total	11.		mg/kg	0.067	0.019	1
Isopropylbenzene	0.079		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.13	0.022	1
Naphthalene	0.087	J	mg/kg	0.27	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2131595
Project Number: 200.00135.005.03　　**Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-16　　Date Collected: 06/11/21 11:40
Client ID: PB33-20-SS01　　Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:54
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.00060		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00068	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	117		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
Client ID: PB33-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:50
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 10:38
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00019	J	mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	ND		mg/kg	0.00090	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	ND		mg/kg	0.00090	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.00036	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.00070	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Client ID: PB33-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:05
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 22:29
Analyst: JC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00025	J	mg/kg	0.0023	0.00023	1
Benzene	0.00050	J	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.00022	J	mg/kg	0.0012	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00065	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00039	1
Naphthalene	ND		mg/kg	0.0046	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-19 D2	Date Collected:	06/11/21 12:20
Client ID:	PB33-23-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 11:28
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.20		mg/kg	0.071	0.024	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	ND		mg/kg	0.14	0.077	2.5
1,2-Dibromoethane	ND		mg/kg	0.071	0.041	2.5
Ethylbenzene	0.87		mg/kg	0.14	0.020	2.5
p/m-Xylene	10.		mg/kg	0.28	0.079	2.5
o-Xylene	ND		mg/kg	0.14	0.041	2.5
Xylenes, Total	10.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	4.0		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	2.4		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	52.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.3		mg/kg	0.57	0.092	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-19 D	Date Collected:	06/11/21 12:20
Client ID:	PB33-23-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/20/21 23:44
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	62.		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20 D2
Client ID: DUP-6
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:35
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 16:36
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.39	J	mg/kg	0.54	0.054	5
Benzene	30.		mg/kg	0.14	0.045	5
1,2-Dichloroethane	ND		mg/kg	0.27	0.070	5
Toluene	130	E	mg/kg	0.27	0.15	5
1,2-Dibromoethane	ND		mg/kg	0.14	0.079	5
Ethylbenzene	55.		mg/kg	0.27	0.038	5
p/m-Xylene	200	E	mg/kg	0.54	0.15	5
o-Xylene	70.		mg/kg	0.27	0.079	5
Isopropylbenzene	7.7		mg/kg	0.27	0.030	5
1,3,5-Trimethylbenzene	36.		mg/kg	0.54	0.052	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.54	0.090	5
Naphthalene	9.8		mg/kg	1.1	0.18	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20 D
Client ID: DUP-6
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 07:35
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/21/21 07:52
Analyst: MV
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	150		mg/kg	1.4	0.74	25
p/m-Xylene	240		mg/kg	2.7	0.76	25
Xylenes, Total	310		mg/kg	0.27	0.079	25
1,2,4-Trimethylbenzene	150		mg/kg	2.7	0.45	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
Client ID: FB-210611-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:30
Date Received: 06/11/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:34
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
Client ID: FB-210611-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 12:30
Date Received: 06/11/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/20/21 12:11
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	117		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22
Client ID: FB-210611-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 13:00
Date Received: 06/11/21
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:41
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-22	Date Collected:	06/11/21 13:00
Client ID:	FB-210611-2	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	None

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	06/20/21 12:34
Analyst:	PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	124		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-23
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/17/21 15:47
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-23	Date Collected:	06/11/21 07:30
Client ID:	TB	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 06/20/21 12:57
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	117		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/17/21 13:42
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/17/21 12:32

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 21-23 Batch: WG1513393-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 19 Batch: WG1514499-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 14:53
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16,18 Batch: WG1514703-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03,09-13 Batch: WG1514861-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 07:25
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04-05,07,12,20 Batch: WG1514864-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 15:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02,05-08,14-15 Batch: WG1514864-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	125		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	120		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/20/21 11:01
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 21-23 Batch: WG1514918-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.22	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	121		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/21/21 08:31
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17 Batch: WG1515275-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	109		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2131595

Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 21-23 Batch: WG1513393-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-13 WG1514499-14								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 19 Batch: WG1514499-8 WG1514499-9								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16,18 Batch: WG1514703-3 WG1514703-4								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		108		70-130	1		30
1,2-Dichloroethane	103		104		70-130	1		30
Toluene	109		109		70-130	0		30
1,2-Dibromoethane	104		106		70-130	2		30
Ethylbenzene	110		112		70-130	2		30
p/m-Xylene	107		108		70-130	1		30
o-Xylene	103		105		70-130	2		30
Isopropylbenzene	114		115		70-130	1		30
1,3,5-Trimethylbenzene	109		112		70-130	3		30
1,2,4-Trimethylbenzene	108		110		70-130	2		30
Naphthalene	89		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		95		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	95		99		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03,09-13 Batch: WG1514861-3 WG1514861-4								
Methyl tert butyl ether	99		99		66-130	0		30
Benzene	104		103		70-130	1		30
1,2-Dichloroethane	106		104		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	103		100		70-130	3		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	106		103		70-130	3		30
o-Xylene	107		103		70-130	4		30
Isopropylbenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	108		107		70-130	1		30
1,2,4-Trimethylbenzene	108		107		70-130	1		30
Naphthalene	110		111		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02,05-08,14-15 Batch: WG1514864-3 WG1514864-4								
Methyl tert butyl ether	99		99		66-130	0		30
Benzene	104		103		70-130	1		30
1,2-Dichloroethane	106		104		70-130	2		30
Toluene	100		98		70-130	2		30
1,2-Dibromoethane	103		100		70-130	3		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	106		103		70-130	3		30
o-Xylene	107		103		70-130	4		30
Isopropylbenzene	106		106		70-130	0		30
1,3,5-Trimethylbenzene	108		107		70-130	1		30
1,2,4-Trimethylbenzene	108		107		70-130	1		30
Naphthalene	110		111		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		110		70-130
Toluene-d8	100		98		70-130
4-Bromofluorobenzene	96		94		70-130
Dibromofluoromethane	108		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04-05,07,12,20 Batch: WG1514864-8 WG1514864-9								
Methyl tert butyl ether	100		108		66-130	8		30
Benzene	110		110		70-130	0		30
1,2-Dichloroethane	97		99		70-130	2		30
Toluene	109		110		70-130	1		30
1,2-Dibromoethane	104		108		70-130	4		30
Ethylbenzene	112		112		70-130	0		30
p/m-Xylene	104		104		70-130	0		30
o-Xylene	105		107		70-130	2		30
Isopropylbenzene	122		120		70-130	2		30
1,3,5-Trimethylbenzene	120		118		70-130	2		30
1,2,4-Trimethylbenzene	120		119		70-130	1		30
Naphthalene	112		116		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		106		70-130
Toluene-d8	111		113		70-130
4-Bromofluorobenzene	120		118		70-130
Dibromofluoromethane	90		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 21-23 Batch: WG1514918-3 WG1514918-4								
Methyl tert butyl ether	72		72		63-130	0		20
Benzene	96		94		70-130	2		20
1,2-Dichloroethane	86		88		70-130	2		20
Toluene	93		92		70-130	1		20
Ethylbenzene	97		94		70-130	3		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	97		96		64-130	1		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20
Naphthalene	85		86		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		96		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	85		86		70-130
Dibromofluoromethane	106		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17 Batch: WG1515275-3 WG1515275-4								
Methyl tert butyl ether	101		103		66-130	2		30
Benzene	108		104		70-130	4		30
1,2-Dichloroethane	104		104		70-130	0		30
Toluene	108		104		70-130	4		30
1,2-Dibromoethane	103		106		70-130	3		30
Ethylbenzene	111		107		70-130	4		30
p/m-Xylene	108		104		70-130	4		30
o-Xylene	103		101		70-130	2		30
Isopropylbenzene	112		109		70-130	3		30
1,3,5-Trimethylbenzene	108		106		70-130	2		30
1,2,4-Trimethylbenzene	107		106		70-130	1		30
Naphthalene	88		94		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	99		99		70-130

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-01	Date Collected:	06/11/21 07:30
Client ID:	PB33-05-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.37	0.127	1	06/21/21 20:22	07/05/21 16:12	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595

Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-02	Date Collected:	06/11/21 07:40
Client ID:	PB33-06-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.69		mg/kg	2.29	0.123	1	06/21/21 20:22	07/05/21 15:58	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-03	Date Collected:	06/11/21 07:50
Client ID:	PB33-07-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.06		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 16:03	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-04	Date Collected:	06/11/21 08:10
Client ID:	PB33-08-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.52		mg/kg	2.22	0.119	1	06/21/21 20:22	07/05/21 16:08	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-05	Date Collected:	06/11/21 08:20
Client ID:	PB33-09-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.2		mg/kg	2.33	0.125	1	06/21/21 20:22	07/05/21 16:44	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06
Date Collected: 06/11/21 08:35
Client ID: PB33-10-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.0		mg/kg	2.25	0.120	1	06/21/21 20:22	07/05/21 16:49	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY

Lab Number: L2131595

Project Number: 200.00135.005.03

Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Date Collected: 06/11/21 08:45
Client ID: PB33-11-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.51		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 16:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595

Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08 | Date Collected: 06/11/21 09:00

Client ID: PB33-12-SS01 | Date Received: 06/11/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.05		mg/kg	2.28	0.122	1	06/21/21 20:22	07/05/21 16:58	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2131595

Project Number: 200.00135.005.03　　**Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09　　Date Collected: 06/11/21 09:10

Client ID: PB33-13-SS01　　Date Received: 06/11/21

Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.33		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:03	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-10	Date Collected:	06/11/21 09:20
Client ID:	PB33-14-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.41		mg/kg	2.41	0.129	1	06/21/21 20:22	07/05/21 17:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
Date Collected: 06/11/21 09:30
Client ID: PB33-15-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 17:12	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-12	Date Collected:	06/11/21 09:45
Client ID:	PB33-16-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	46.7		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:16	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-13	Date Collected:	06/11/21 10:00
Client ID:	PB33-17-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.18	0.117	1	06/21/21 20:22	07/05/21 17:21	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14 Date Collected: 06/11/21 10:10
Client ID: PB33-18-SS01 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.81		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:26	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-15	Date Collected:	06/11/21 11:20
Client ID:	PB33-19-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	88%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	61.3		mg/kg	2.21	0.118	1	06/21/21 20:22	07/05/21 17:48	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-16	Date Collected:	06/11/21 11:40
Client ID:	PB33-20-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	372		mg/kg	2.32	0.124	1	06/21/21 20:22	07/05/21 17:53	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
Client ID: PB33-21-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 11:50
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.6		mg/kg	2.24	0.120	1	06/21/21 20:22	07/05/21 17:58	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Client ID: PB33-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:05
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.82		mg/kg	2.17	0.116	1	06/21/21 20:22	07/05/21 18:03	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-19 | Date Collected: 06/11/21 12:20
Client ID: PB33-23-SS01 | Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.86		mg/kg	2.31	0.124	1	06/21/21 20:22	07/05/21 18:07	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-20	Date Collected:	06/11/21 07:35
Client ID:	DUP-6	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.92		mg/kg	2.36	0.126	1	06/21/21 20:22	07/05/21 18:12	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-21
Date Collected: 06/11/21 12:30
Client ID: FB-210611-1
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 20:22	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-22
Date Collected: 06/11/21 13:00
Client ID: FB-210611-2
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: None

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 20:27	EPA 3005A	1,6020B	CD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21-22 Batch: WG1513916-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/19/21 16:27	06/22/21 15:18	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1514849-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/21/21 20:22	07/05/21 15:49	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 Batch: WG1513916-2								
Lead, Total	105		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1514849-2 SRM Lot Number: D109-540								
Lead, Total	86		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1513916-3 QC Sample: L2132132-03 Client ID: MS Sample												
Lead, Total	ND	510	555.8	109		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-3 QC Sample: L2131595-01 Client ID: PB33-05-SS01												
Lead, Total	13.0	49.2	51.8	79		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 21-22 QC Batch ID: WG1513916-4 QC Sample: L2132132-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1514849-4 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Lead, Total	13.0	10.8	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2131595
Project Number: 200.00135.005.03　　**Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-01　　Date Collected: 06/11/21 07:30
Client ID: PB33-05-SS01　　Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-02	Date Collected:	06/11/21 07:40
Client ID:	PB33-06-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-03
Date Collected: 06/11/21 07:50
Client ID: PB33-07-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-04
Date Collected: 06/11/21 08:10
Client ID: PB33-08-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.4		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-05
Client ID: PB33-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 08:20
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-06 Date Collected: 06/11/21 08:35
Client ID: PB33-10-SS01 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-07
Date Collected: 06/11/21 08:45
Client ID: PB33-11-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-08
Date Collected: 06/11/21 09:00
Client ID: PB33-12-SS01
Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2131595
Project Number: 200.00135.005.03　　**Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-09　　Date Collected: 06/11/21 09:10
Client ID: PB33-13-SS01　　Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-10	Date Collected:	06/11/21 09:20
Client ID:	PB33-14-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-11
Client ID: PB33-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 09:30
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-12	Date Collected:	06/11/21 09:45
Client ID:	PB33-16-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-13
Client ID: PB33-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:00
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2131595
Project Number: 200.00135.005.03 | **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-14
Client ID: PB33-18-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 10:10
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2131595
Project Number: 200.00135.005.03 **Report Date:** 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-15 Date Collected: 06/11/21 11:20
Client ID: PB33-19-SS01 Date Received: 06/11/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-16	Date Collected:	06/11/21 11:40
Client ID:	PB33-20-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-17
Client ID: PB33-21-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 11:50
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2131595
Project Number: 200.00135.005.03
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-18
Client ID: PB33-22-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/11/21 12:05
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.8		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

SAMPLE RESULTS

Lab ID:	L2131595-19	Date Collected:	06/11/21 12:20
Client ID:	PB33-23-SS01	Date Received:	06/11/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

SAMPLE RESULTS

Lab ID: L2131595-20
Client ID: DUP-6
Sample Location: PHILADELPHIA, PA

Date Collected: 06/11/21 07:35
Date Received: 06/11/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/12/21 10:15	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1511258-1 QC Sample: L2131595-01 Client ID: PB33-05-SS01						
Solids, Total	82.2	81.8	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-01A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-01B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-01D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-02A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-02B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-02D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-03A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-03B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-03D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-04A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-04B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-04D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-05A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-05B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-05C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-05D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-06A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-06B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-06D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-07A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-07B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-07D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-08A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-08B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-08D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-09A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-09B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-09D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-10A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-10B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-10D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-11A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-11B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-11D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-12A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2131595-12B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260H(14),PA-8260HLW(14)
L2131595-12D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-13A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-13B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-13D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-14A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-14B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-14D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-15A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-15B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-15D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-15E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-16A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-16B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-16C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Serial_No:07062117:20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2131595
Report Date: 07/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-16D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-17A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-17B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-17D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-17E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-18A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-18B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-18D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-18E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-19A	Vial MeOH preserved	B	NA		4.7	Y	Absent		PA-8260HLW(14)
L2131595-19B	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19C	Vial water preserved	B	NA		4.7	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-19D	Plastic 2oz unpreserved for TS	B	NA		4.7	Y	Absent		TS(7)
L2131595-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.7	Y	Absent		PB-TI(180)
L2131595-20A	Vial MeOH preserved	A	NA		4.2	Y	Absent		PA-8260HLW(14)
L2131595-20B	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20C	Vial water preserved	A	NA		4.2	Y	Absent	12-JUN-21 08:13	PA-8260HLW(14)
L2131595-20D	Plastic 2oz unpreserved for TS	A	NA		4.2	Y	Absent		TS(7)
L2131595-20E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.2	Y	Absent		PB-TI(180)
L2131595-21A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-21D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-21F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2131595-22A	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22C	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)
L2131595-22D	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22E	Vial Na2S2O3 preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-22F	Plastic 500ml HNO3 preserved	B	<2	<2	4.7	Y	Absent		PB-6020T-PPB(180)
L2131595-23A	Vial HCl preserved	B	NA		4.7	Y	Absent		8011(14)
L2131595-23B	Vial HCl preserved	B	NA		4.7	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2131595
Project Number:	200.00135.005.03	**Report Date:**	07/06/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com
☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Program
Criteria:

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31595-01	PB33-05-SS01	6/11	0730	S	TS		✓												5
-02	PB33-06-SS01	↓	0740	↓	↓		✓												5
-03	PB33-07-SS01	↓	0750	↓	↓		✓												5
-04	PB33-08-SS01	↓	0810	↓	↓		✓												5
-05	PB33-09-SS01	↓	0820	↓	↓		✓												5
-06	PB33-10-SS01	↓	0835	↓	↓		✓												5
-07	PB33-11-SS01	↓	0845	↓	↓		✓												5
-08	PB33-12-SS01	↓	0900	↓	↓		✓												5
-09	PB33-13-SS01	↓	0910	↓	↓		✓												5
-10	PB33-14-SS01	↓	0920	↓	↓		✓												5

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/11	RB	6/11 1350
RB	6-11 1600	[signature]	6/11 1600
[signature]	6-11 2200	[signature] AAC	6/11/21 2200
[signature] AAC	6/12/21 0240	[signature]	6/12/21 02:40

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 30-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
31595-01	PB33-15-5501	6/11	0930	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB33-16-5501	↓	0945	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	PB33-17-5501	↓	1000	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-14	PB33-18-5501	↓	1010	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-15	PB33-19-5501	↓	1120	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-16	PB33-20-5501	↓	1140	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-17	PB33-21-5501	↓	1150	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-18	PB33-22-5501	↓	1205	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB33-23-5501	↓	1220	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	Dup-6	↓	0735	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/11	RWB	6-11 1350
RWB	6-11 1800	[signature]	6-11 1800
[signature]	6-11 2200	[signature] AAL	6/11/21 2200
[signature] AAL	6/12/21 0240	[signature]	6/12/21 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HU)
(rev. 9-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/12/21

ALPHA Job #: L2131595

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

Analysis columns: (1) PADEP Shortlist 1-5 (see attached); (2) PADEP Shortlist 1 & 2 (see attached); (3) PADEP Shortlist 4 (see attached); (4) PADEP Shortlist 3-5 (see attached); (5) PADEP Shortlist 5 (see attached); (6) PADEP Shortlist 6 (see attached); (7) pH; (8) Benzene; (9) Cumene; (10) Tetraethylene Glycol; (11) VOC portion of PADEP Shortlist 1, 2; (12) blank

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only) MZ 6/12/21	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	1	2	3	4	5	6	7	8	9	10	11	12	Sample Specific Comments	TOTAL # BOTTLES
31595-~~20~~21	FB-210611-1	6/11	1230	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-22	FB-210611-2	↓	1300	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	TB	↓		W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		2
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

	1	2	3	4	5	6	7	8	9	10	11	12
Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/11	RNB	6-11 1350
RNB	6/11	[signature] AAC	6/11/21 2200
[signature] AAC	6/12/21 0240	[signature]	6/12/21 0240

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(AU) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

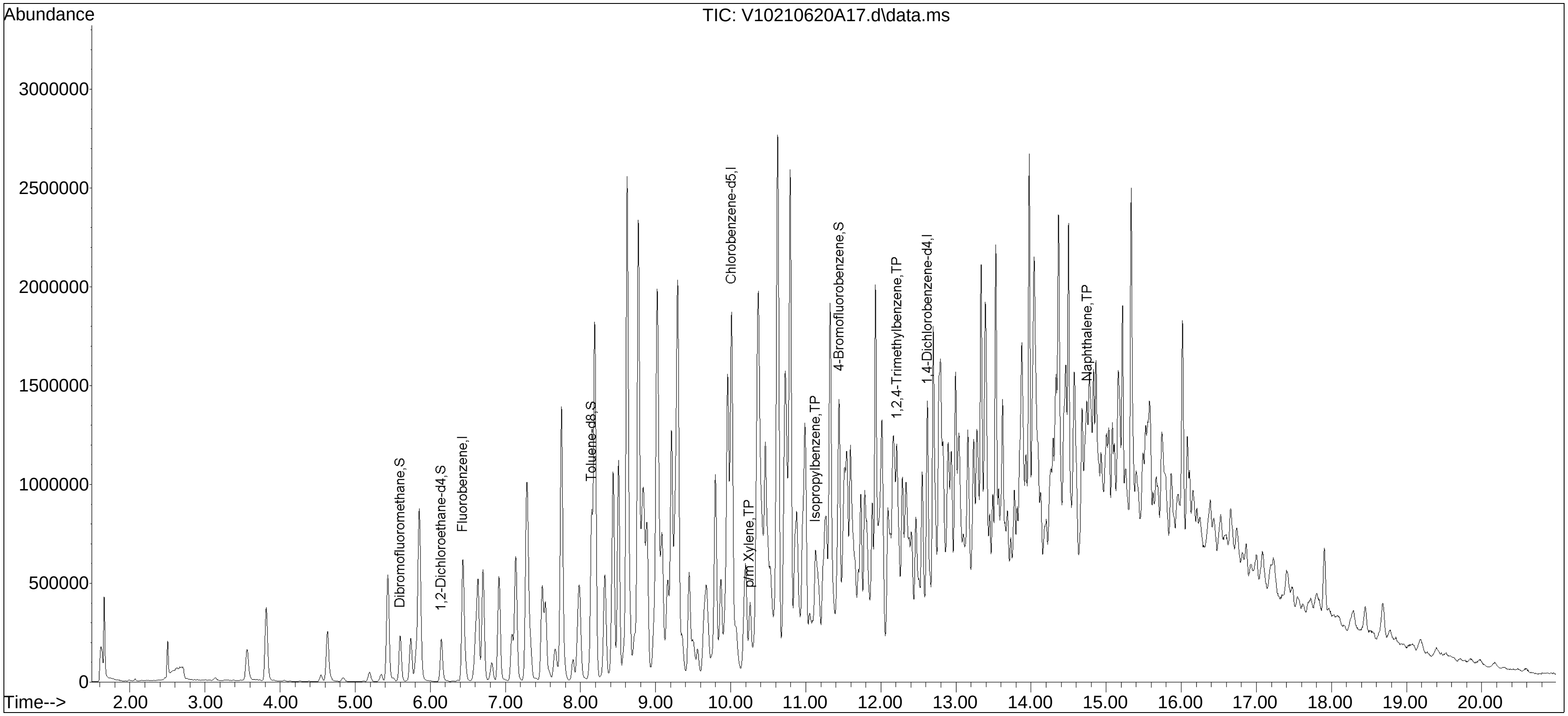
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A17.d
Acq On : 20 Jun 2021 7:10 pm
Operator : VOA110:JC
Sample : L2131595-02,31H,7.22,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jun 21 05:49:32 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

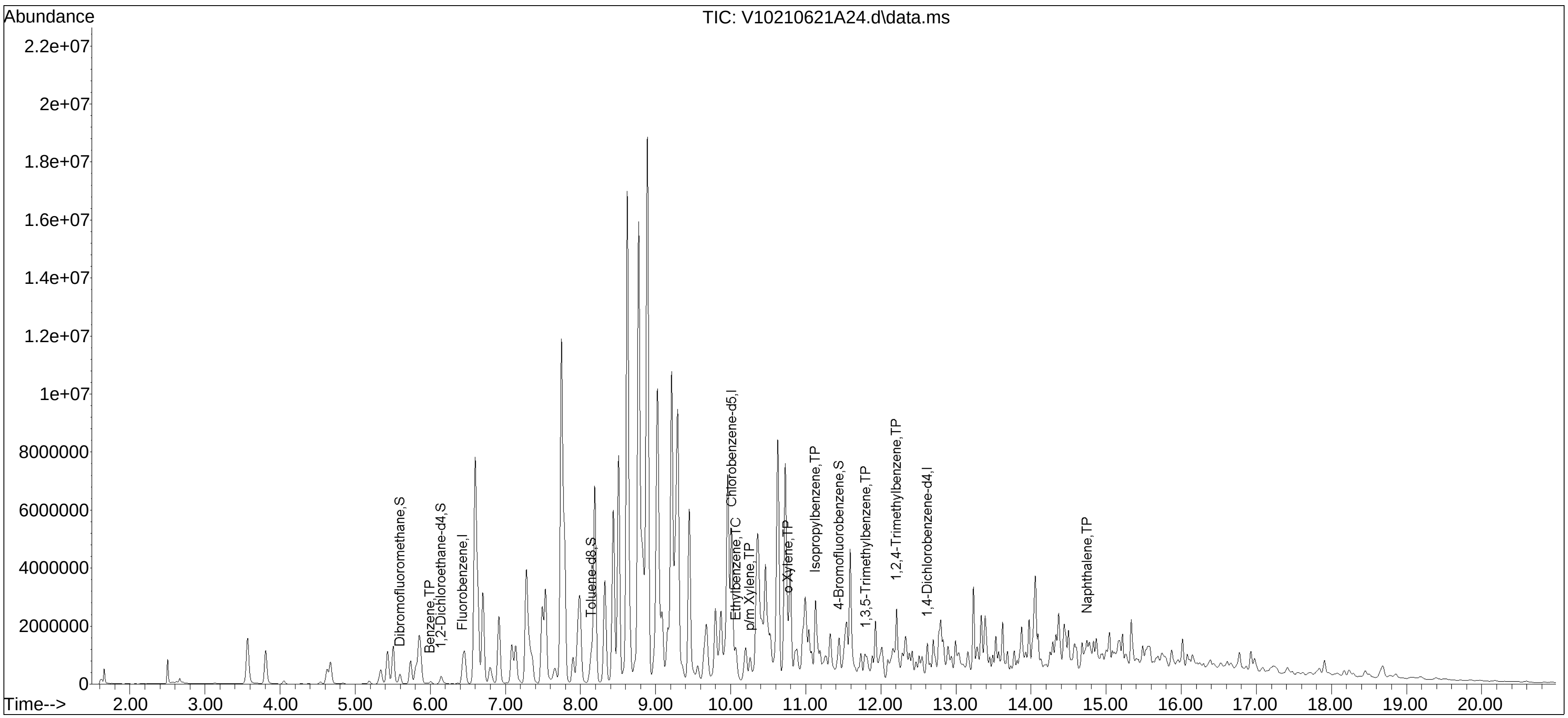


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A24.d
Acq On : 21 Jun 2021 3:40 pm
Operator : VOA110:JC
Sample : L2131595-04,31H,6.36,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 22 08:17:24 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A20.d
Acq On    : 20 Jun 2021   8:33 pm
Operator  : VOA110:JC
Sample    : L2131595-06,31H,6.43,5,0.100,,A
Misc      : WG1514864,ICAL17863
ALS Vial  : 20   Sample Multiplier: 1

Quant Time: Jun 21 05:49:46 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•
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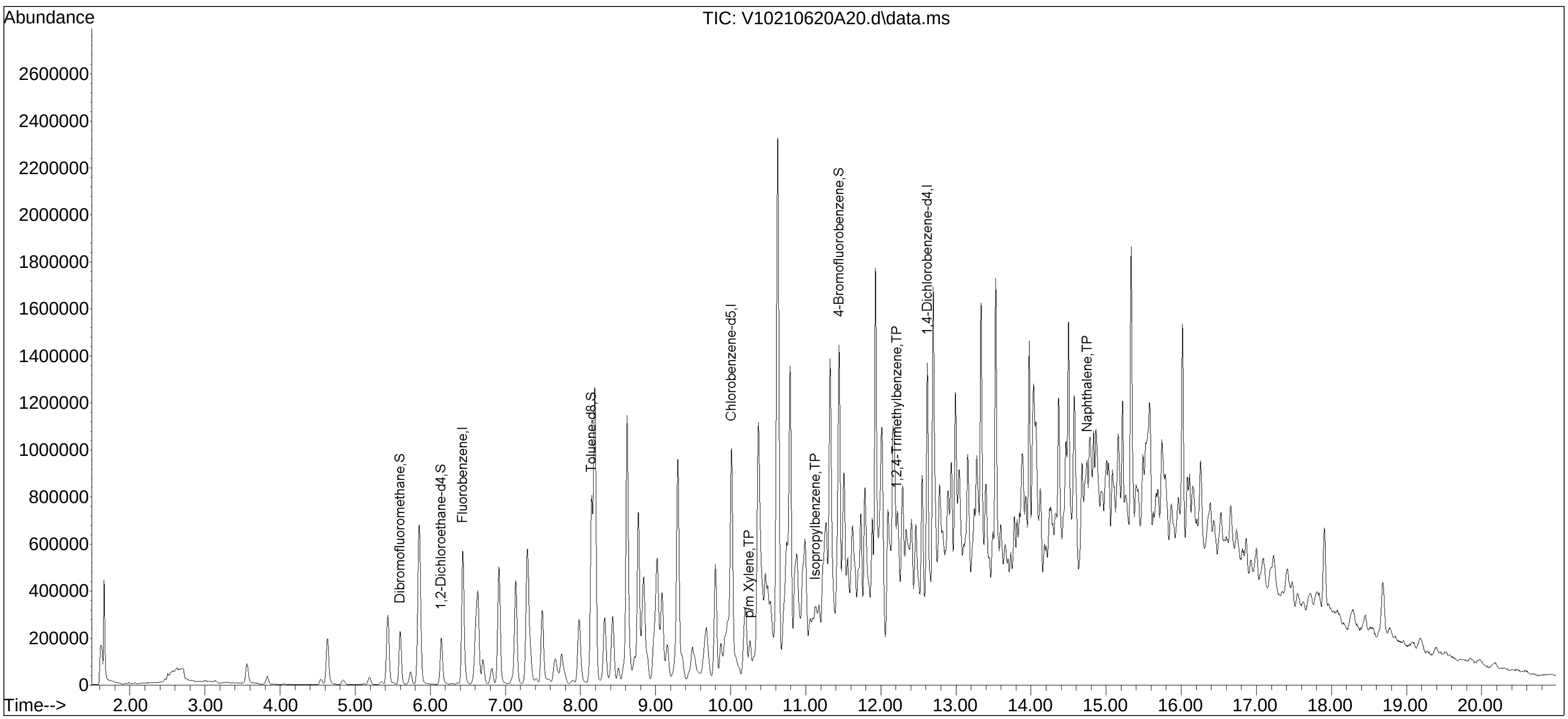
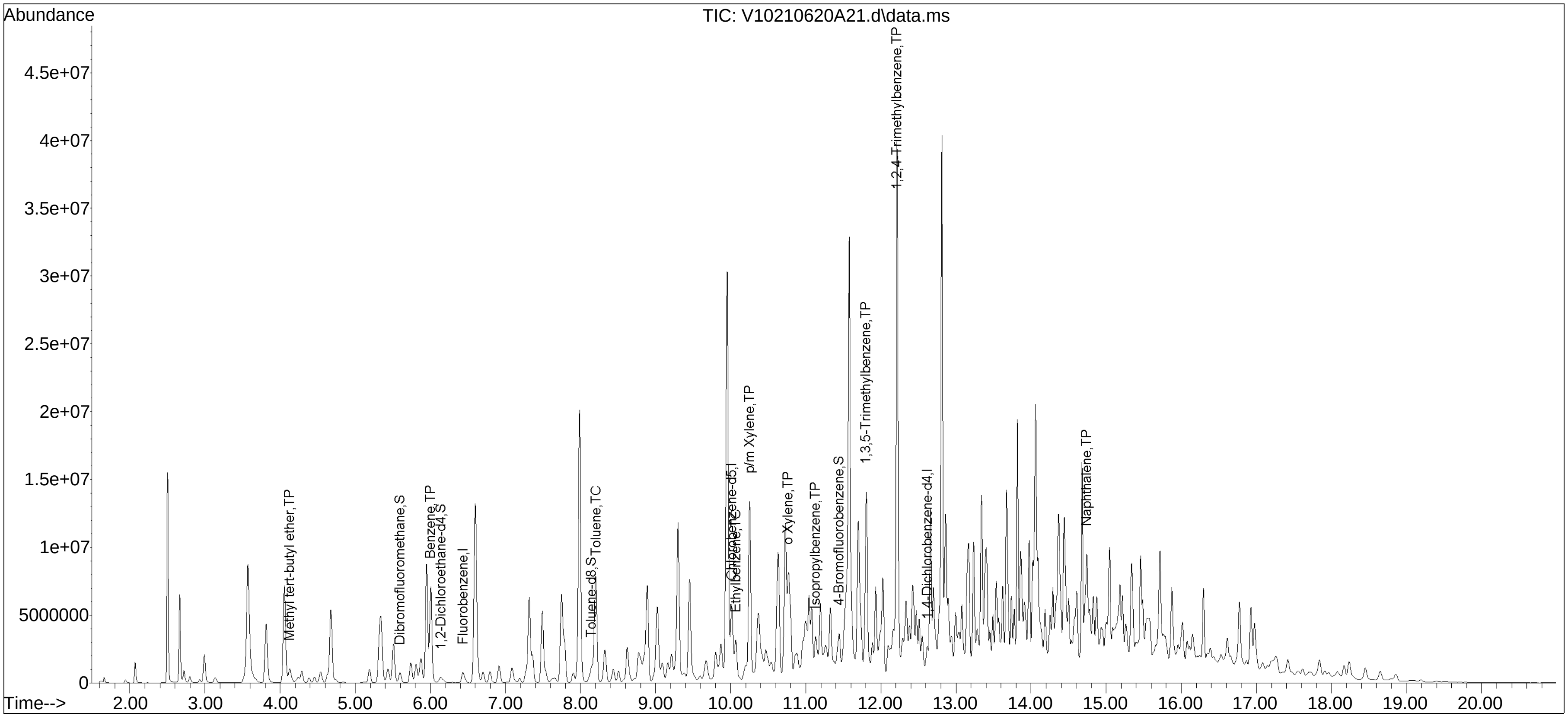


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A21.d
Acq On : 20 Jun 2021 9:00 pm
Operator : VOA110:JC
Sample : L2131595-07,31H,6.81,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 21 06:57:20 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA110\2021\210621A\
Data File : V10210621A23.d
Acq On    : 21 Jun 2021   3:13 pm
Operator  : VOA110:JC
Sample    : L2131595-07D,31H,6.81,5,0.020,,A
Misc      : WG1514864,ICAL17863
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jun 22 08:17:04 2021
Quant Method : I:\VOLATILES\VOA110\2021\210621A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V10210621A01.d•
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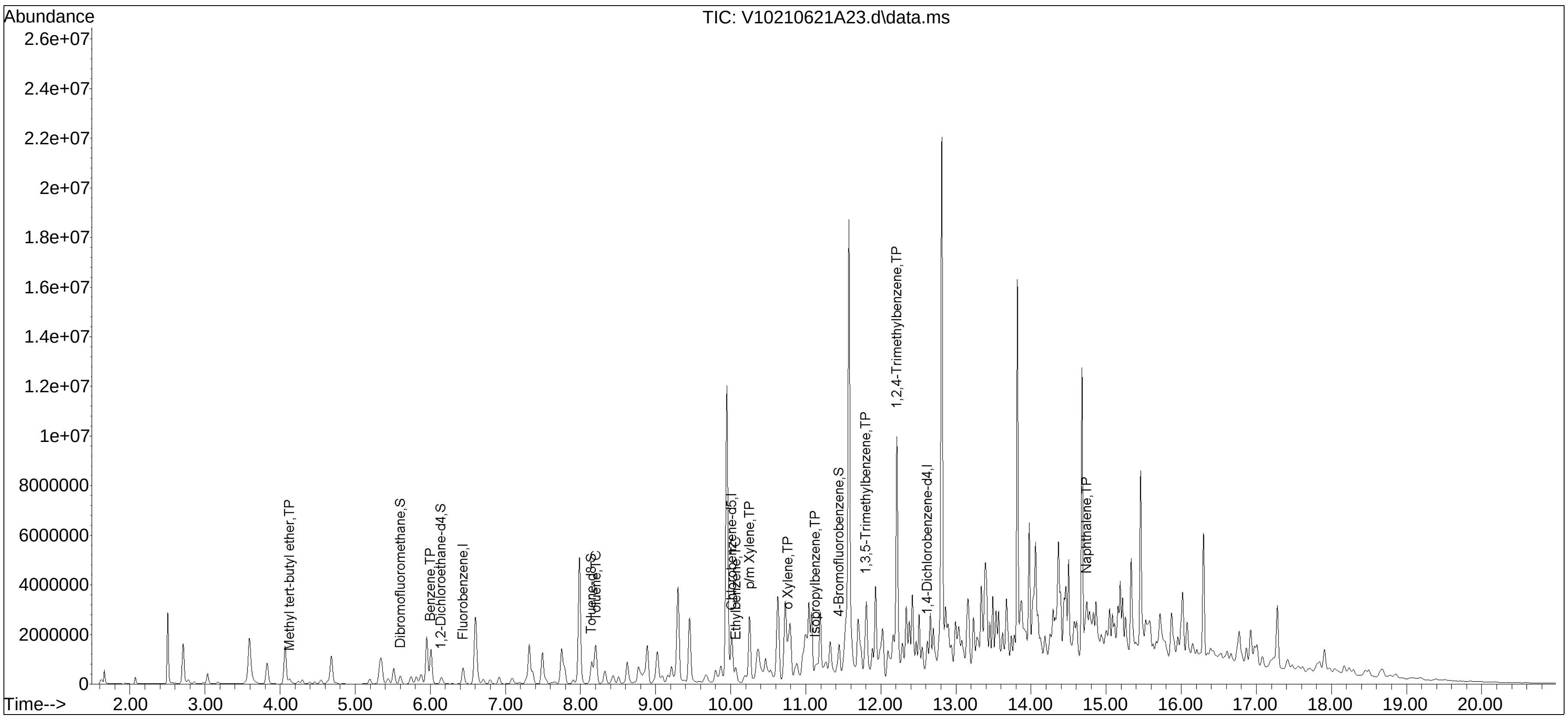
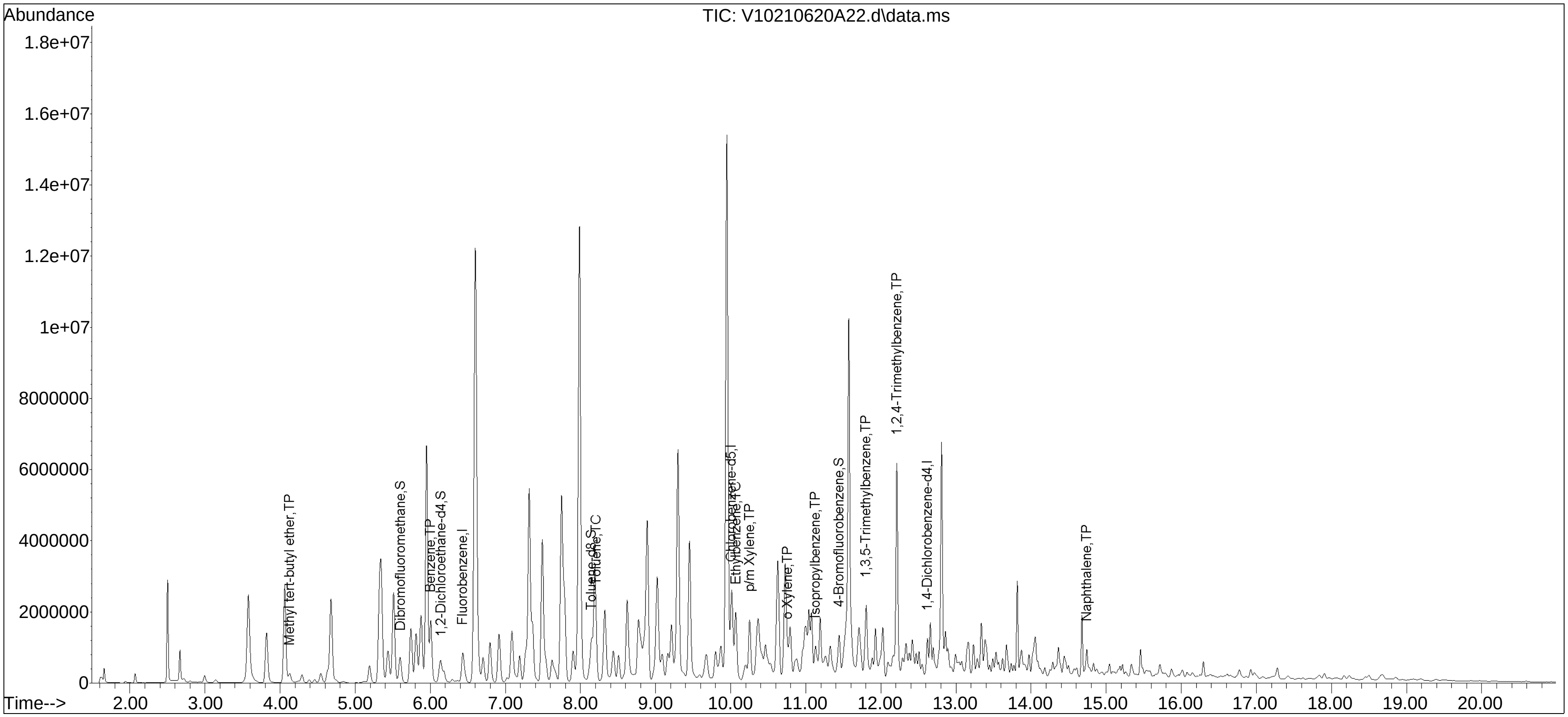


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A22.d
Acq On : 20 Jun 2021 9:27 pm
Operator : VOA110:JC
Sample : L2131595-08,31H,6.58,5,0.100,,A
Misc : WG1514864,ICAL17863
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 21 06:57:47 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

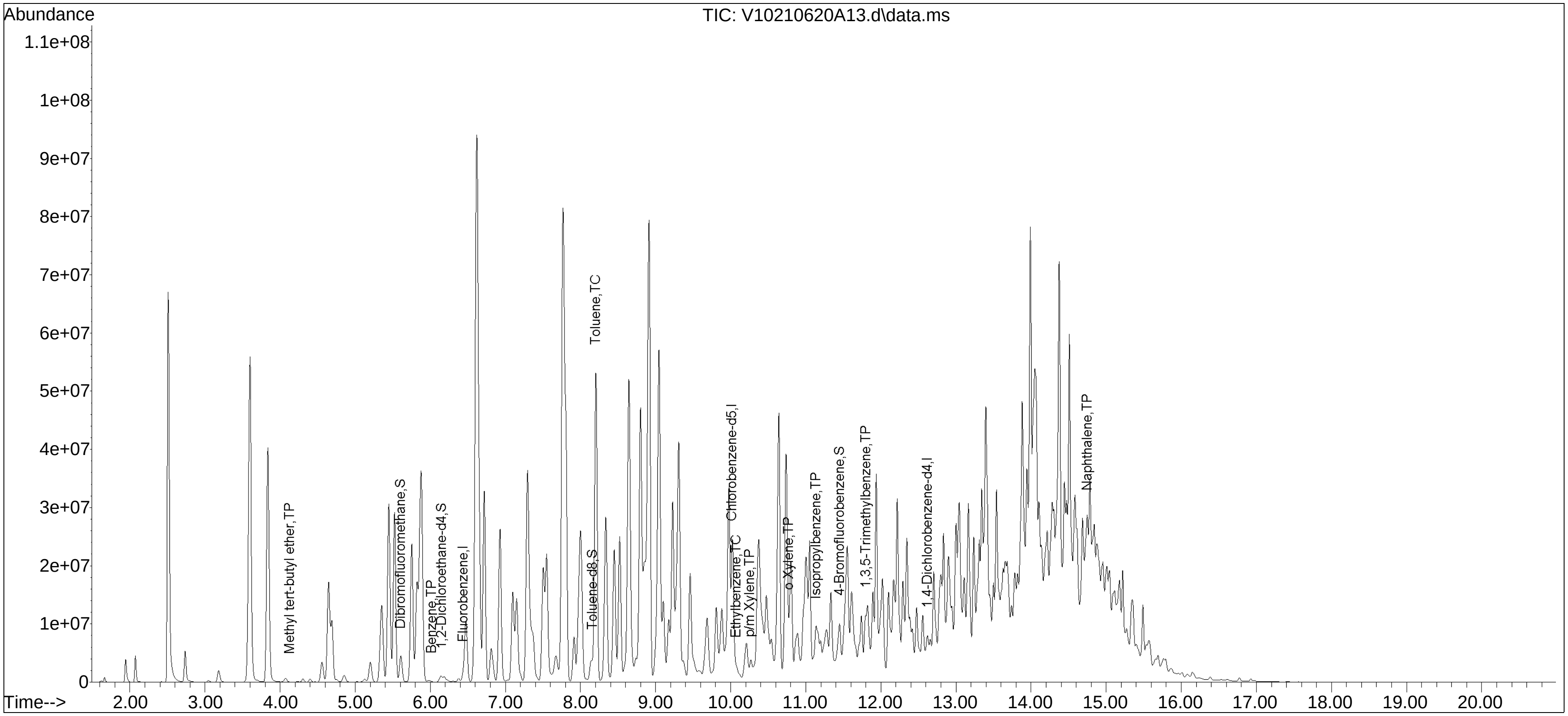


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A13.d
Acq On : 20 Jun 2021 5:21 pm
Operator : VOA110:JC
Sample : L2131595-10,31,6.43,5,,B
Misc : WG1514861,ICAL17863
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jun 21 06:52:03 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•



V110_210420A_8260.m Mon Jun 21 12:51:39 2021 Page: 2

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A14.d
Acq On    : 20 Jun 2021   5:48 pm
Operator  : VOA110:JC
Sample    : L2131595-11,31,6.13,5,,B
Misc      : WG1514861,ICAL17863
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Jun 21 06:52:22 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•
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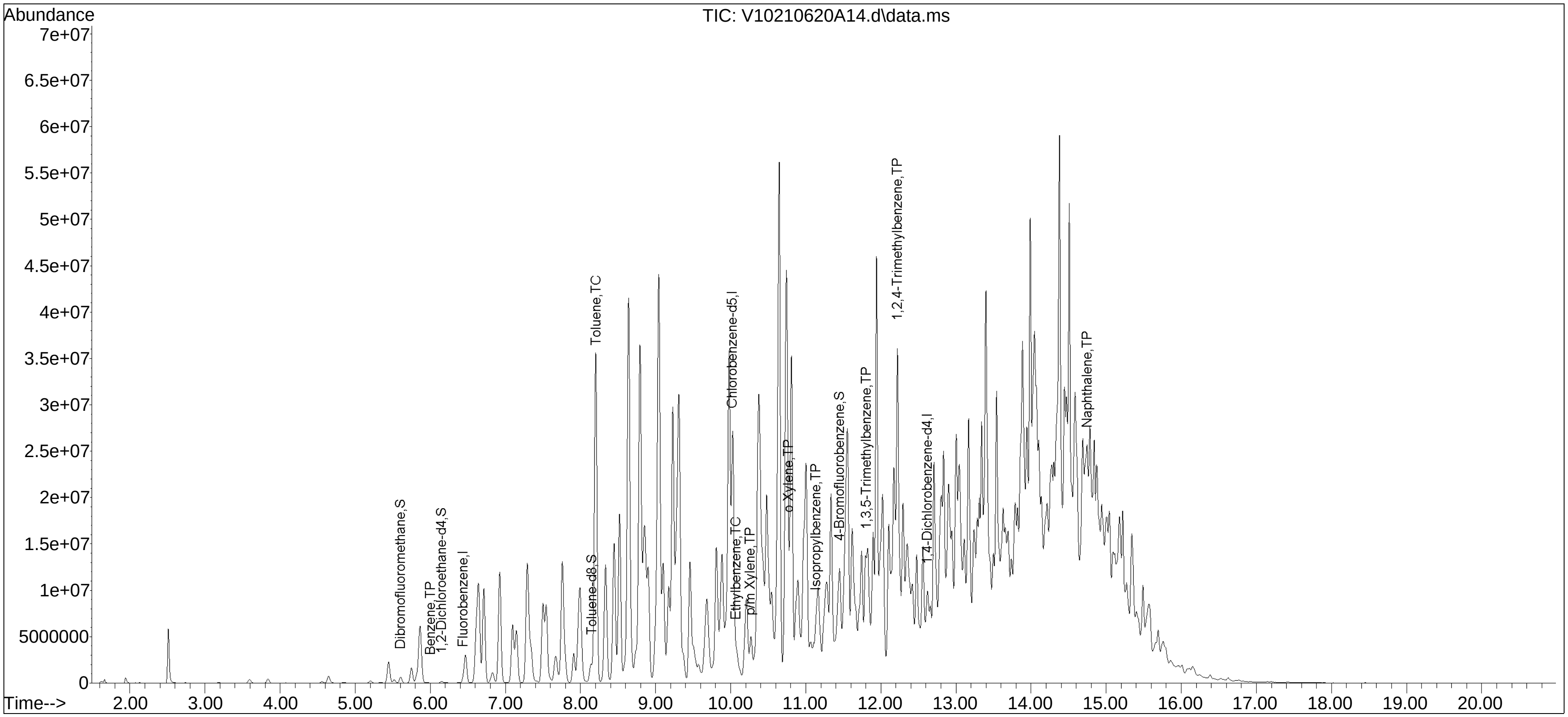
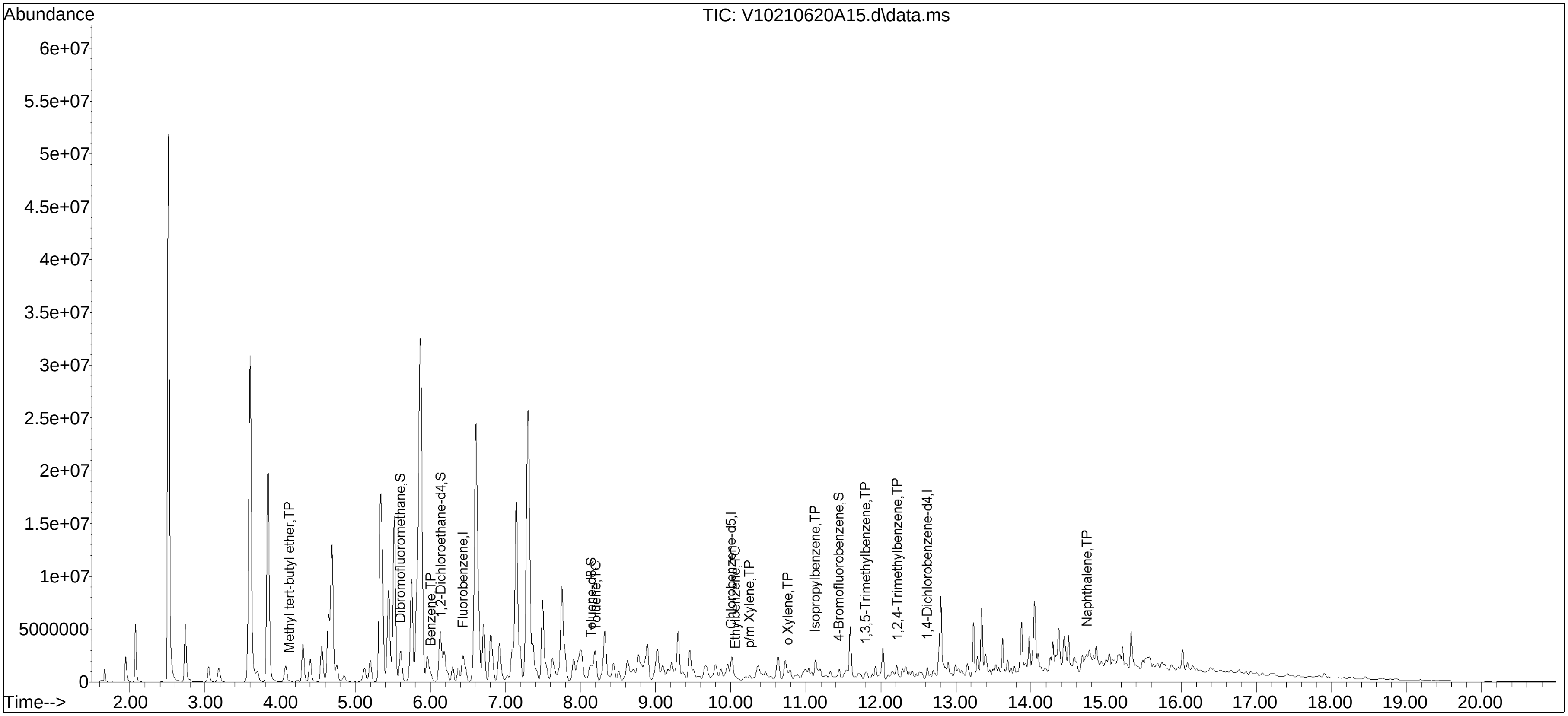


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A15.d
Acq On : 20 Jun 2021 6:15 pm
Operator : VOA110:JC
Sample : L2131595-12,31,6.21,5,,B
Misc : WG1514861,ICAL17863
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 21 06:52:59 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•

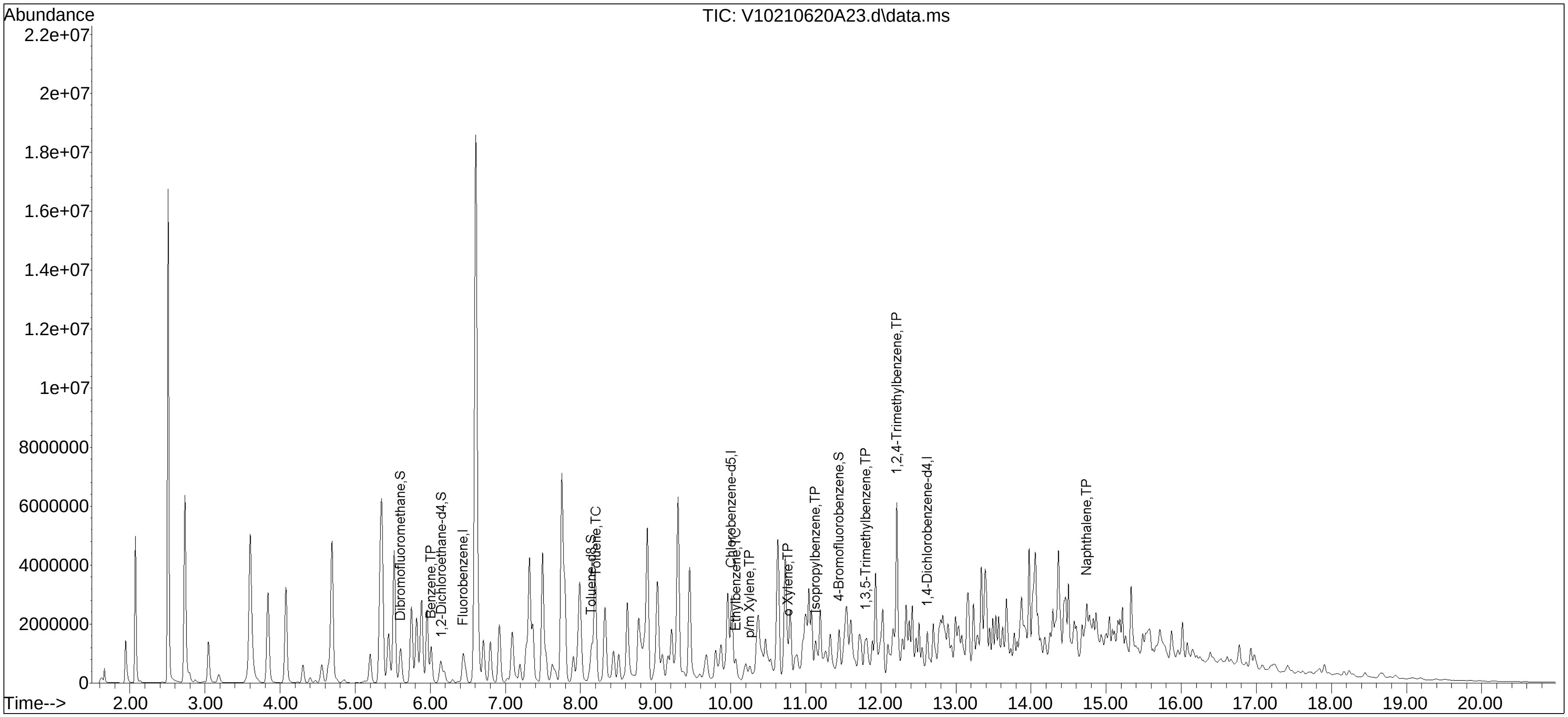


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2021\210620A\
Data File : V10210620A23.d
Acq On   : 20 Jun 2021   9:54 pm
Operator : VOA110:JC
Sample   : L2131595-14D,31H,6.64,5,0.010,,A
Misc   : WG1514864,ICAL17863
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Jun 21 06:58:13 2021
Quant Method : I:\VOLATILES\VOA110\2021\210620A\V110_210420A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Apr 21 12:58:31 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list20A\V10210620A01.d•



ANALYTICAL REPORT

Lab Number:	L2133575
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133575-01	PB34-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:35	06/21/21
L2133575-02	PB34-14-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:40	06/21/21
L2133575-03	PB35-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 10:45	06/21/21
L2133575-04	PB35-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:00	06/21/21
L2133575-05	PB35-08-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:05	06/21/21
L2133575-06	PB35-04-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:20	06/21/21
L2133575-07	PB35-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:30	06/21/21
L2133575-08	PB35-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:40	06/21/21
L2133575-09	PB35-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 11:50	06/21/21
L2133575-10	PB35-15-SS01	SOIL	PHILADELPHIA, PA	06/21/21 12:50	06/21/21
L2133575-11	PB35-12-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:00	06/21/21
L2133575-12	PB34-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:10	06/21/21
L2133575-13	PB34-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:20	06/21/21
L2133575-14	PB34-03-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:30	06/21/21
L2133575-15	PB34-07-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:40	06/21/21
L2133575-16	PB34-11-SS01	SOIL	PHILADELPHIA, PA	06/21/21 13:50	06/21/21
L2133575-17	PB34-01-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:00	06/21/21
L2133575-18	PB34-02-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:10	06/21/21
L2133575-19	PB40-05-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:25	06/21/21
L2133575-20	PB40-06-SS01	SOIL	PHILADELPHIA, PA	06/21/21 14:35	06/21/21
L2133575-21	DUP-7	SOIL	PHILADELPHIA, PA	06/21/21 14:45	06/21/21
L2133575-22	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/21/21
L2133575-23	FB-210621-1	WATER	PHILADELPHIA, PA	06/21/21 16:00	06/21/21
L2133575-24	FB-210621-2	WATER	PHILADELPHIA, PA	06/21/21 16:05	06/21/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2133575-19: The collection date and time on the chain of custody was 21-JUN-21 14:25; however, the collection date/time on the container label was 20-JUN-21 14:25. At the client's request, the collection date/time is reported as 21-JUN-21 14:25.

Volatile Organics

L2133575-01, -03, -07, -08, -10, -12, and -15: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2133575-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (160%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133575-09: The internal standard (IS) response for fluorobenzene (216%) and the surrogate recoveries for dibromofluoromethane (43%), toluene-d8 (170%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria in the Low Level analysisi due to obvious interferences. A copy of the chromatogram is

Case Narrative (continued)

included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2133575-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (198%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-11D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133575-11D and -15: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (166%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-13: The internal standard (IS) response for fluorobenzene (237%) and the surrogate recoveries for dibromofluoromethane (49%) and 4-bromofluorobenzene (187%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.

L2133575-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133575-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Case Narrative (continued)

Total Metals

The WG1517780-3 MS recovery, performed on L2133575-01, is outside the acceptance criteria for lead (53%). A post digestion spike was performed and yielded an unacceptable recovery for lead (59%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1517780-4 Laboratory Duplicate RPD for lead (30%), performed on L2133575-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

The WG1517780-6 serial dilution analysis, associated with L2133575-01, had a %D above the acceptance criteria for lead (35%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
Client ID: PB34-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 10:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:06
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.030	1
Benzene	1.4		mg/kg	0.074	0.024	1
1,2-Dichloroethane	ND		mg/kg	0.15	0.038	1
Toluene	0.76		mg/kg	0.15	0.080	1
1,2-Dibromoethane	ND		mg/kg	0.074	0.043	1
Ethylbenzene	0.28		mg/kg	0.15	0.021	1
p/m-Xylene	1.5		mg/kg	0.29	0.082	1
o-Xylene	0.40		mg/kg	0.15	0.043	1
Xylenes, Total	1.9		mg/kg	0.15	0.043	1
Isopropylbenzene	3.6		mg/kg	0.15	0.016	1
1,3,5-Trimethylbenzene	0.17	J	mg/kg	0.29	0.028	1
1,2,4-Trimethylbenzene	0.84		mg/kg	0.29	0.049	1
Naphthalene	2.0		mg/kg	0.59	0.096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	**211**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-02	Date Collected:	06/21/21 10:40
Client ID:	PB34-14-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:36
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00058	J	mg/kg	0.0018	0.00018	1
Benzene	0.0011		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.00014	J	mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1
Naphthalene	0.00062	J	mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	114		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-03
Client ID: PB35-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 10:45
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:33
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	0.043	J	mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
p/m-Xylene	0.50		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.064	0.019	1
Xylenes, Total	0.62		mg/kg	0.064	0.019	1
Isopropylbenzene	1.3		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.049	J	mg/kg	0.13	0.021	1
Naphthalene	0.98		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-04	Date Collected:	06/21/21 11:00
Client ID:	PB35-03-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 20:03
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D2
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 08:48
Analyst: MKS
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.89		mg/kg	0.070	0.023	2.5
1,2-Dichloroethane	ND		mg/kg	0.14	0.036	2.5
Toluene	10.		mg/kg	0.14	0.076	2.5
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	2.5
Ethylbenzene	12.		mg/kg	0.14	0.020	2.5
p/m-Xylene	46.		mg/kg	0.28	0.079	2.5
o-Xylene	8.4		mg/kg	0.14	0.041	2.5
Xylenes, Total	54.		mg/kg	0.14	0.041	2.5
Isopropylbenzene	1.2		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	15.		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	59.	E	mg/kg	0.28	0.047	2.5
Naphthalene	7.2		mg/kg	0.56	0.091	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05 D
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:00
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	50.		mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06 | Date Collected: 06/21/21 11:20
Client ID: PB35-04-SS01 | Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:27
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.41		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.89		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	7.9		mg/kg	0.059	0.0083	1
p/m-Xylene	34.		mg/kg	0.12	0.033	1
o-Xylene	5.8		mg/kg	0.059	0.017	1
Xylenes, Total	40.		mg/kg	0.059	0.017	1
Isopropylbenzene	0.80		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	10.		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.12	0.020	1
Naphthalene	5.2		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-06 D
Client ID: PB35-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:20
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 08:21
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	28.		mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-07	Date Collected:	06/21/21 11:30
Client ID:	PB35-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 21:54
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.54		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.12	0.020	1
Naphthalene	0.094	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08
Client ID: PB35-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:40
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 22:21
Analyst: JC
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	0.035	J	mg/kg	0.060	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	ND		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	1
Ethylbenzene	0.042	J	mg/kg	0.12	0.017	1
p/m-Xylene	0.21	J	mg/kg	0.24	0.068	1
o-Xylene	0.050	J	mg/kg	0.12	0.035	1
Xylenes, Total	0.26	J	mg/kg	0.12	0.035	1
Isopropylbenzene	2.3		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.24	0.040	1
Naphthalene	0.18	J	mg/kg	0.48	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 11:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 22:47
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.032	J	mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.070	0.018	1
Toluene	ND		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.65		mg/kg	0.070	0.0098	1
p/m-Xylene	ND		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.070	0.020	1
Xylenes, Total	ND		mg/kg	0.070	0.020	1
Isopropylbenzene	0.25		mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.023	1
Naphthalene	0.045	J	mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-09
Client ID: PB35-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:23
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0085		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0048		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.40	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0058		mg/kg	0.0021	0.00058	1
o-Xylene	0.0016		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0074		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.21		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00073	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.0034	J	mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	126		70-130
Toluene-d8	**170**	Q	70-130
4-Bromofluorobenzene	**702**	Q	70-130
Dibromofluoromethane	**43**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
Client ID: PB35-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 12:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:42
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.039	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.030	J	mg/kg	0.058	0.0082	1
p/m-Xylene	0.14		mg/kg	0.12	0.032	1
o-Xylene	0.13		mg/kg	0.058	0.017	1
Xylenes, Total	0.27		mg/kg	0.058	0.017	1
Isopropylbenzene	2.0		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.052	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.12	0.019	1
Naphthalene	0.40		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**198**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-11 D	Date Collected:	06/21/21 13:00
Client ID:	PB35-12-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/29/21 23:41
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	2
Benzene	0.71		mg/kg	0.061	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	2
Toluene	0.085	J	mg/kg	0.12	0.066	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	0.10	J	mg/kg	0.12	0.017	2
p/m-Xylene	0.13	J	mg/kg	0.24	0.068	2
o-Xylene	0.18		mg/kg	0.12	0.035	2
Xylenes, Total	0.31	J	mg/kg	0.12	0.035	2
Isopropylbenzene	4.8		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.24	0.040	2
Naphthalene	0.88		mg/kg	0.48	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**166**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12
Client ID: PB34-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:10
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 00:08
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.029	0.0098	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	ND		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	ND		mg/kg	0.059	0.0083	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.059	0.017	1
Xylenes, Total	ND		mg/kg	0.059	0.017	1
Isopropylbenzene	0.013	J	mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1
Naphthalene	0.12	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-13	Date Collected:	06/21/21 13:20
Client ID:	PB34-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 00:34
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.20		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	0.18		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.068	0.0095	1
p/m-Xylene	0.58		mg/kg	0.14	0.038	1
o-Xylene	0.096		mg/kg	0.068	0.020	1
Xylenes, Total	0.68		mg/kg	0.068	0.020	1
Isopropylbenzene	1.8		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.28		mg/kg	0.14	0.022	1
Naphthalene	1.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-13	Date Collected:	06/21/21 13:20
Client ID:	PB34-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:48
Analyst: MV
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00080	J	mg/kg	0.0025	0.00025	1
Benzene	0.0031		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0085		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.0046		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.023		mg/kg	0.0025	0.00070	1
o-Xylene	0.0060		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.029		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.13		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0050		mg/kg	0.0025	0.00042	1
Naphthalene	0.0050		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	127		70-130
4-Bromofluorobenzene	**187**	Q	70-130
Dibromofluoromethane	**49**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-14	Date Collected:	06/21/21 13:30
Client ID:	PB34-03-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:01
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.088		mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	0.052		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.24		mg/kg	0.052	0.0074	1
p/m-Xylene	0.059	J	mg/kg	0.10	0.029	1
o-Xylene	0.090		mg/kg	0.052	0.015	1
Xylenes, Total	0.15	J	mg/kg	0.052	0.015	1
Isopropylbenzene	1.3		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	2.6		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	3.3		mg/kg	0.10	0.017	1
Naphthalene	0.42		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-15	Date Collected:	06/21/21 13:40
Client ID:	PB34-07-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	06/30/21 01:28
Analyst:	JC
Percent Solids:	74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	ND		mg/kg	0.037	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.075	0.019	1
Toluene	ND		mg/kg	0.075	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	0.018	J	mg/kg	0.075	0.010	1
p/m-Xylene	ND		mg/kg	0.15	0.042	1
o-Xylene	ND		mg/kg	0.075	0.022	1
Xylenes, Total	ND		mg/kg	0.075	0.022	1
Isopropylbenzene	0.74		mg/kg	0.075	0.0081	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.050	J	mg/kg	0.15	0.025	1
Naphthalene	0.71		mg/kg	0.30	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**166**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-16	Date Collected:	06/21/21 13:50
Client ID:	PB34-11-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:54
Analyst: JC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	4.1		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.068	0.017	1
Toluene	2.3		mg/kg	0.068	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	13.		mg/kg	0.068	0.0095	1
p/m-Xylene	60.	E	mg/kg	0.14	0.038	1
o-Xylene	8.4		mg/kg	0.068	0.020	1
Isopropylbenzene	0.24		mg/kg	0.068	0.0074	1
1,3,5-Trimethylbenzene	4.5		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.14	0.023	1
Naphthalene	3.3		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16 D
Client ID: PB34-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 13:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:15
Analyst: MKS
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	51.		mg/kg	0.27	0.076	2
Xylenes, Total	59.		mg/kg	0.068	0.020	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-17
Client ID: PB34-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 01:48
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0037	0.00037	1
Benzene	0.0040		mg/kg	0.00093	0.00031	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00048	1
Toluene	0.0013	J	mg/kg	0.0018	0.0010	1
1,2-Dibromoethane	ND		mg/kg	0.00093	0.00054	1
Ethylbenzene	0.00068	J	mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0037	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00054	1
Xylenes, Total	ND		mg/kg	0.0018	0.00054	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0037	0.00036	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0037	0.00062	1
Naphthalene	ND		mg/kg	0.0074	0.0012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	130		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-18	Date Collected:	06/21/21 14:10
Client ID:	PB34-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:21
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.31		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	0.12		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	4.1		mg/kg	0.059	0.0083	1
p/m-Xylene	2.9		mg/kg	0.12	0.033	1
o-Xylene	0.59		mg/kg	0.059	0.017	1
Xylenes, Total	3.5		mg/kg	0.059	0.017	1
Isopropylbenzene	0.61		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	8.8		mg/kg	0.12	0.020	1
Naphthalene	1.7		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
Client ID: PB40-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:25
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:13
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	0.0024		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20
Client ID: PB40-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:38
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	0.0027		mg/kg	0.00041	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00082	0.00021	1
Toluene	ND		mg/kg	0.00082	0.00044	1
1,2-Dibromoethane	ND		mg/kg	0.00041	0.00024	1
Ethylbenzene	0.00020	J	mg/kg	0.00082	0.00012	1
p/m-Xylene	0.00069	J	mg/kg	0.0016	0.00046	1
o-Xylene	ND		mg/kg	0.00082	0.00024	1
Xylenes, Total	0.00069	J	mg/kg	0.00082	0.00024	1
Isopropylbenzene	0.00020	J	mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.00030	J	mg/kg	0.0016	0.00027	1
Naphthalene	0.00053	J	mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-21	Date Collected:	06/21/21 14:45
Client ID:	DUP-7	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 02:47
Analyst: JC
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.43		mg/kg	0.029	0.0096	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.037	J	mg/kg	0.058	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	1.3		mg/kg	0.058	0.0082	1
p/m-Xylene	1.6		mg/kg	0.12	0.032	1
o-Xylene	0.047	J	mg/kg	0.058	0.017	1
Xylenes, Total	1.6	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.22		mg/kg	0.058	0.0063	1
1,3,5-Trimethylbenzene	0.22		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.12	0.019	1
Naphthalene	1.9		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-22
Client ID: TB
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 00:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 11:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-23	Date Collected:	06/21/21 16:00
Client ID:	FB-210621-1	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/25/21 13:23
Analytical Date:	06/25/21 15:45		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-23	Date Collected:	06/21/21 16:00
Client ID:	FB-210621-1	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:16
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24
Client ID: FB-210621-2
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 16:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/25/21 15:51
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-24	Date Collected:	06/21/21 16:05
Client ID:	FB-210621-2	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:39
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 23-24 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 07:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06,10,16 Batch: WG1518719-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	0.0090	J	mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:39
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 19:09
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,04 Batch: WG1518777-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/29/21 18:11
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,19-20 Batch: WG1518837-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09,13 Batch: WG1518909-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:56
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23-24 Batch: WG1519961-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 23-24 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,05-09,11-16,18,21 Batch: WG1518719-3 WG1518719-4								
Methyl tert butyl ether	91		92		66-130	1		30
Benzene	90		89		70-130	1		30
1,2-Dichloroethane	92		93		70-130	1		30
Toluene	88		86		70-130	2		30
1,2-Dibromoethane	99		101		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	89		90		70-130	1		30
Isopropylbenzene	89		87		70-130	2		30
1,3,5-Trimethylbenzene	89		87		70-130	2		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	94		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	94		94		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	93		93		70-130
Dibromofluoromethane	99		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06,10,16 Batch: WG1518719-8 WG1518719-9								
Methyl tert butyl ether	92		90		66-130	2		30
Benzene	85		81		70-130	5		30
1,2-Dichloroethane	91		88		70-130	3		30
Toluene	84		80		70-130	5		30
1,2-Dibromoethane	97		99		70-130	2		30
Ethylbenzene	85		82		70-130	4		30
p/m-Xylene	85		82		70-130	4		30
o-Xylene	84		82		70-130	2		30
Isopropylbenzene	89		84		70-130	6		30
1,3,5-Trimethylbenzene	88		82		70-130	7		30
1,2,4-Trimethylbenzene	86		81		70-130	6		30
Naphthalene	94		94		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,04 Batch: WG1518777-3 WG1518777-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	100		102		70-130	2		30
1,2-Dichloroethane	90		92		70-130	2		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	99		99		70-130	0		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	96		96		70-130	0		30
o-Xylene	98		95		70-130	3		30
Isopropylbenzene	97		96		70-130	1		30
1,3,5-Trimethylbenzene	99		97		70-130	2		30
1,2,4-Trimethylbenzene	100		98		70-130	2		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		90		70-130
Toluene-d8	94		93		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	107		109		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,19-20 Batch: WG1518837-3 WG1518837-4								
Methyl tert butyl ether	89		88		66-130	1		30
Benzene	84		82		70-130	2		30
1,2-Dichloroethane	97		95		70-130	2		30
Toluene	96		93		70-130	3		30
1,2-Dibromoethane	95		94		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	109		108		70-130	1		30
1,3,5-Trimethylbenzene	109		110		70-130	1		30
1,2,4-Trimethylbenzene	108		108		70-130	0		30
Naphthalene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		113		70-130
Toluene-d8	108		106		70-130
4-Bromofluorobenzene	113		116		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09,13 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23-24 Batch: WG1519961-3 WG1519961-4								
Methyl tert butyl ether	96		97		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	96		98		70-130	2		20
Ethylbenzene	98		98		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	95		97		70-130	2		20
1,3,5-Trimethylbenzene	93		96		64-130	3		20
1,2,4-Trimethylbenzene	93		94		70-130	1		20
Naphthalene	85		93		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	103		103		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

METALS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01 Date Collected: 06/21/21 10:35
Client ID: PB34-12-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	66.2		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 19:36	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-02	Date Collected:	06/21/21 10:40
Client ID:	PB34-14-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	144		mg/kg	2.17	0.116	1	06/28/21 23:57	07/14/21 20:05	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-03	Date Collected:	06/21/21 10:45
Client ID:	PB35-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	84.4		mg/kg	2.26	0.121	1	06/28/21 23:57	07/14/21 20:10	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-04	Date Collected:	06/21/21 11:00
Client ID:	PB35-03-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	417		mg/kg	2.16	0.116	1	06/28/21 23:57	07/14/21 20:14	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-05	Date Collected:	06/21/21 11:05
Client ID:	PB35-08-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.41		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:18	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-06	Date Collected:	06/21/21 11:20
Client ID:	PB35-04-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.32		mg/kg	2.41	0.129	1	06/28/21 23:57	07/14/21 20:23	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-07	Date Collected:	06/21/21 11:30
Client ID:	PB35-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.32		mg/kg	2.45	0.132	1	06/28/21 23:57	07/14/21 20:27	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-08 | Date Collected: 06/21/21 11:40

Client ID: PB35-01-SS01 | Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	2.46	0.132	1	06/28/21 23:57	07/14/21 20:31	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-09	Date Collected:	06/21/21 11:50
Client ID:	PB35-07-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.54		mg/kg	2.36	0.126	1	06/28/21 23:57	07/14/21 20:44	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-10	Date Collected:	06/21/21 12:50
Client ID:	PB35-15-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.62		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 20:48	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11 Date Collected: 06/21/21 13:00
Client ID: PB35-12-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.73		mg/kg	2.40	0.128	1	06/28/21 23:57	07/14/21 20:53	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-12	Date Collected:	06/21/21 13:10
Client ID:	PB34-06-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.84		mg/kg	2.24	0.120	1	06/28/21 23:57	07/14/21 20:57	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13 Date Collected: 06/21/21 13:20
Client ID: PB34-05-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	244		mg/kg	2.27	0.122	1	06/28/21 23:57	07/14/21 21:02	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14 Date Collected: 06/21/21 13:30

Client ID: PB34-03-SS01 Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1330		mg/kg	2.25	0.121	1	06/28/21 23:57	07/14/21 21:06	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-15	Date Collected:	06/21/21 13:40
Client ID:	PB34-07-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	74%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	124		mg/kg	2.70	0.145	1	06/28/21 23:57	07/14/21 21:10	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-16 Date Collected: 06/21/21 13:50
Client ID: PB34-11-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	34.8		mg/kg	2.51	0.135	1	06/28/21 23:57	07/14/21 21:14	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-17	Date Collected:	06/21/21 14:00
Client ID:	PB34-01-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	177		mg/kg	2.55	0.137	1	06/28/21 23:57	07/14/21 21:19	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-18	Date Collected:	06/21/21 14:10
Client ID:	PB34-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	20.0		mg/kg	2.31	0.124	1	06/28/21 23:57	07/14/21 21:23	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-19	Date Collected:	06/21/21 14:25
Client ID:	PB40-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	355		mg/kg	2.19	0.117	1	06/28/21 23:57	07/14/21 21:36	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20 Date Collected: 06/21/21 14:35
Client ID: PB40-06-SS01 Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	247		mg/kg	2.32	0.124	1	06/28/21 23:57	07/14/21 21:40	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21
Client ID: DUP-7
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:45
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	29.8		mg/kg	2.20	0.118	1	06/29/21 09:00	07/13/21 20:00	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-23	Date Collected:	06/21/21 16:00
Client ID:	FB-210621-1	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/15/21 19:47	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575

Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-24 | Date Collected: 06/21/21 16:05

Client ID: FB-210621-2 | Date Received: 06/21/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/15/21 19:51	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 23-24 Batch: WG1515564-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/24/21 06:44	07/12/21 14:00	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-20 Batch: WG1517780-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/28/21 23:57	07/14/21 19:02	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21 Batch: WG1517946-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/29/21 09:00	07/13/21 16:48	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 Batch: WG1515564-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-20 Batch: WG1517780-2 SRM Lot Number: D109-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 21 Batch: WG1517946-2 SRM Lot Number: D109-540								
Lead, Total	97		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 23-24 QC Batch ID: WG1515564-3 QC Sample: L2133576-07 Client ID: MS Sample												
Lead, Total	8.680	530	543.0	101		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-3 QC Sample: L2133575-01 Client ID: PB34-12-SS01												
Lead, Total	66.2	53.1	94.5	**53**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-3 QC Sample: L2134264-01 Client ID: MS Sample												
Lead, Total	11.0	51.7	55.2	85		-	-		75-125	-		20

Project Name:	PHILADELPHIA REFINERY	***Lab Number:***	L2133575
Project Number:	200.00135.005.03	***Report Date:***	07/19/21

Lab Duplicate Analysis
Batch Quality Control

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-4 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	49.0	mg/kg	**30**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1517946-4 QC Sample: L2134264-01 Client ID: DUP Sample						
Lead, Total	11.0	9.52	mg/kg	14		20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-20 QC Batch ID: WG1517780-6 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Lead, Total	66.2	89.1	mg/kg	**35**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-01
Client ID: PB34-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 10:35
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-02
Date Collected: 06/21/21 10:40
Client ID: PB34-14-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-03	Date Collected:	06/21/21 10:45
Client ID:	PB35-05-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-04
Client ID: PB35-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 11:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-05
Client ID: PB35-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 11:05
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-06	Date Collected:	06/21/21 11:20
Client ID:	PB35-04-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-07	Date Collected:	06/21/21 11:30
Client ID:	PB35-02-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-08	Date Collected:	06/21/21 11:40
Client ID:	PB35-01-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-09	Date Collected:	06/21/21 11:50
Client ID:	PB35-07-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-10
Client ID: PB35-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 12:50
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-11
Client ID: PB35-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-12
Date Collected: 06/21/21 13:10
Client ID: PB34-06-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-13
Date Collected: 06/21/21 13:20
Client ID: PB34-05-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-14
Client ID: PB34-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 13:30
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.1		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-15	Date Collected:	06/21/21 13:40
Client ID:	PB34-07-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133575
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133575-16	Date Collected:	06/21/21 13:50
Client ID:	PB34-11-SS01	Date Received:	06/21/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-17
Client ID: PB34-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 14:00
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.6		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133575
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-18
Client ID: PB34-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:10
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-19
Client ID: PB40-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:25
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-20
Date Collected: 06/21/21 14:35
Client ID: PB40-06-SS01
Date Received: 06/21/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/22/21 08:09	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133575
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133575-21
Client ID: DUP-7
Sample Location: PHILADELPHIA, PA
Date Collected: 06/21/21 14:45
Date Received: 06/21/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.6		%	0.100	NA	1	-	06/22/21 12:18	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1515199-1 QC Sample: L2133575-01 Client ID: PB34-12-SS01						
Solids, Total	75.6	75.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515283-1 QC Sample: L2132596-01 Client ID: DUP Sample						
Solids, Total	26.6	25.5	%	4		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-01B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-01E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-02B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-02E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-03B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-03E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-04B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-04E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-05B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133575
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-05C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-05E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-06B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-06E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-07A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-07B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-07E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133575-08B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-08E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-09A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-09B	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09C	Vial water preserved	A	NA		2.9	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.9	Y	Absent		PB-TI(180)
L2133575-09E	Plastic 120ml unpreserved	A	NA		2.9	Y	Absent		TS(7)
L2133575-10A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-10B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-10E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-11A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-11B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-11E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-12A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-12B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-12E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-13A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133575-13B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260H(14),PA-8260HLW(14)
L2133575-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-13E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-14A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-14B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-14D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-14E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-15A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-15B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-15E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-16A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-16B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-16C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-16D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-16E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-17A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-17B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-17E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-18A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-18B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-18E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-19A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-19B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-19E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-20A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-20B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-20E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-21A	Vial MeOH preserved	B	NA		5.1	Y	Absent		PA-8260HLW(14)
L2133575-21B	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21C	Vial water preserved	B	NA		5.1	Y	Absent	22-JUN-21 07:57	PA-8260HLW(14)
L2133575-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.1	Y	Absent		PB-TI(180)
L2133575-21E	Plastic 120ml unpreserved	B	NA		5.1	Y	Absent		TS(7)
L2133575-22A	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133575-22B	Vial HCl preserved	B	NA		5.1	Y	Absent		PA-8260(14)
L2133575-23A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-23D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-23F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133575-24A	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24B	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24C	Vial HCl preserved	A	NA		2.9	Y	Absent		PA-8260(14)
L2133575-24D	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24E	Vial Na2S2O3 preserved	A	NA		2.9	Y	Absent		8011(14)
L2133575-24F	Plastic 250ml HNO3 preserved	A	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: *DU Report with 'J' Qualifiers*

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133575
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING

Filtration: ☐ Done ☒ Not Needed ☐ Lab to do

Preservation: ☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33575-01	PB34-12-SS01	6/21	1035	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB34-14-SS01	6/21	1040	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB35-05-SS01		1045			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB35-03-SS01		1100			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB35-08-SS01		1105			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	PB35-04-SS01		1120			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-07	PB35-02-SS01		1130			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-08	PB35-01-SS01		1140			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-09	PB35-07-SS01		1150			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-10	PB35-15-SS01		1250			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	6/21 1615	[illegible]	6/21/21 1615
[illegible]	6/21/21 [illegible]	[illegible] AAL	6/21 1A0
[illegible]	6/21 2230	[illegible] AAL	6/21/21 22:00
[illegible] AAL 6/22/21 0215		[illegible]	6/22/21 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 3-JAN-12)

CHAIN OF COUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33575-11	PB35-12-SS01	6/21	1300	S	TS	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB34-06-SS01	↓	1310	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	PB34-05-SS01	↓	1320	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-14	PB34-03-SS01	↓	1330	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-15	PB34-07-SS01	↓	1340	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-16	PB34-11-SS01	↓	1350	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-17	PB34-01-SS01	↓	1400	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-18	PB34-02-SS01	↓	1410	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-19	PB40-05-SS01	↓	1425	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-20	PB40-06-SS01		1435	↓	↓	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/21 1615	[signature] AAL	6/21/21 1615
[signature] AAL	6/21/21 1800	[signature]	6-21 1800
[signature] AAL	6-21 2030	[signature] AAL	6/21/21 22:00
[signature] AAL	6/22/21 0215	[signature]	6/22/21 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-HJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/22/21

ALPHA Job #: L2133575

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Program

Criteria:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
33575-21	Dup-7	6/21	1445	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	TB					☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
-23	FB-210621-1	6/21	1600	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-24	FB-210621-2	6/21	1605	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
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[signature] AAL	6/21/21 10:00	[signature]	6-21/21 [illegible]
[signature] AAL	6/21/21 2300	[signature] AAL	6/21/21 22:00
[signature] AAL	6/22/21 02:15	[signature]	6/22/21 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

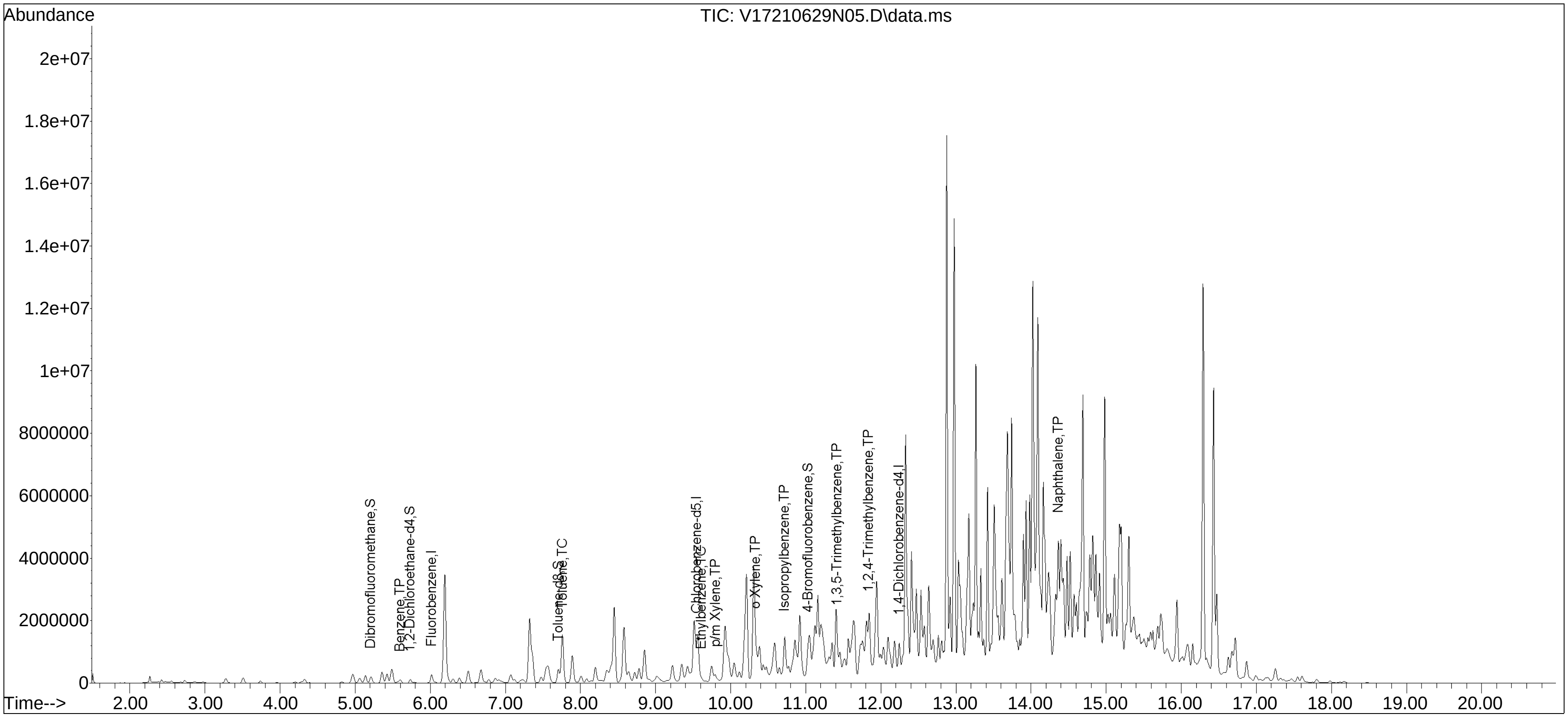
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N05.D
Acq On : 29 Jun 2021 08:06 pm
Operator : VOA117:JC
Sample : L2133575-01,31H,2.52,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jun 30 06:09:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•



Quantitation Report (QT Reviewed)

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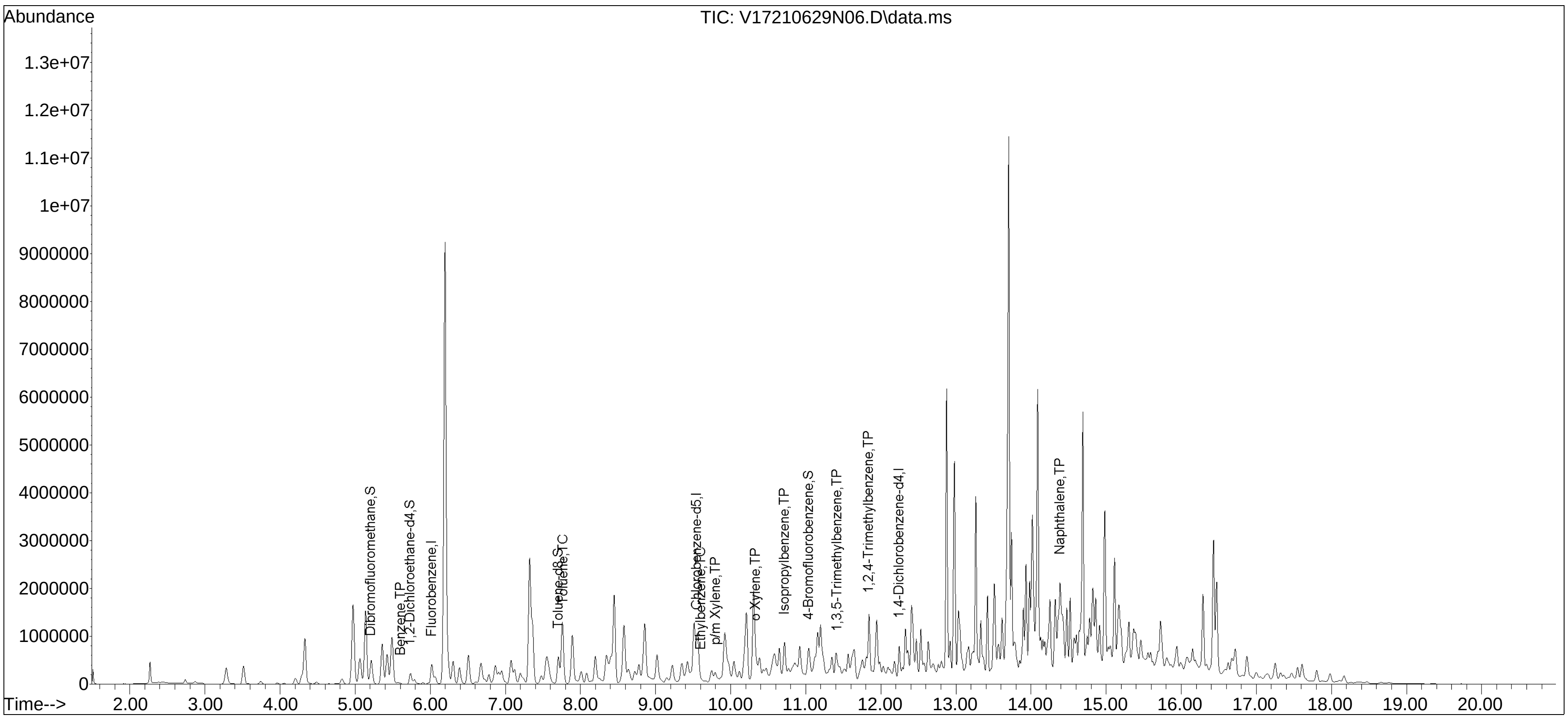
Acq On : 29 Jun 2021 08:33 pm
Operator : VOA117:JC
Sample : L2133575-03,31H,5.67,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jun 30 06:10:09 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

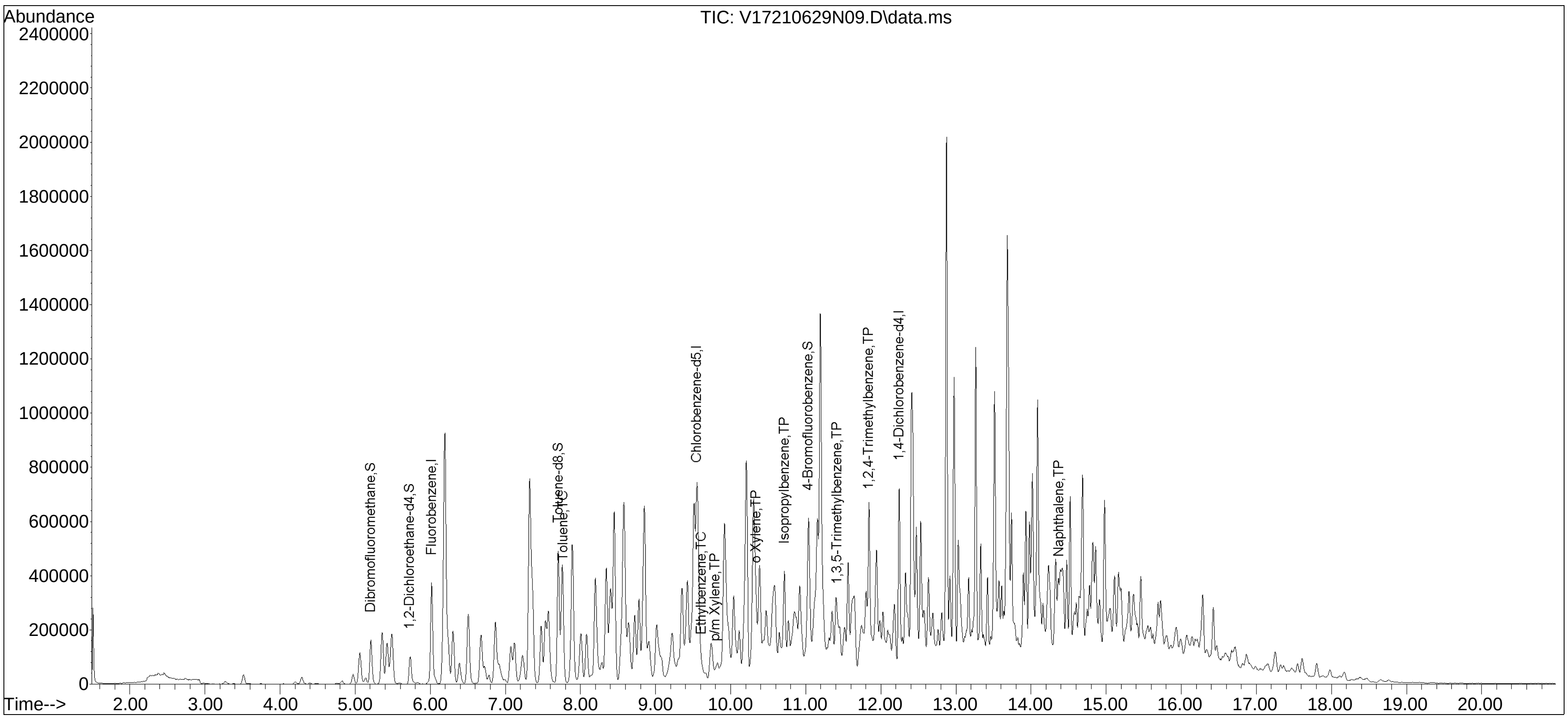


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N09.D
Acq On : 29 Jun 2021 09:54 pm
Operator : VOA117:JC
Sample : L2133575-07,31H,6.40,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jun 30 06:11:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

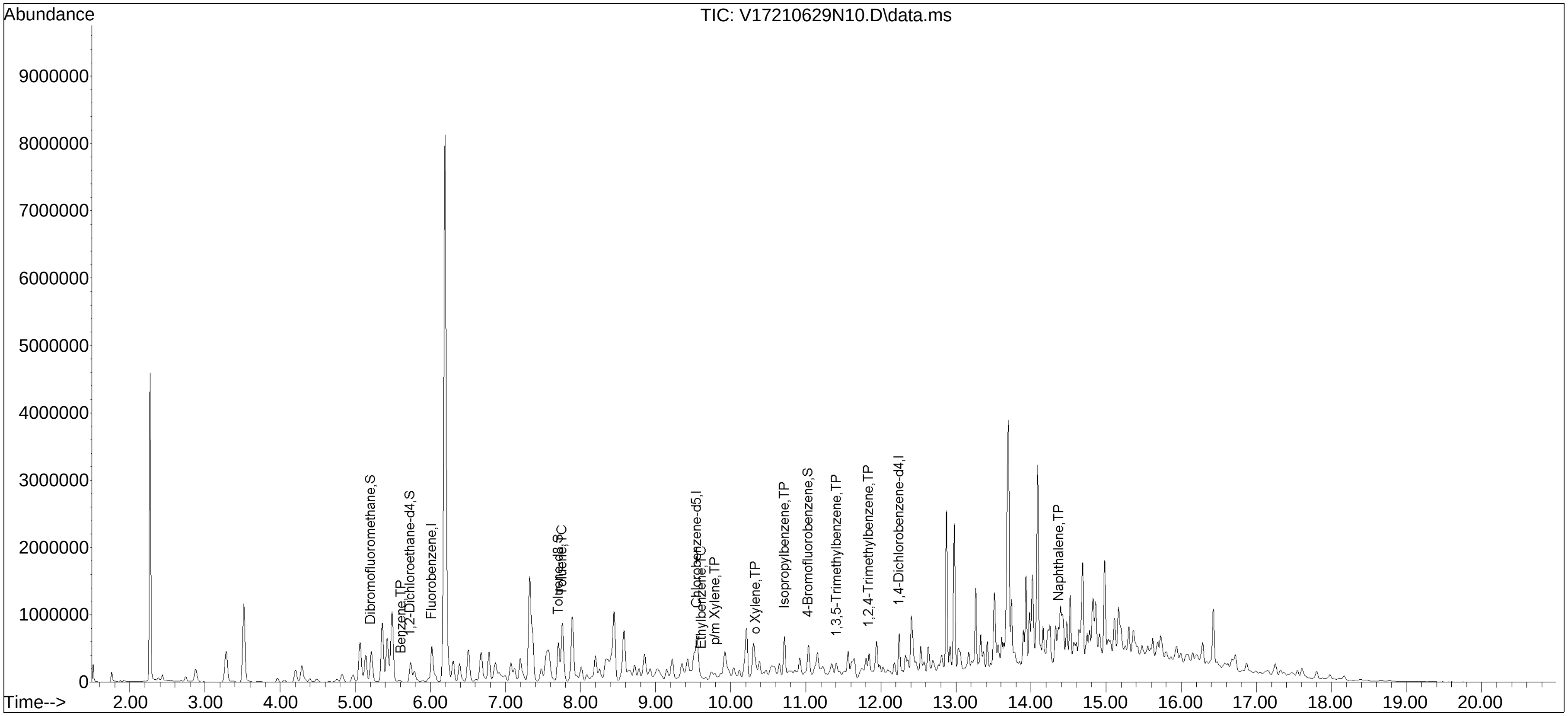


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N10.D
Acq On : 29 Jun 2021 10:21 pm
Operator : VOA117:JC
Sample : L2133575-08,31H,3.12,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jun 30 06:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

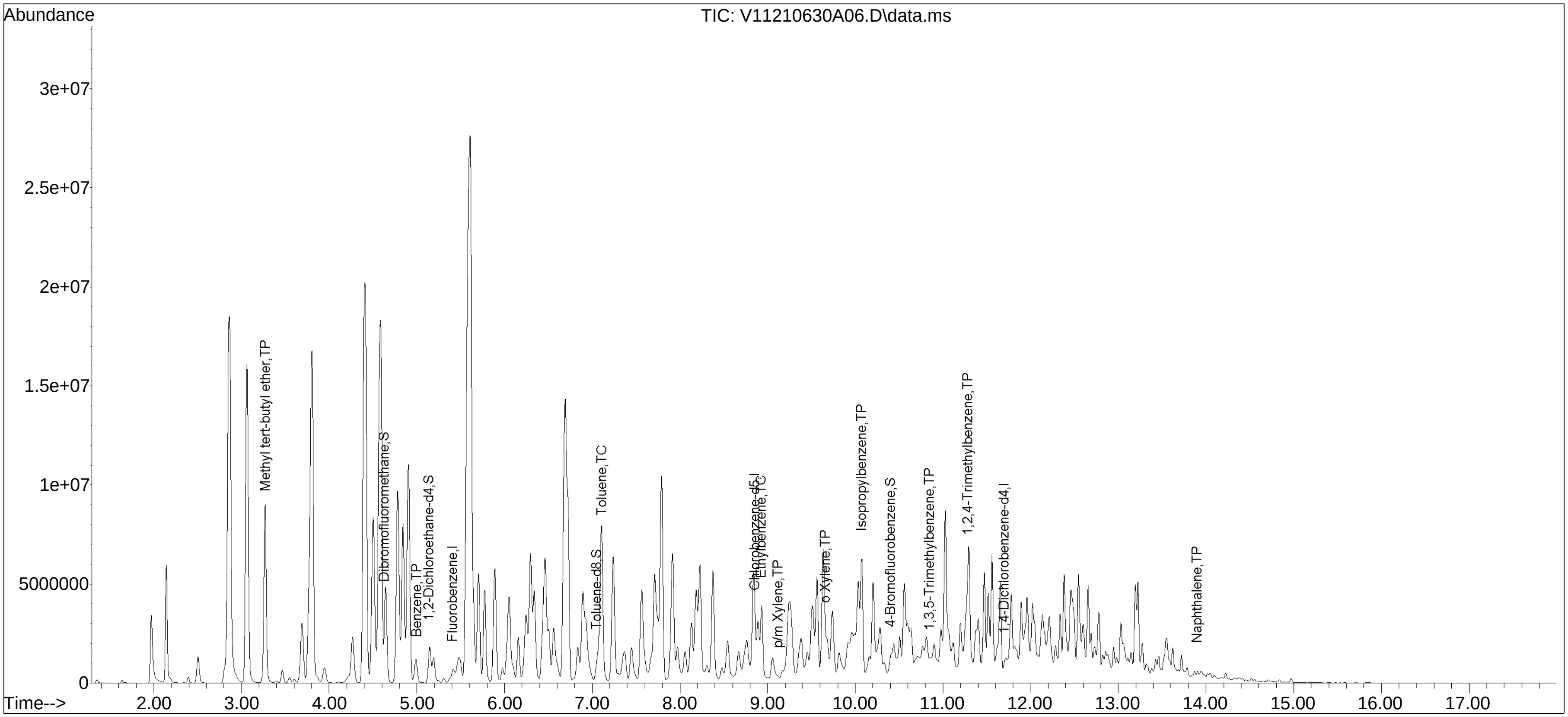


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A06.D
Acq On   : 30 Jun 2021 07:23 am
Operator : VOA111:MV
Sample   : L2133575-09,31,6.00,5,,B
Misc   : WG1518909,ICAL18049
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Jun 30 11:00:54 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report   (QT Reviewed)

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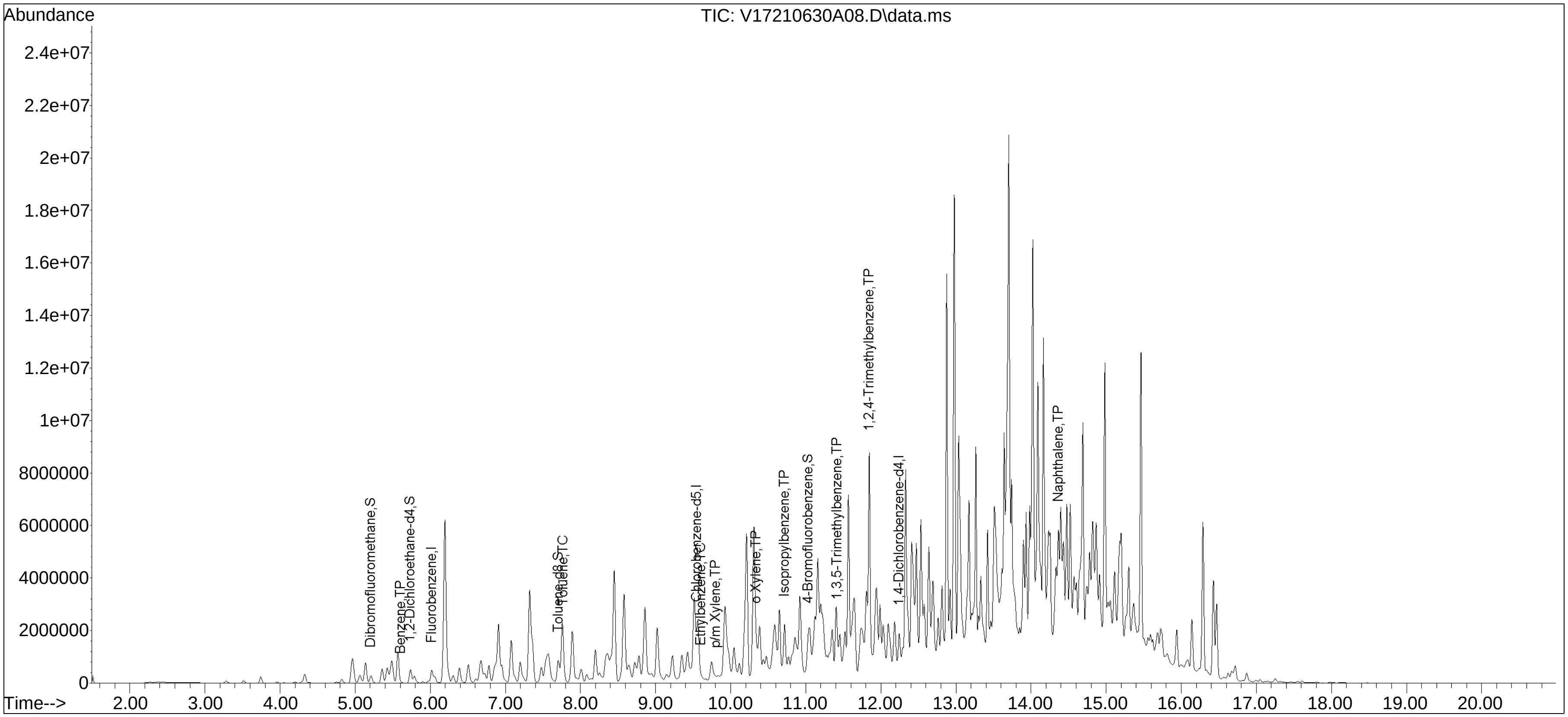
Data File : V17210630A08.D
Acq On   : 30 Jun 2021 09:42 am
Operator : VOA117:MKS
Sample   : L2133575-10,31H,6.35,5,0.100,,A
Misc   : WG1518719,ICAL18099
ALS Vial : 8   Sample Multiplier: 1

Quant Time: Jun 30 13:47:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210630A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V17210630A01.D•



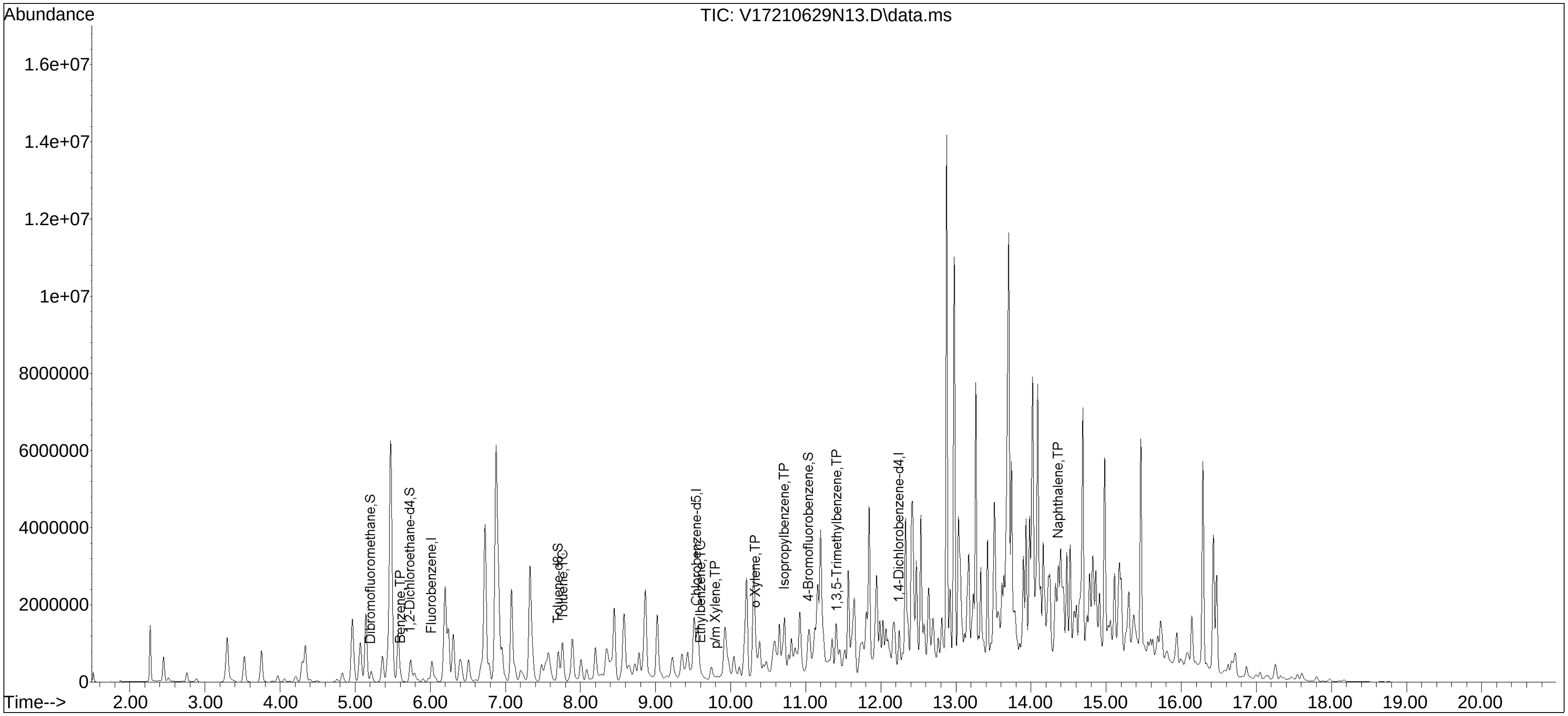
V117_210626A_8260.m Wed Jun 30 14:24:48 2021   Page: 2

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N13.D
Acq On   : 29 Jun 2021 11:41 pm
Operator : VOA117:JC
Sample   : L2133575-11D,31H,6.11,5,0.050,,A
Misc   : WG1518719,ICAL18099
ALS Vial : 13   Sample Multiplier: 1

Quant Time: Jun 30 06:15:22 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•



Quantitation Report (QT Reviewed)

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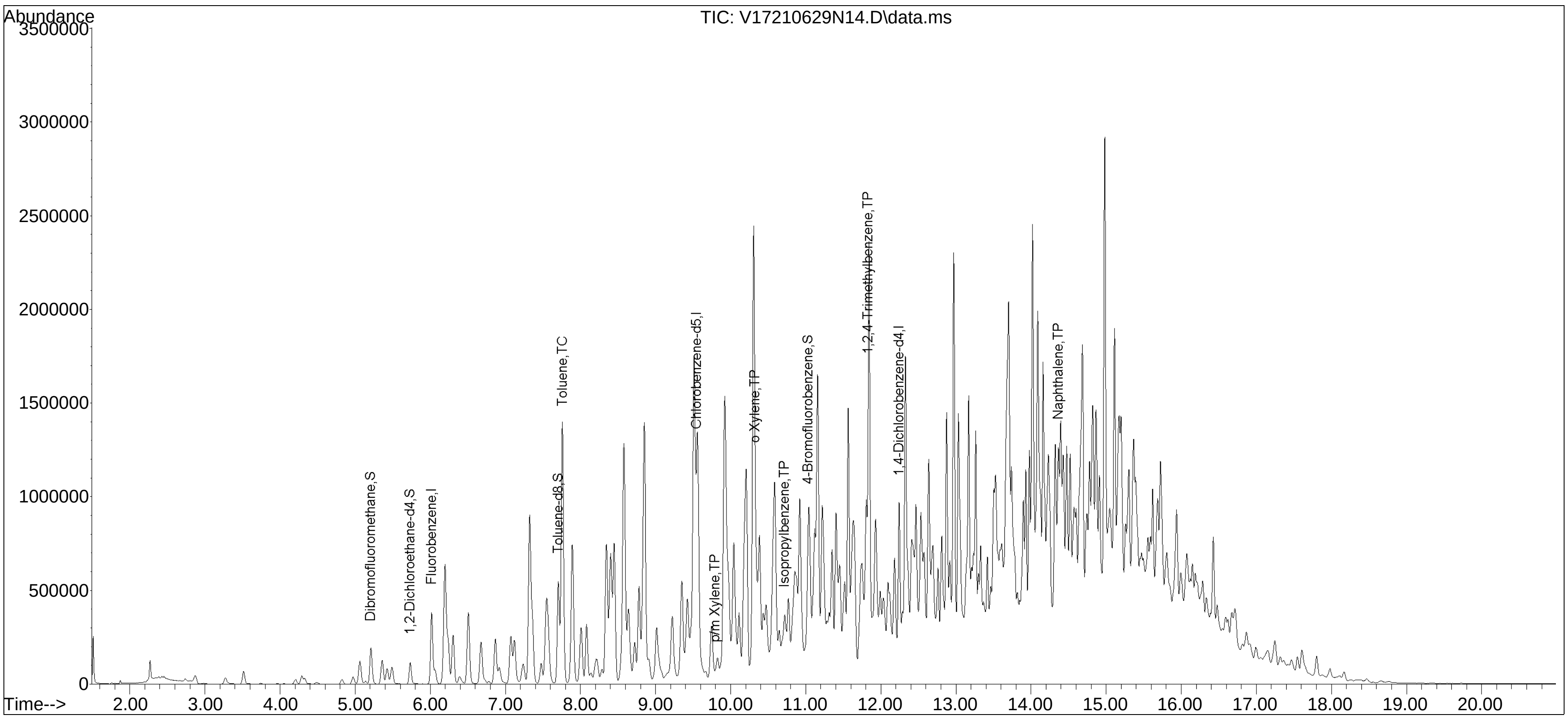
Data File : V17210629N14.D
Acq On : 30 Jun 2021 12:08 am
Operator : VOA117:JC
Sample : L2133575-12,31H,6.19,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Jun 30 06:15:35 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•



Quantitation Report (QT Reviewed)

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Data File : V11210630A07.D
Acq On    : 30 Jun 2021  07:48 am
Operator  : VOA111:MV
Sample    : L2133575-13,31,4.76,5,,B
Misc      : WG1518909,ICAL18049
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Jun 30 11:01:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
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Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
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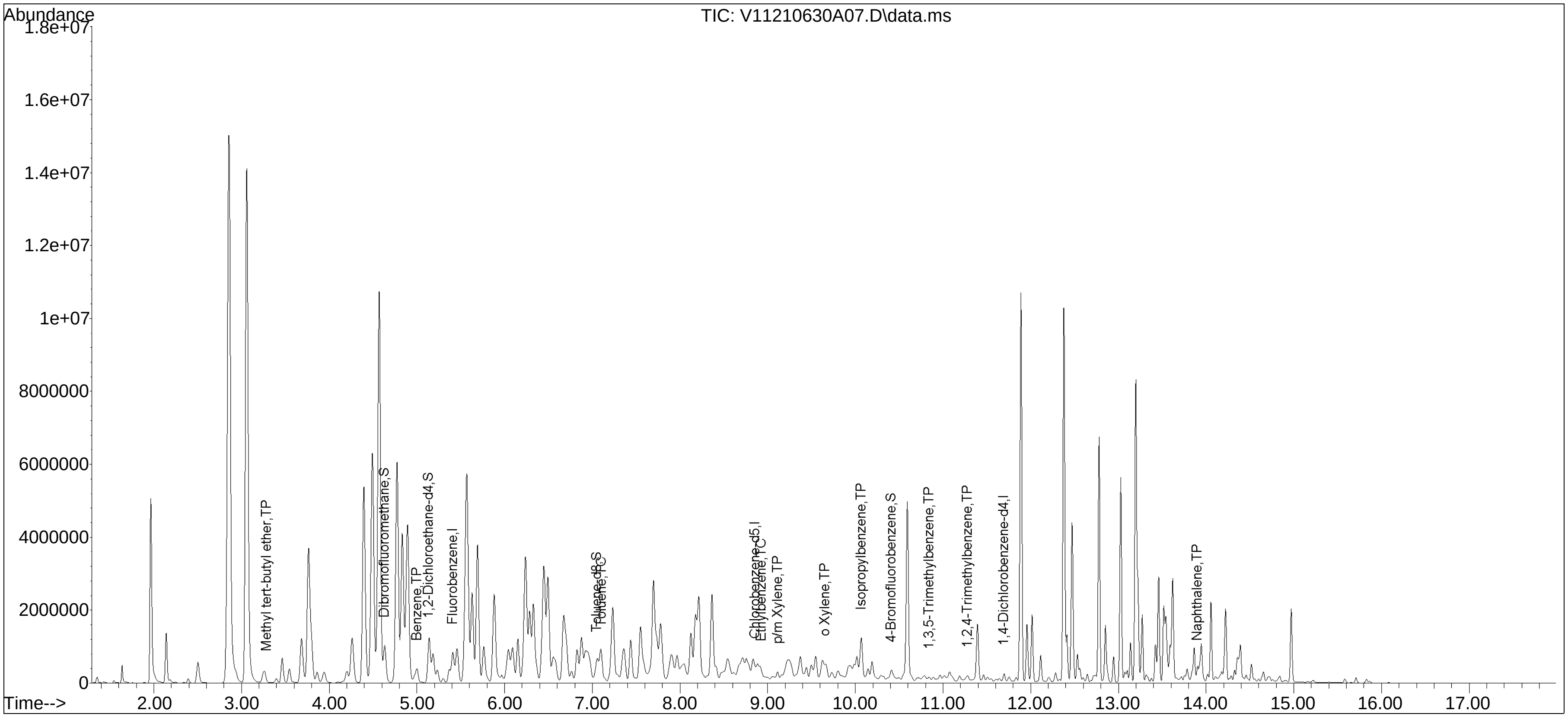
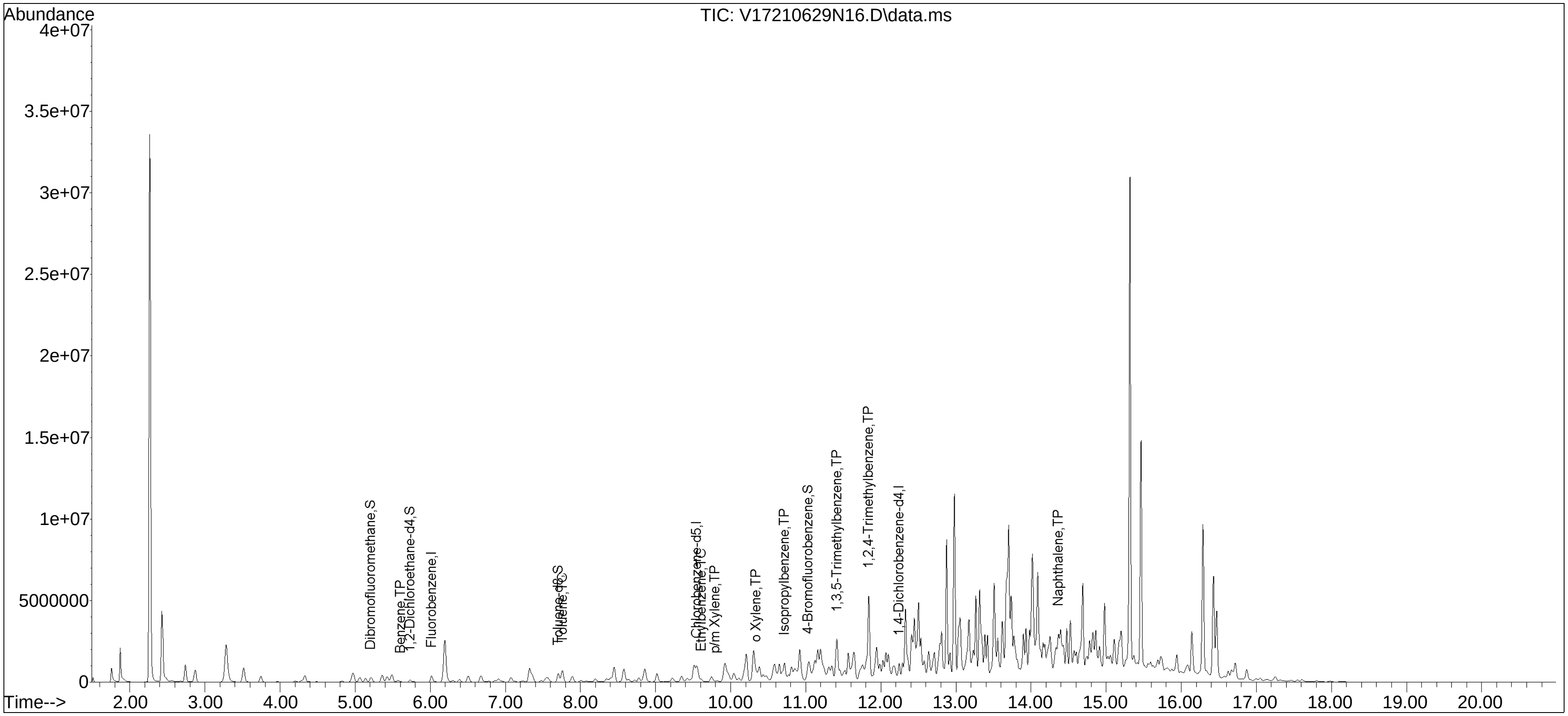


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N16.D
Acq On : 30 Jun 2021 01:01 am
Operator : VOA117:JC
Sample : L2133575-14,31H,7.15,5,0.100,,A
Misc : WG1518719,ICAL18099
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jun 30 06:02:10 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•

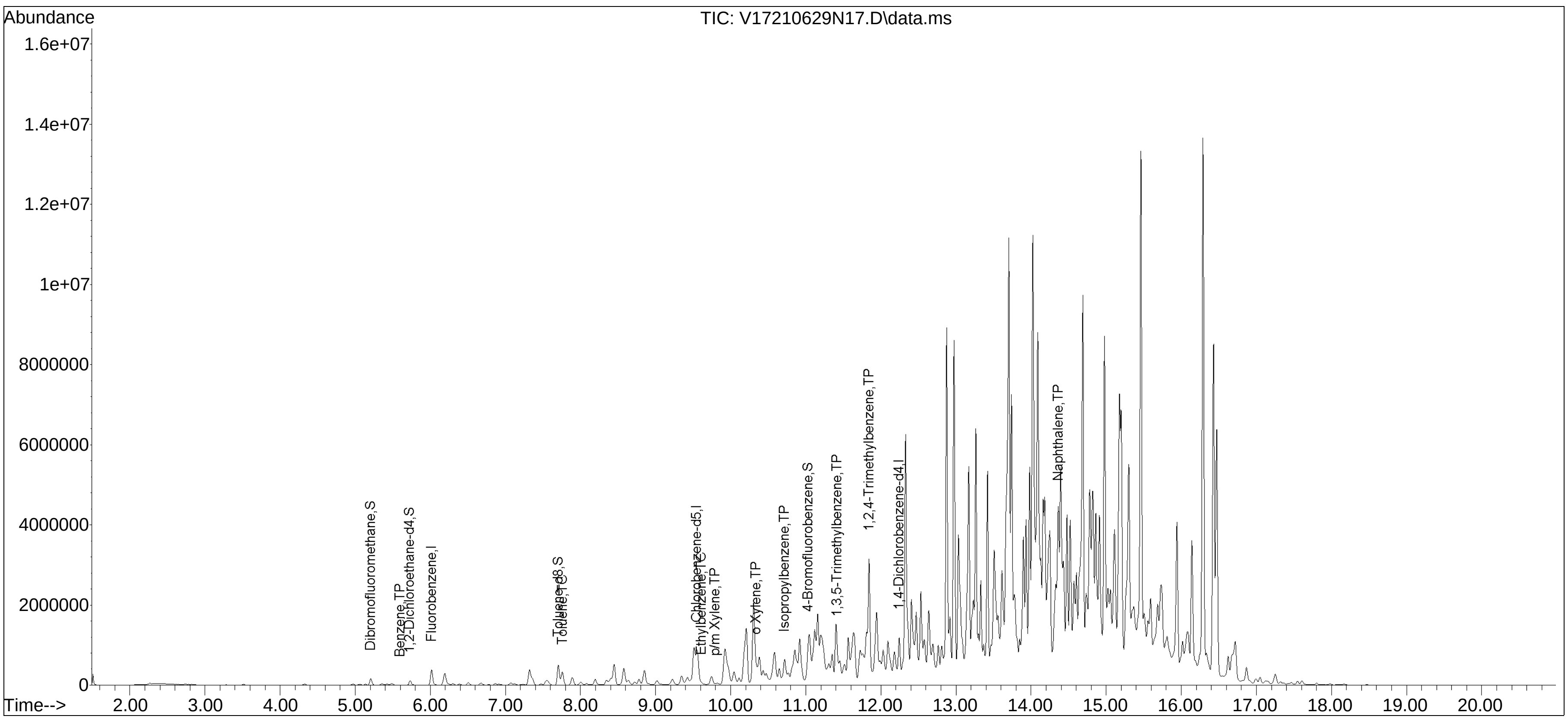


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210629N\
Data File : V17210629N17.D
Acq On    : 30 Jun 2021  01:28 am
Operator  : VOA117:JC
Sample    : L2133575-15,31H,5.95,5,0.100,,A
Misc      : WG1518719,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jun 30 06:17:17 2021
Quant Method : I:\VOLATILES\VOA117\2021\210629N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V17210629N01.D•
```

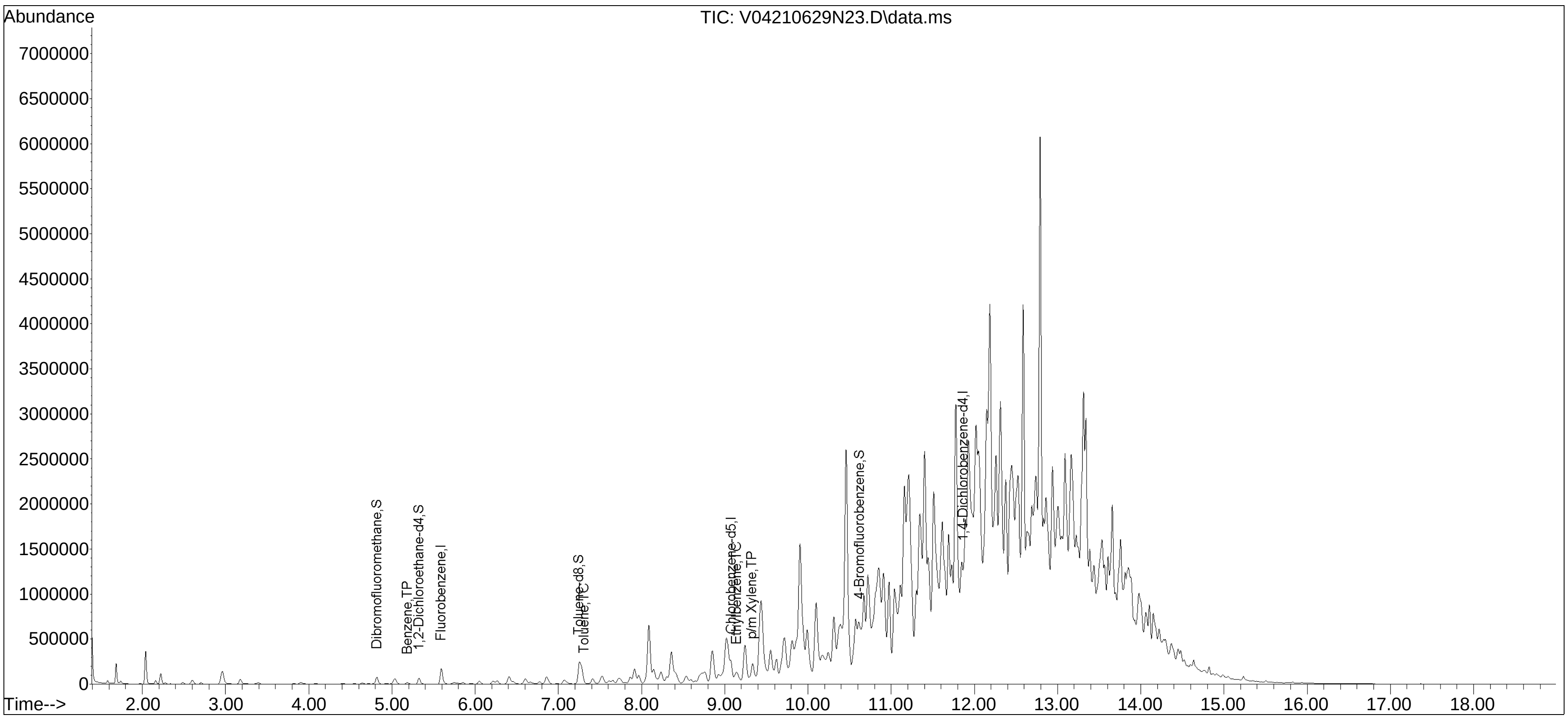


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA104\2021\210629N\
Data File : V04210629N23.D
Acq On    : 30 Jun 2021   1:48 am
Operator  : VOA104:JC
Sample    : L2133575-17,31,3.66,5,,C
Misc      : WG1518837,ICAL18000
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jun 30 07:20:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\210629N\V104_210526A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed May 26 11:45:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list29N\V04210629N01.D•
```



ANALYTICAL REPORT

Lab Number:	L2133823
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2133823-01	PB40-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:00	06/22/21
L2133823-02	PB40-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:20	06/22/21
L2133823-03	PB40-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:30	06/22/21
L2133823-04	PB40-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 08:50	06/22/21
L2133823-05	PB40-07-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:00	06/22/21
L2133823-06	PB40-08-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:15	06/22/21
L2133823-07	PB40-09-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:30	06/22/21
L2133823-08	PB40-10-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:45	06/22/21
L2133823-09	PB40-11-SS01	SOIL	PHILADELPHIA, PA	06/22/21 09:55	06/22/21
L2133823-10	PB40-12-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:05	06/22/21
L2133823-11	PB40-13-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:15	06/22/21
L2133823-12	PB40-14-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:30	06/22/21
L2133823-13	PB40-15-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:40	06/22/21
L2133823-14	PB40-16-SS01	SOIL	PHILADELPHIA, PA	06/22/21 10:50	06/22/21
L2133823-15	PB128-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:10	06/22/21
L2133823-16	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:15	06/22/21
L2133823-17	PB128-02-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:25	06/22/21
L2133823-18	PB128-03-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:35	06/22/21
L2133823-19	PB128-04-SS01	SOIL	PHILADELPHIA, PA	06/22/21 12:45	06/22/21
L2133823-20	PB128-05-SS01	SOIL	PHILADELPHIA, PA	06/22/21 13:00	06/22/21
L2133823-21	DUP-8	SOIL	PHILADELPHIA, PA	06/22/21 13:10	06/22/21
L2133823-22	FB-210622-1	WATER	PHILADELPHIA, PA	06/22/21 12:00	06/22/21
L2133823-23	FB-210622-2	WATER	PHILADELPHIA, PA	06/22/21 13:20	06/22/21
L2133823-24	TB	WATER	PHILADELPHIA, PA	06/22/21 00:00	06/22/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2133823-16: The analyses were canceled at the client's request.

Volatile Organics

L2133823-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (253%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-02D, -06D, and -08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2133823-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (262%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-03, -04, -05, and -10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2133823-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (244%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2133823-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (142%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2133823-06D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (301%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (156%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (358%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (141%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (776%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-17: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.
L2133823-17 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (44%), and 1,4-

Case Narrative (continued)

dichlorobenzene-d4 (34%) and the surrogate recovery for 4-bromofluorobenzene (239%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.
L2133823-19: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2133823-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (252%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-20 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (191%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2133823-20: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

Total Metals
The WG1517740-3 MS recovery for lead (0%), performed on L2133823-01, does not apply because the sample concentration is greater than four times the spike amount added.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-01
Client ID: PB40-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 08:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 13:48
Analyst: AJK
Percent Solids: 68%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.040	J	mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.087	0.022	1
Toluene	0.062	J	mg/kg	0.087	0.047	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.061	J	mg/kg	0.087	0.012	1
p/m-Xylene	0.21		mg/kg	0.17	0.049	1
o-Xylene	0.055	J	mg/kg	0.087	0.025	1
Xylenes, Total	0.26	J	mg/kg	0.087	0.025	1
Isopropylbenzene	3.9		mg/kg	0.087	0.0095	1
1,3,5-Trimethylbenzene	0.027	J	mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.17	0.029	1
Naphthalene	1.2		mg/kg	0.35	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**253**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-02 D	Date Collected:	06/22/21 08:20
Client ID:	PB40-02-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 12:31
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.025	2
Benzene	ND		mg/kg	0.062	0.020	2
1,2-Dichloroethane	ND		mg/kg	0.12	0.032	2
Toluene	ND		mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.062	0.036	2
Ethylbenzene	0.044	J	mg/kg	0.12	0.017	2
p/m-Xylene	ND		mg/kg	0.25	0.069	2
o-Xylene	0.12		mg/kg	0.12	0.036	2
Xylenes, Total	0.12		mg/kg	0.12	0.036	2
Isopropylbenzene	12.		mg/kg	0.12	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	0.058	J	mg/kg	0.25	0.041	2
Naphthalene	1.8		mg/kg	0.50	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**262**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-03
Client ID: PB40-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 08:30
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 14:14
Analyst: AJK
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	1
Benzene	0.039	J	mg/kg	0.065	0.022	1
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	1
Toluene	0.10	J	mg/kg	0.13	0.071	1
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	1
Ethylbenzene	0.14		mg/kg	0.13	0.018	1
p/m-Xylene	0.34		mg/kg	0.26	0.073	1
o-Xylene	0.12	J	mg/kg	0.13	0.038	1
Xylenes, Total	0.46	J	mg/kg	0.13	0.038	1
Isopropylbenzene	3.2		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	0.059	J	mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.26	0.044	1
Naphthalene	1.9		mg/kg	0.52	0.085	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**244**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2133823
Project Number: 200.00135.005.03　　**Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04　　Date Collected: 06/22/21 08:50
Client ID: PB40-04-SS01　　Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 14:39
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.014	J	mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.036	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.069		mg/kg	0.060	0.0084	1
p/m-Xylene	0.22		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	0.22		mg/kg	0.060	0.017	1
Isopropylbenzene	0.49		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.12	0.020	1
Naphthalene	0.15	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**168**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-05	Date Collected:	06/22/21 09:00
Client ID:	PB40-07-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 16:09
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	ND		mg/kg	0.026	0.0086	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.013	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.026	J	mg/kg	0.052	0.0073	1
p/m-Xylene	0.057	J	mg/kg	0.10	0.029	1
o-Xylene	0.020	J	mg/kg	0.052	0.015	1
Xylenes, Total	0.077	J	mg/kg	0.052	0.015	1
Isopropylbenzene	0.064		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	0.23		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.74		mg/kg	0.10	0.017	1
Naphthalene	0.12	J	mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**142**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-06 D	Date Collected:	06/22/21 09:15
Client ID:	PB40-08-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 12:57
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	2
Benzene	ND		mg/kg	0.055	0.018	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	2
Toluene	ND		mg/kg	0.11	0.060	2
1,2-Dibromoethane	ND		mg/kg	0.055	0.032	2
Ethylbenzene	0.029	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.062	2
o-Xylene	0.069	J	mg/kg	0.11	0.032	2
Xylenes, Total	0.069	J	mg/kg	0.11	0.032	2
Isopropylbenzene	1.1		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.021	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.22	0.037	2
Naphthalene	0.63		mg/kg	0.44	0.072	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-07	Date Collected:	06/22/21 09:30
Client ID:	PB40-09-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:07
Analyst: MV
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0049		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0012		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0014		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1
Naphthalene	0.0024	J	mg/kg	0.0042	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	126		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08 D
Client ID: PB40-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:45
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 13:23
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.023	2
Benzene	ND		mg/kg	0.056	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.061	2
1,2-Dibromoethane	ND		mg/kg	0.056	0.033	2
Ethylbenzene	0.24		mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.22	0.063	2
o-Xylene	0.10	J	mg/kg	0.11	0.033	2
Xylenes, Total	0.10	J	mg/kg	0.11	0.033	2
Isopropylbenzene	4.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	0.17	J	mg/kg	0.22	0.038	2
Naphthalene	0.50		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**301**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-09	Date Collected:	06/22/21 09:55
Client ID:	PB40-11-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:32
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.023		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.030		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.027		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.078		mg/kg	0.0022	0.00060	1
o-Xylene	0.047		mg/kg	0.0011	0.00031	1
Xylenes, Total	0.12		mg/kg	0.0011	0.00031	1
Isopropylbenzene	0.021		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.037		mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.11		mg/kg	0.0022	0.00036	1
Naphthalene	0.035		mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
Client ID: PB40-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:05
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 16:36
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.13	0.013	1
Benzene	0.59		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	0.17		mg/kg	0.065	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.83		mg/kg	0.065	0.0092	1
p/m-Xylene	0.97		mg/kg	0.13	0.037	1
o-Xylene	0.084		mg/kg	0.065	0.019	1
Xylenes, Total	1.0		mg/kg	0.065	0.019	1
Isopropylbenzene	1.4		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.040	J	mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.13	0.022	1
Naphthalene	0.79		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-11	Date Collected:	06/22/21 10:15
Client ID:	PB40-13-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 09:57
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00095		mg/kg	0.00066	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	0.0025		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00066	0.00039	1
Ethylbenzene	0.00042	J	mg/kg	0.0013	0.00019	1
p/m-Xylene	0.0012	J	mg/kg	0.0026	0.00074	1
o-Xylene	0.0020		mg/kg	0.0013	0.00038	1
Xylenes, Total	0.0032	J	mg/kg	0.0013	0.00038	1
Isopropylbenzene	0.038		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00026	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0026	0.00044	1
Naphthalene	0.0058		mg/kg	0.0053	0.00086	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**358**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-12	Date Collected:	06/22/21 10:30
Client ID:	PB40-14-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 10:22
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.12		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0094		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.010		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.011		mg/kg	0.0020	0.00057	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.029		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.023		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.073		mg/kg	0.0020	0.00034	1
Naphthalene	0.033		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-13	Date Collected:	06/22/21 10:40
Client ID:	PB40-15-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 10:47
Analyst: AJK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0018		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0033		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0075		mg/kg	0.0020	0.00057	1
o-Xylene	0.0093		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.017		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.012		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.032		mg/kg	0.0020	0.00034	1
Naphthalene	0.016		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**141**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
Client ID: PB40-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:50
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 06/30/21 11:12
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00070		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00098	0.00025	1
Toluene	0.0027		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.0025		mg/kg	0.00098	0.00014	1
p/m-Xylene	0.0072		mg/kg	0.0020	0.00055	1
o-Xylene	0.024		mg/kg	0.00098	0.00029	1
Xylenes, Total	0.031		mg/kg	0.00098	0.00029	1
Isopropylbenzene	0.046		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0020	0.00033	1
Naphthalene	0.0028	J	mg/kg	0.0039	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**776**	Q	70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
Client ID: PB128-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:10
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 00:39
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	0.15		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.085	0.022	1
Toluene	0.27		mg/kg	0.085	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	0.24		mg/kg	0.085	0.012	1
p/m-Xylene	17.		mg/kg	0.17	0.048	1
o-Xylene	0.088		mg/kg	0.085	0.025	1
Xylenes, Total	17.		mg/kg	0.085	0.025	1
Isopropylbenzene	2.6		mg/kg	0.085	0.0093	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	42.	E	mg/kg	0.17	0.028	1
Naphthalene	3.1		mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-15 D	Date Collected:	06/22/21 12:10
Client ID:	PB128-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:10
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	42.		mg/kg	0.43	0.071	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
Client ID: PB128-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:04
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	0.38		mg/kg	0.044	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.089	0.023	1
Toluene	0.18		mg/kg	0.089	0.048	1
1,2-Dibromoethane	ND		mg/kg	0.044	0.026	1
Ethylbenzene	0.53		mg/kg	0.089	0.012	1
p/m-Xylene	0.34		mg/kg	0.18	0.050	1
o-Xylene	0.29		mg/kg	0.089	0.026	1
Xylenes, Total	0.63		mg/kg	0.089	0.026	1
Isopropylbenzene	0.47		mg/kg	0.089	0.0097	1
1,3,5-Trimethylbenzene	0.069	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.32		mg/kg	0.18	0.030	1
Naphthalene	1.2		mg/kg	0.36	0.058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
Client ID: PB128-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:25
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 08:55
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00083	J	mg/kg	0.0030	0.00030	1
Benzene	0.016		mg/kg	0.00076	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00039	1
Toluene	0.0027		mg/kg	0.0015	0.00082	1
1,2-Dibromoethane	ND		mg/kg	0.00076	0.00044	1
Ethylbenzene	0.018		mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0036		mg/kg	0.0030	0.00085	1
o-Xylene	0.010		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.014		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.027		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0014	J	mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0045		mg/kg	0.0030	0.00050	1
Naphthalene	0.034		mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**239**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
Client ID: PB128-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:35
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 00:14
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0043	0.00044	1
Benzene	ND		mg/kg	0.0011	0.00036	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00056	1
Toluene	ND		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00064	1
Ethylbenzene	ND		mg/kg	0.0022	0.00030	1
p/m-Xylene	0.0014	J	mg/kg	0.0043	0.0012	1
o-Xylene	0.0012	J	mg/kg	0.0022	0.00063	1
Xylenes, Total	0.0026	J	mg/kg	0.0022	0.00063	1
Isopropylbenzene	0.0048		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0043	0.00042	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0043	0.00072	1
Naphthalene	ND		mg/kg	0.0087	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19
Client ID: PB128-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:45
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:29
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	1.3		mg/kg	0.045	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	0.32		mg/kg	0.091	0.049	1
1,2-Dibromoethane	ND		mg/kg	0.045	0.026	1
Ethylbenzene	0.16		mg/kg	0.091	0.013	1
p/m-Xylene	0.65		mg/kg	0.18	0.051	1
o-Xylene	0.24		mg/kg	0.091	0.026	1
Xylenes, Total	0.89		mg/kg	0.091	0.026	1
Isopropylbenzene	3.5		mg/kg	0.091	0.0099	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.18	0.030	1
Naphthalene	0.44		mg/kg	0.36	0.059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**252**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
Client ID: PB128-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 01:54
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.021	1
Benzene	1.4		mg/kg	0.053	0.017	1
1,2-Dichloroethane	ND		mg/kg	0.10	0.027	1
Toluene	1.3		mg/kg	0.10	0.057	1
1,2-Dibromoethane	ND		mg/kg	0.053	0.031	1
Ethylbenzene	0.54		mg/kg	0.10	0.015	1
p/m-Xylene	5.7		mg/kg	0.21	0.059	1
o-Xylene	0.53		mg/kg	0.10	0.031	1
Xylenes, Total	6.2		mg/kg	0.10	0.031	1
Isopropylbenzene	1.5		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	1.5		mg/kg	0.21	0.020	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.21	0.035	1
Naphthalene	1.0		mg/kg	0.42	0.068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-20	Date Collected:	06/22/21 13:00
Client ID:	PB128-05-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/01/21 09:20
Analyst:	JC
Percent Solids:	73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0044	0.00045	1
Benzene	0.0056		mg/kg	0.0011	0.00037	1
1,2-Dichloroethane	ND		mg/kg	0.0022	0.00057	1
Toluene	0.0061		mg/kg	0.0022	0.0012	1
1,2-Dibromoethane	ND		mg/kg	0.0011	0.00065	1
Ethylbenzene	0.0021	J	mg/kg	0.0022	0.00031	1
p/m-Xylene	0.020		mg/kg	0.0044	0.0012	1
o-Xylene	0.017		mg/kg	0.0022	0.00065	1
Xylenes, Total	0.037		mg/kg	0.0022	0.00065	1
Isopropylbenzene	0.12		mg/kg	0.0022	0.00024	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0044	0.00043	1
1,2,4-Trimethylbenzene	0.016		mg/kg	0.0044	0.00074	1
Naphthalene	0.0092		mg/kg	0.0089	0.0014	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**191**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21
Client ID: DUP-8
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 13:10
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 02:19
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	1.2		mg/kg	0.049	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.098	0.025	1
Toluene	1.0		mg/kg	0.098	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.049	0.029	1
Ethylbenzene	0.52		mg/kg	0.098	0.014	1
p/m-Xylene	6.2		mg/kg	0.20	0.055	1
o-Xylene	0.54		mg/kg	0.098	0.029	1
Xylenes, Total	6.7		mg/kg	0.098	0.029	1
Isopropylbenzene	1.9		mg/kg	0.098	0.011	1
1,3,5-Trimethylbenzene	3.6		mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	8.4		mg/kg	0.20	0.033	1
Naphthalene	1.6		mg/kg	0.39	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22
Client ID: FB-210622-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/25/21 15:57
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22
Client ID: FB-210622-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 12:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 11:39
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-23	Date Collected:	06/22/21 13:20
Client ID:	FB-210622-2	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/25/21 13:23
Analytical Date:	06/25/21 16:03		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-23	Date Collected:	06/22/21 13:20
Client ID:	FB-210622-2	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 12:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-24
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 00:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 12:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/25/21 14:25
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/25/21 13:23

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 22-23 Batch: WG1516935-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,09,11-14 Batch: WG1518909-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 06:58
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-06,08,10 Batch: WG1519110-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 18 Batch: WG1519269-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15 Batch: WG1519270-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/30/21 17:58
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 15,17,19-21 Batch: WG1519270-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 05:34
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 17,20 Batch: WG1519390-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22-23 Batch: WG1520387-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24 Batch: WG1520863-5					
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 22-23 Batch: WG1516935-2									
1,2-Dibromoethane	115		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,09,11-14 Batch: WG1518909-3 WG1518909-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-06,08,10 Batch: WG1519110-3 WG1519110-4								
Methyl tert butyl ether	93		93		66-130	0		30
Benzene	79		76		70-130	4		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	82		80		70-130	2		30
1,2-Dibromoethane	89		89		70-130	0		30
Ethylbenzene	89		85		70-130	5		30
p/m-Xylene	84		80		70-130	5		30
o-Xylene	84		80		70-130	5		30
Isopropylbenzene	94		91		70-130	3		30
1,3,5-Trimethylbenzene	96		94		70-130	2		30
1,2,4-Trimethylbenzene	97		94		70-130	3		30
Naphthalene	100		103		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	113		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 18 Batch: WG1519269-3 WG1519269-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15,17,19-21 Batch: WG1519270-3 WG1519270-4								
Methyl tert butyl ether	80		83		66-130	4		30
Benzene	82		83		70-130	1		30
1,2-Dichloroethane	79		81		70-130	3		30
Toluene	85		87		70-130	2		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	87		89		70-130	2		30
p/m-Xylene	88		89		70-130	1		30
o-Xylene	87		90		70-130	3		30
Isopropylbenzene	89		91		70-130	2		30
1,3,5-Trimethylbenzene	89		90		70-130	1		30
1,2,4-Trimethylbenzene	90		92		70-130	2		30
Naphthalene	90		96		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		98		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	102		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 15 Batch: WG1519270-8 WG1519270-9								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 17,20 Batch: WG1519390-3 WG1519390-4								
Methyl tert butyl ether	86		83		66-130	4		30
Benzene	89		84		70-130	6		30
1,2-Dichloroethane	80		78		70-130	3		30
Toluene	92		87		70-130	6		30
1,2-Dibromoethane	90		87		70-130	3		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	96		91		70-130	5		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	101		95		70-130	6		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30
Naphthalene	97		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22-23 Batch: WG1520387-3 WG1520387-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	99		100		70-130	1		20
1,2-Dichloroethane	100		110		70-130	10		20
Toluene	95		100		70-130	5		20
Ethylbenzene	99		100		70-130	1		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	98		100		70-130	2		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		109		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	103		100		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-01	Date Collected:	06/22/21 08:00
Client ID:	PB40-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	68%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	272		mg/kg	2.90	0.155	1	06/29/21 08:20	07/19/21 09:46	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02 Date Collected: 06/22/21 08:20
Client ID: PB40-02-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.14		mg/kg	2.39	0.128	1	06/29/21 08:20	07/16/21 19:39	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-03	Date Collected:	06/22/21 08:30
Client ID:	PB40-03-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	297		mg/kg	2.64	0.141	1	06/29/21 08:20	07/16/21 19:44	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-04	Date Collected:	06/22/21 08:50
Client ID:	PB40-04-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.3		mg/kg	2.27	0.121	1	06/29/21 08:20	07/16/21 19:49	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05
Date Collected: 06/22/21 09:00
Client ID: PB40-07-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	463		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 19:54	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-06	Date Collected:	06/22/21 09:15
Client ID:	PB40-08-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	41.1		mg/kg	2.04	0.110	1	06/29/21 08:20	07/16/21 19:59	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07
Date Collected: 06/22/21 09:30
Client ID: PB40-09-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.5		mg/kg	2.08	0.112	1	06/29/21 08:20	07/16/21 20:23	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08 Date Collected: 06/22/21 09:45
Client ID: PB40-10-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	58.2		mg/kg	2.20	0.118	1	06/29/21 08:20	07/16/21 20:27	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09 Date Collected: 06/22/21 09:55

Client ID: PB40-11-SS01 Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	258		mg/kg	2.30	0.124	1	06/29/21 08:20	07/16/21 20:37	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-10	Date Collected:	06/22/21 10:05
Client ID:	PB40-12-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1070		mg/kg	2.42	0.130	1	06/29/21 08:20	07/16/21 20:42	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-11	Date Collected:	06/22/21 10:15
Client ID:	PB40-13-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.13		mg/kg	2.35	0.126	1	06/29/21 08:20	07/16/21 21:21	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-12	Date Collected:	06/22/21 10:30
Client ID:	PB40-14-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	248		mg/kg	2.28	0.122	1	06/29/21 08:20	07/16/21 20:47	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-13	Date Collected:	06/22/21 10:40
Client ID:	PB40-15-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	34.4		mg/kg	2.10	0.113	1	06/29/21 08:20	07/16/21 21:26	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
Date Collected: 06/22/21 10:50
Client ID: PB40-16-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	40.1		mg/kg	2.33	0.125	1	06/29/21 08:20	07/16/21 21:31	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-15
Date Collected: 06/22/21 12:10
Client ID: PB128-01-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1980		mg/kg	2.46	0.132	1	06/29/21 08:20	07/16/21 21:36	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-17
Date Collected: 06/22/21 12:25
Client ID: PB128-02-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	361		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 21:41	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-18	Date Collected:	06/22/21 12:35
Client ID:	PB128-03-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.84		mg/kg	2.60	0.139	1	06/29/21 08:20	07/16/21 21:46	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-19	Date Collected:	06/22/21 12:45
Client ID:	PB128-04-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	310		mg/kg	2.32	0.124	1	06/29/21 08:20	07/16/21 21:51	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-20
Client ID: PB128-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 13:00
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1070		mg/kg	2.57	0.138	1	06/29/21 08:20	07/16/21 21:56	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-21 Date Collected: 06/22/21 13:10
Client ID: DUP-8 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1470		mg/kg	2.55	0.137	1	06/29/21 08:20	07/16/21 22:11	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-22 Date Collected: 06/22/21 12:00

Client ID: FB-210622-1 Date Received: 06/22/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 22:52	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2133823
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-23 | Date Collected: 06/22/21 13:20
Client ID: FB-210622-2 | Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 22:57	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 22-23 Batch: WG1517034-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 04:52	07/01/21 16:46	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-15,17-21 Batch: WG1517740-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/29/21 08:20	07/16/21 20:13	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2133823

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 Batch: WG1517034-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 Batch: WG1517740-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 22-23 QC Batch ID: WG1517034-3 WG1517034-4 QC Sample: L2134066-03 Client ID: MS Sample												
Lead, Total	ND	510	487.7	96		479.8	94		75-125	2		20
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-3 QC Sample: L2133823-01 Client ID: PB40-01-SS01												
Lead, Total	272	60.3	214	**0**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-4 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	235	mg/kg	15		20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-15,17-21 QC Batch ID: WG1517740-6 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Lead, Total	272	297	mg/kg	9		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-01	Date Collected:	06/22/21 08:00
Client ID:	PB40-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	68.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-02 Date Collected: 06/22/21 08:20
Client ID: PB40-02-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-03	Date Collected:	06/22/21 08:30
Client ID:	PB40-03-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-04
Date Collected: 06/22/21 08:50
Client ID: PB40-04-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-05 Date Collected: 06/22/21 09:00
Client ID: PB40-07-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-06
Date Collected: 06/22/21 09:15
Client ID: PB40-08-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-07 Date Collected: 06/22/21 09:30
Client ID: PB40-09-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-08
Client ID: PB40-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 09:45
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-09 Date Collected: 06/22/21 09:55
Client ID: PB40-11-SS01 Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-10
Client ID: PB40-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:05
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-11
Client ID: PB40-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/22/21 10:15
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-12
Client ID: PB40-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 10:30
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2133823
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-13
Client ID: PB40-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 10:40
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.9		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-14
Date Collected: 06/22/21 10:50
Client ID: PB40-16-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-15	Date Collected:	06/22/21 12:10
Client ID:	PB128-01-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.2		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-17	Date Collected:	06/22/21 12:25
Client ID:	PB128-02-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-18
Client ID: PB128-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/22/21 12:35
Date Received: 06/22/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.7		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2133823
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2133823-19
Date Collected: 06/22/21 12:45
Client ID: PB128-04-SS01
Date Received: 06/22/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-20	Date Collected:	06/22/21 13:00
Client ID:	PB128-05-SS01	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.1		%	0.100	NA	1	-	06/23/21 08:48	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2133823-21	Date Collected:	06/22/21 13:10
Client ID:	DUP-8	Date Received:	06/22/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.2		%	0.100	NA	1	-	06/23/21 08:59	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,17-20 QC Batch ID: WG1515779-1 QC Sample: L2133823-01 Client ID: PB40-01-SS01						
Solids, Total	68.4	67.2	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 21 QC Batch ID: WG1515781-1 QC Sample: L2133712-01 Client ID: DUP Sample						
Solids, Total	90.0	91.0	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-01A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-01B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-01E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-02A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-02B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-02E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-03A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-03B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-03E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-04A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-04B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-04E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-05A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-05B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-05C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-05E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-06A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-06B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-06E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-07A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-07B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-07E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-08A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-08B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-08E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-09A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-09B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-09E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-10A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-10B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-10E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-11A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-11B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-11E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-12A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-12B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-12D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-12E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-13A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-13B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-13D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-13E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-14A	Vial MeOH preserved	A	NA		3.7	Y	Absent		PA-8260HLW(14)
L2133823-14B	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14C	Vial water preserved	A	NA		3.7	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-14D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.7	Y	Absent		PB-TI(180)
L2133823-14E	Plastic 120ml unpreserved	A	NA		3.7	Y	Absent		TS(7)
L2133823-15A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-15B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-15D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-15E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-16A	Vial MeOH preserved	B	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2133823-16B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)
L2133823-16C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-16E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2133823-17A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-17B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-17D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-17E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-18A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-18B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-18D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-18E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-19A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-19B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-19D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-19E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-20A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2133823-20B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260H(14),PA-8260HLW(14)
L2133823-20D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-20E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-21A	Vial MeOH preserved	B	NA		2.9	Y	Absent		PA-8260HLW(14)
L2133823-21B	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21C	Vial water preserved	B	NA		2.9	Y	Absent	23-JUN-21 06:33	PA-8260HLW(14)
L2133823-21D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.9	Y	Absent		PB-TI(180)
L2133823-21E	Plastic 120ml unpreserved	B	NA		2.9	Y	Absent		TS(7)
L2133823-22A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2133823
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2133823-22C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-22D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-22F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-23A	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23B	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23C	Vial HCl preserved	B	NA		2.9	Y	Absent		PA-8260(14)
L2133823-23D	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23E	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		8011(14)
L2133823-23F	Plastic 250ml HNO3 preserved	B	<2	<2	2.9	Y	Absent		PB-6020T-PPB(180)
L2133823-24A	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)
L2133823-24B	Vial Na2S2O3 preserved	B	NA		2.9	Y	Absent		PA-8260(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2133823
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2133823
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Program

Criteria:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33823-01	PB40-01-5501	6/22	0800	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		15
-02	PB40-02-5501	↓	0820	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB40-03-5501	↓	0830	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB40-04-5501	↓	0850	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB40-07-5501	↓	0900	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB40-08-5501	↓	0915	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB40-09-5501	↓	0930	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB40-10-5501	↓	0945	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB40-11-5501	↓	0955	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-10	PB40-12-5501	↓	1005	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/22 1555	[signature]	6/22/21 1555
[signature]	6-21 2030	[signature]	6-22 1800
2023		[signature]	6/22 2230
		[signature]	6/23/21 0230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(AJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA — TEL: 508-822-9300 — FAX: 508-822-3288

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
33823-11	PB40-13-5501	6/22	1015	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		FS
-12	PB40-14-5501	6/22	1030			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB40-15-5501		1040			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB40-16-5501		1050			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB128-01-5501		1210			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	PB-129-01-5501		1215			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	PB-128-02-5501		1225			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-18	PB-128-03-5501		1235			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-19	PB-128-04-5501		1245			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-20	PB-128-05-5501		1300			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

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[signature]	6/22 1555	[signature]	6/22/21 1555
[signature] 1800		[signature]	6-22 1800
[signature] 6-22 2030		7 6/22	2--
7 6/23 [signature]		[signature]	6/23/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)(NJ) (rev. 5-JAN-12)

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 3 OF 3

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/23/21

ALPHA Job #: L2133823

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2,4)		Sample Specific Comments	TOTAL # BOTTLES
33823-21	Dup-8	6/22	1310	S	JS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-22	FB-210622-1		1200	W		☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-23	FB-210622-2		~~1200~~ 1310	W		☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-24	TB			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		

Container Type	Preservative
-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 1800	6/22 1555	[signature]	6/22/21 1555
[signature] AAC	6-22-21	[signature] AAC	6-22-1800
	6/23 0230	[signature]	6/23/21 0230

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HNJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

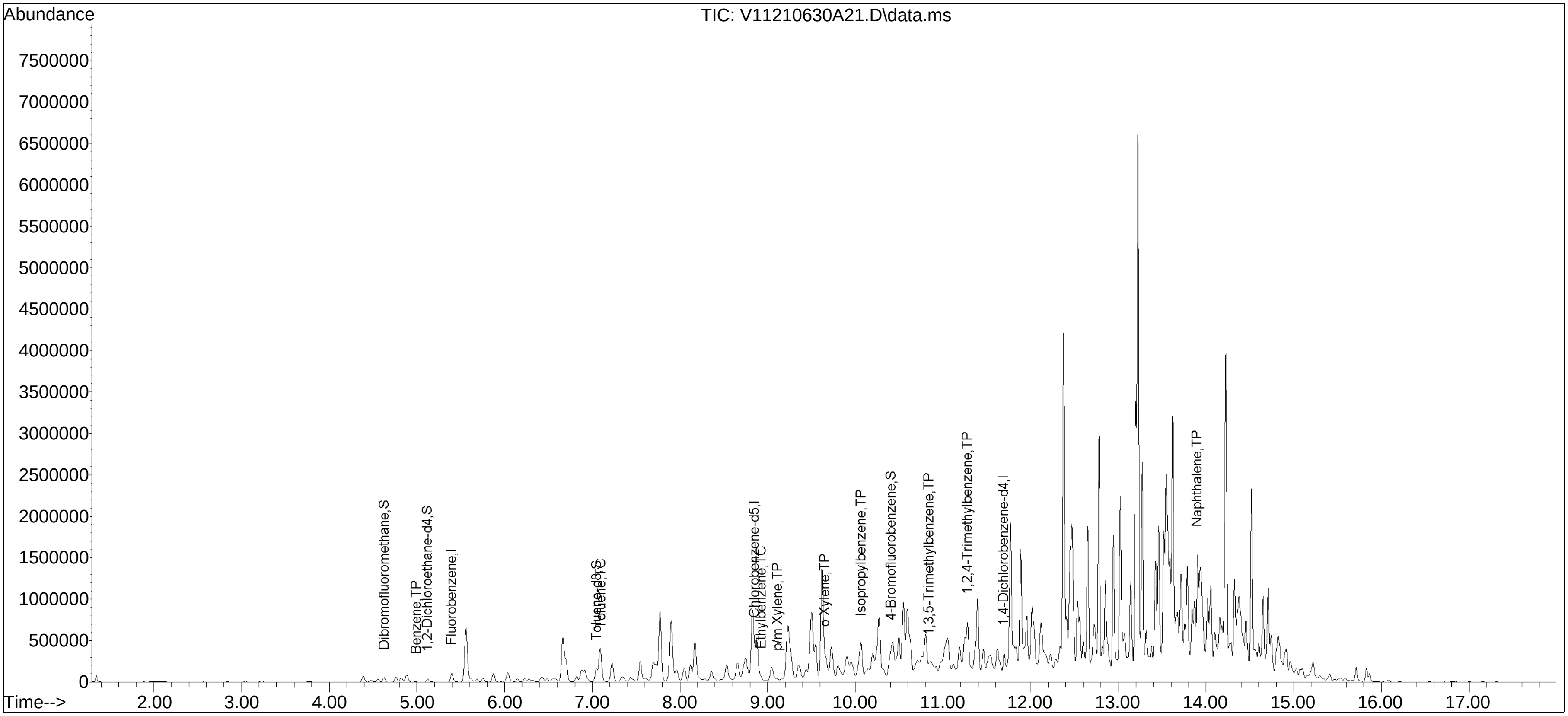
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A21.D
Acq On : 30 Jun 2021 01:48 pm
Operator : VOA111:AJK
Sample : L2133823-01,31H,5.73,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jun 30 16:06:27 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

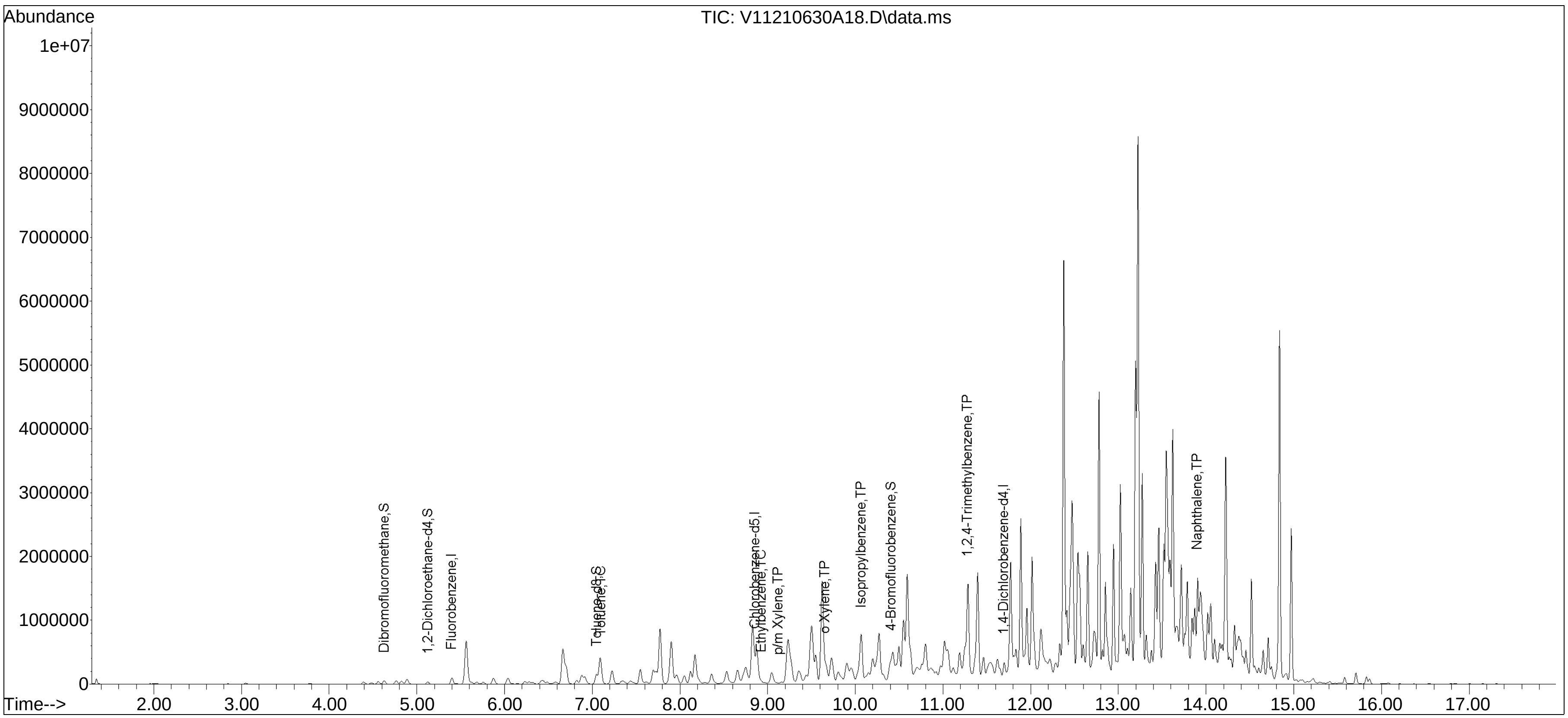


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A18.D
Acq On : 30 Jun 2021 12:31 pm
Operator : VOA111:AJK
Sample : L2133823-02D,31H,6.13,5,0.050,,A
Misc : WG1519110,ICAL18049
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jun 30 16:04:23 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

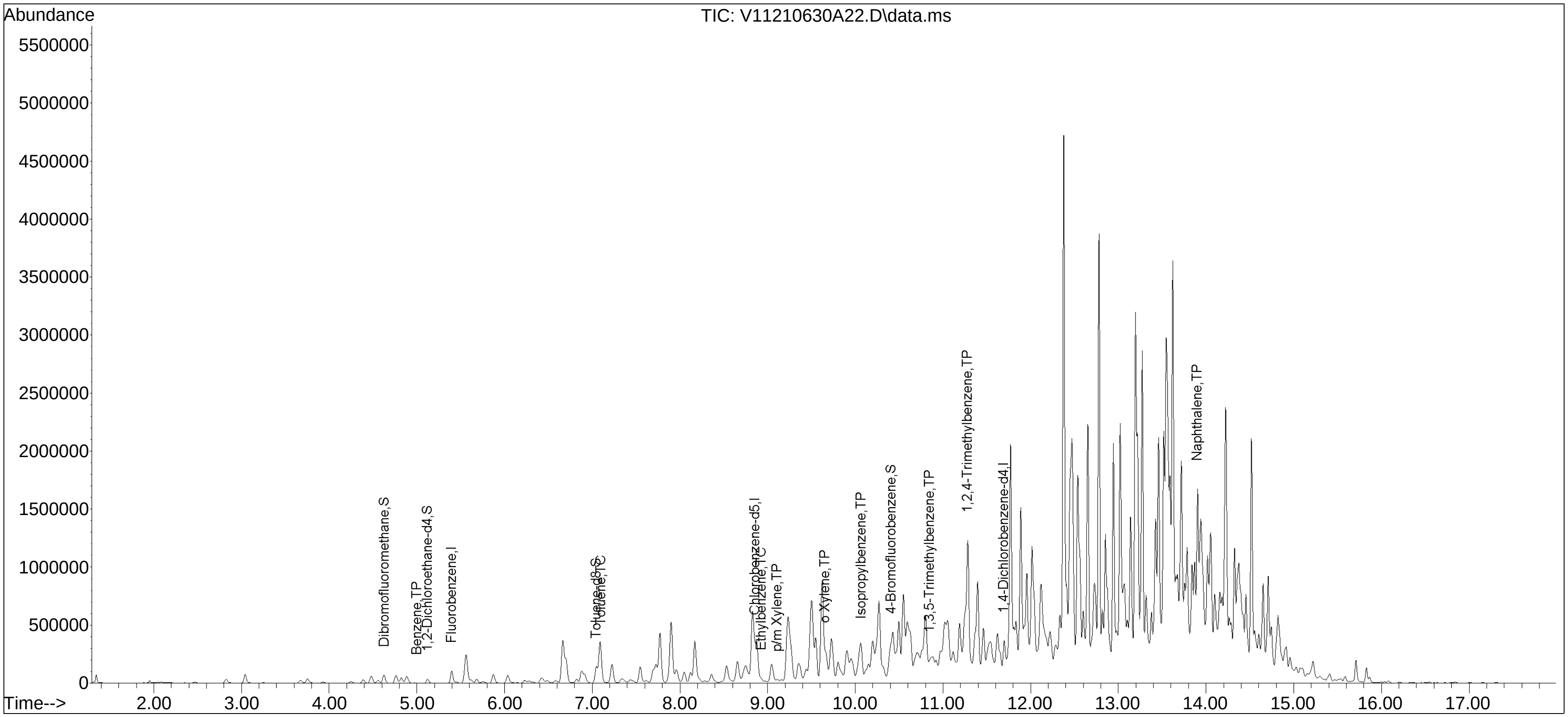


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A22.D
Acq On : 30 Jun 2021 02:14 pm
Operator : VOA111:AJK
Sample : L2133823-03,31H,3.12,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 22 Sample Multiplier: 1

Quant Time: Jun 30 15:58:34 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

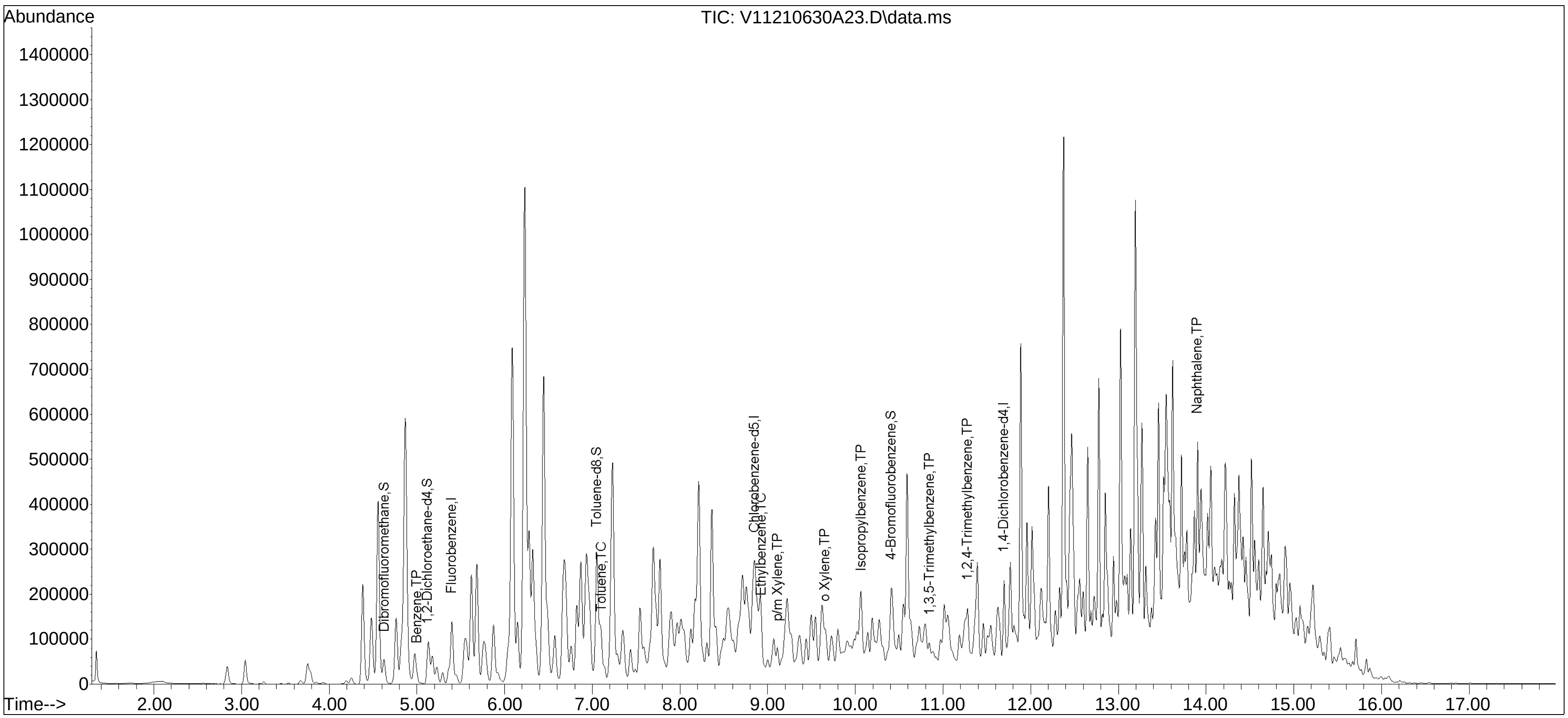


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A23.D
Acq On : 30 Jun 2021 02:39 pm
Operator : VOA111:AJK
Sample : L2133823-04,31H,6.10,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jun 30 16:07:06 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

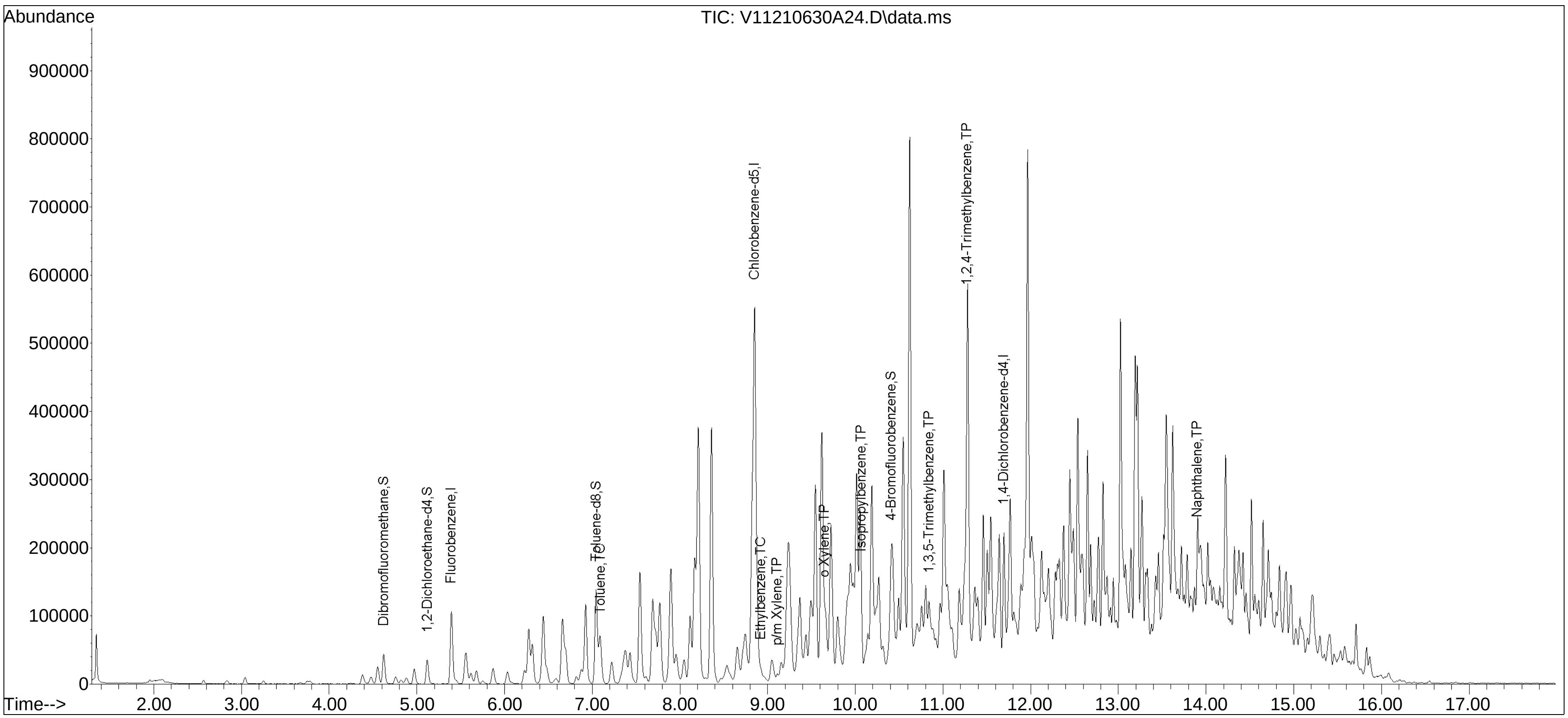


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A24.D
Acq On : 30 Jun 2021 04:09 pm
Operator : VOA111:AJK
Sample : L2133823-05,31H,6.88,5,0.100,,A
Misc : WG1519110,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jun 30 17:07:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A19.D
Acq On    : 30 Jun 2021  12:57 pm
Operator  : VOA111:AJK
Sample    : L2133823-06D,31H,5.29,5,0.050,,A
Misc      : WG1519110,ICAL18049
ALS Vial  : 19   Sample Multiplier: 1

Quant Time: Jun 30 16:04:58 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
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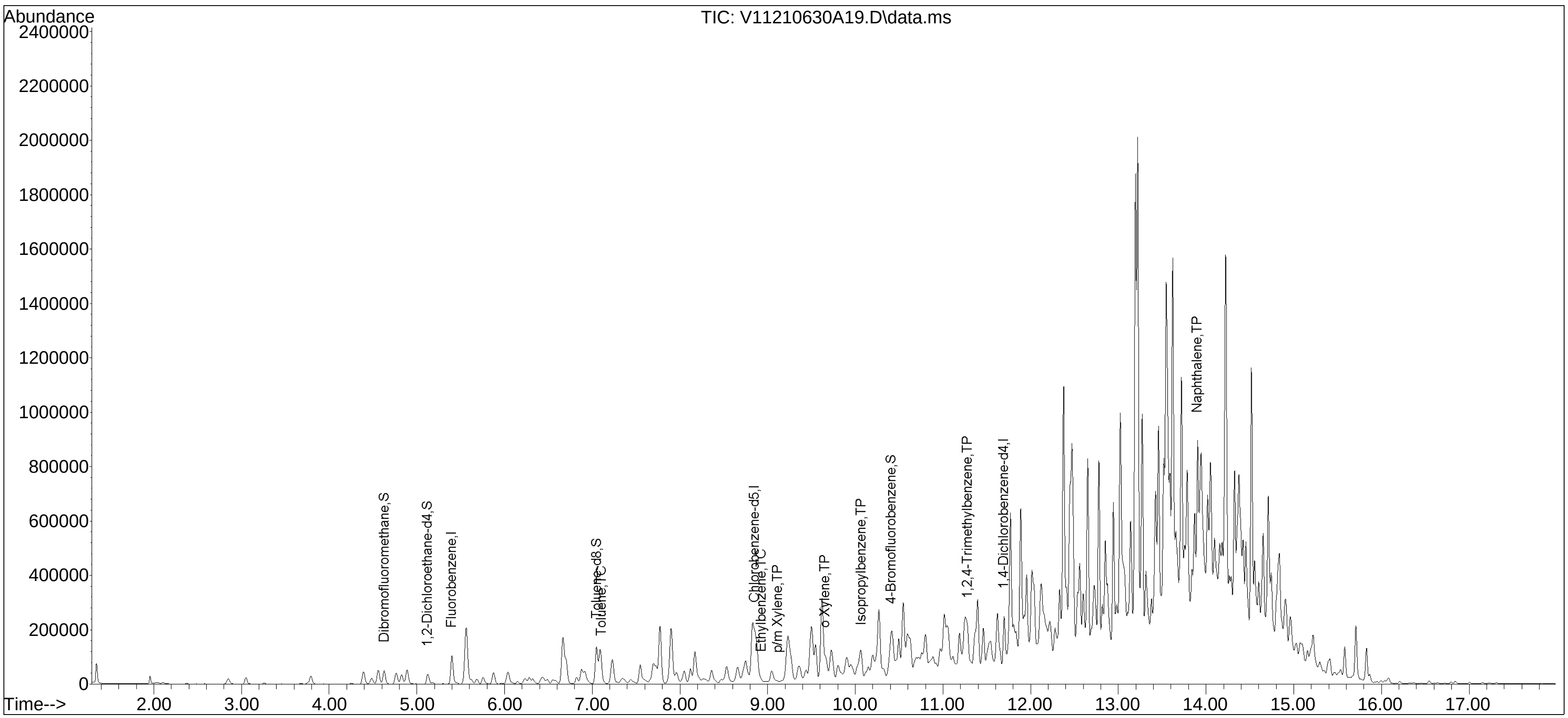
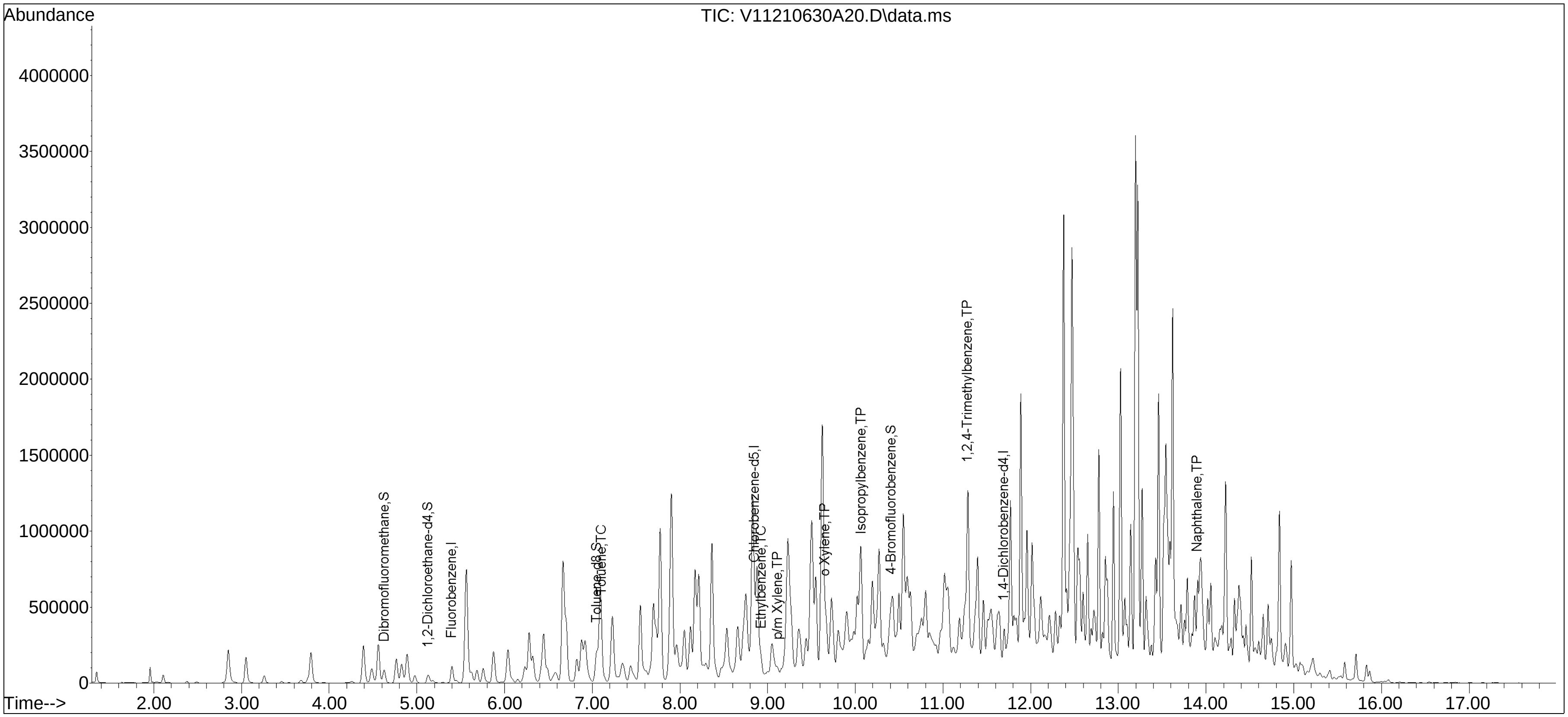


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A20.D
Acq On : 30 Jun 2021 01:23 pm
Operator : VOA111:AJK
Sample : L2133823-08D,31H,6.14,5,0.050,,A
Misc : WG1519110,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jun 30 16:06:01 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

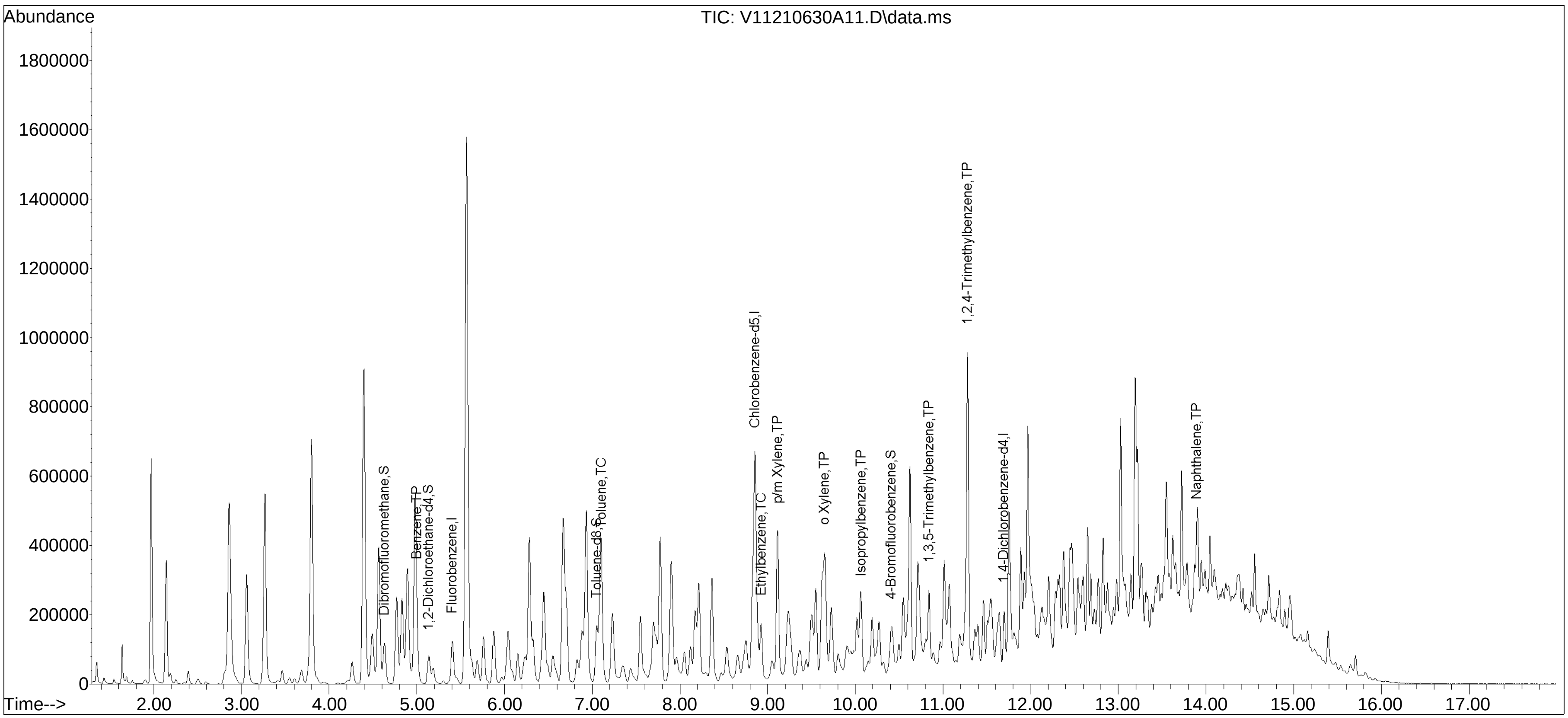


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A11.D
Acq On    : 30 Jun 2021  09:32 am
Operator  : VOA111:MV
Sample    : L2133823-09,31,5.47,5,,B
Misc      : WG1518909,ICAL18049
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Jun 30 11:02:22 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
```

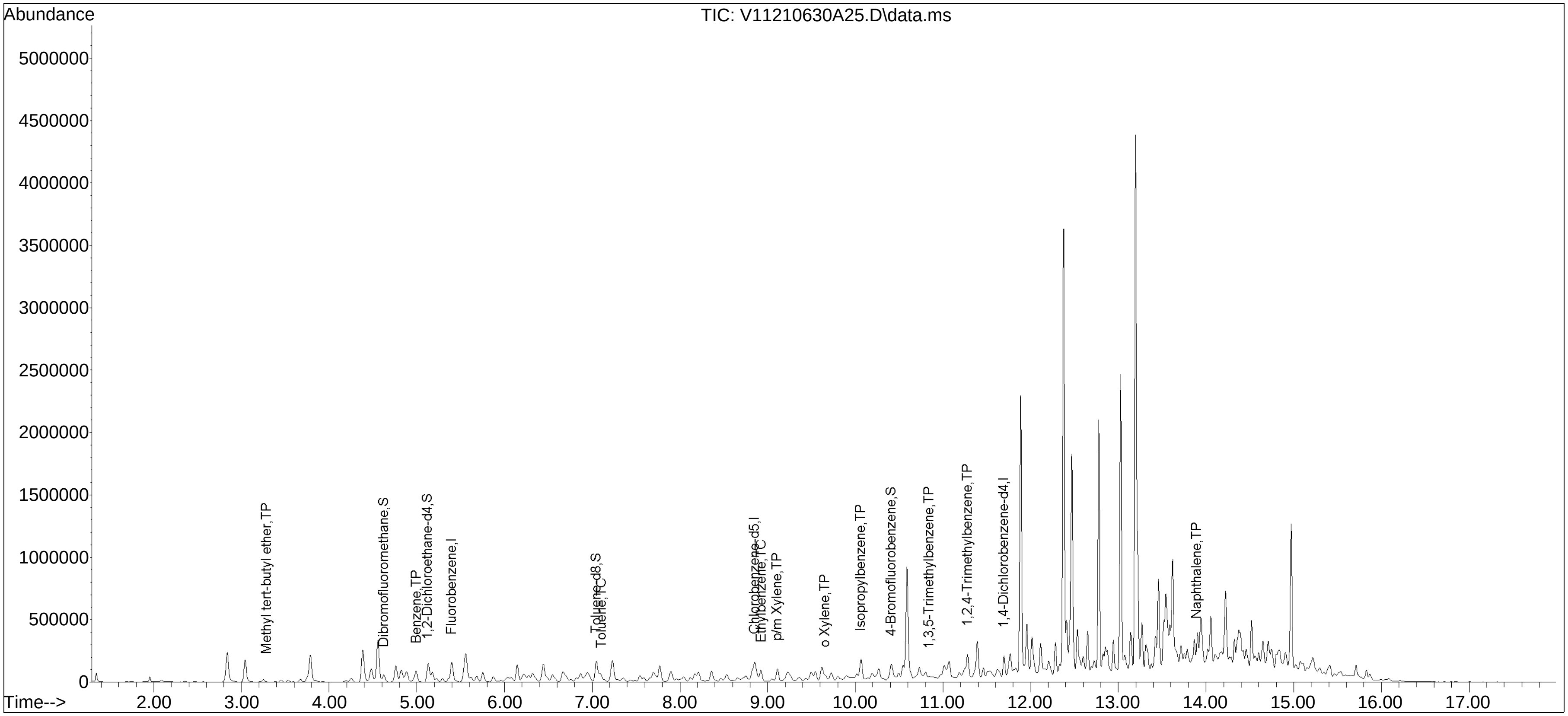


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A25.D
Acq On   : 30 Jun 2021 04:36 pm
Operator : VOA111:AJK
Sample   : L2133823-10,31H,5.72,5,0.100,,A
Misc   : WG1519110,ICAL18049
ALS Vial : 25   Sample Multiplier: 1

Quant Time: Jun 30 17:08:25 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

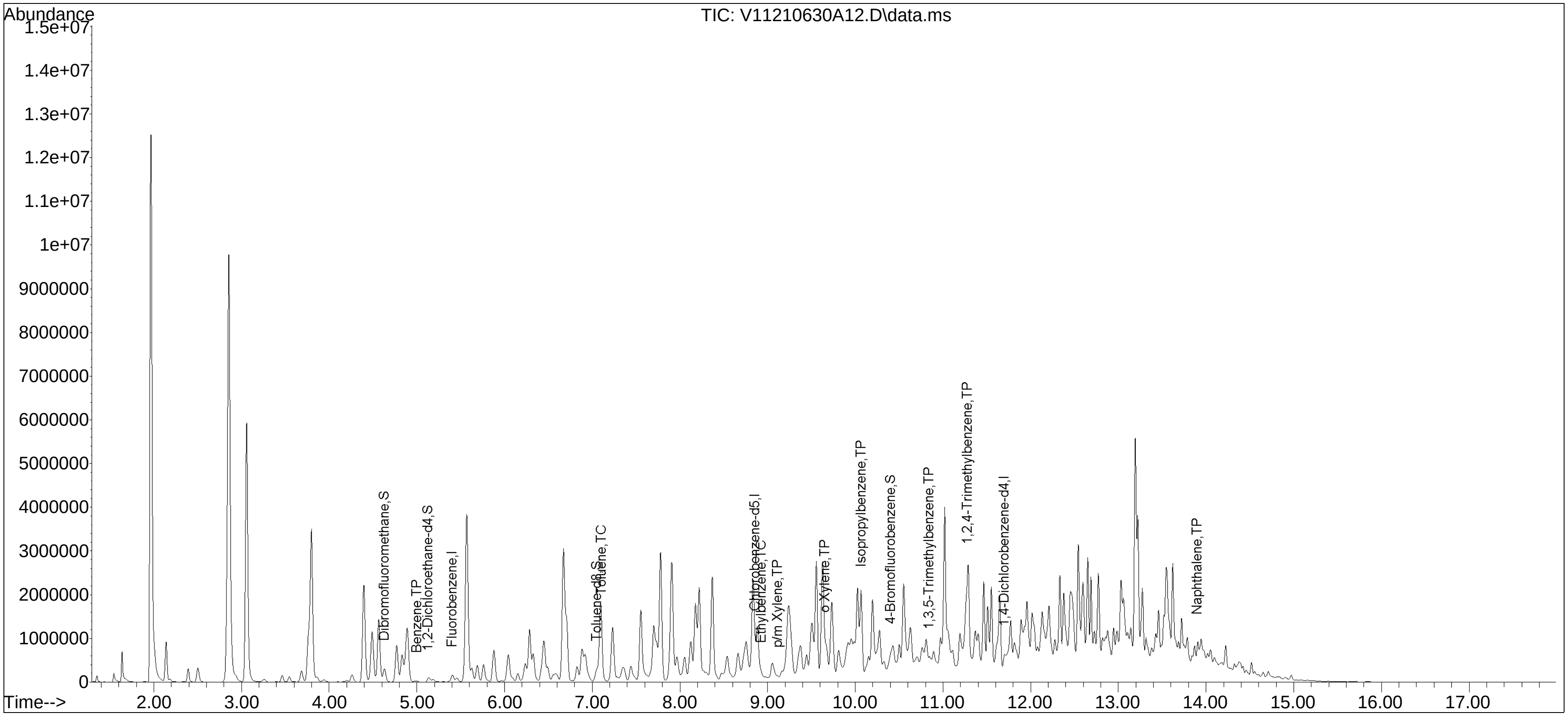


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A12.D
Acq On    : 30 Jun 2021  09:57 am
Operator  : VOA111:AJK
Sample    : L2133823-11,31,4.59,5,,B
Misc      : WG1518909,ICAL18049
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Jun 30 16:00:55 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
```

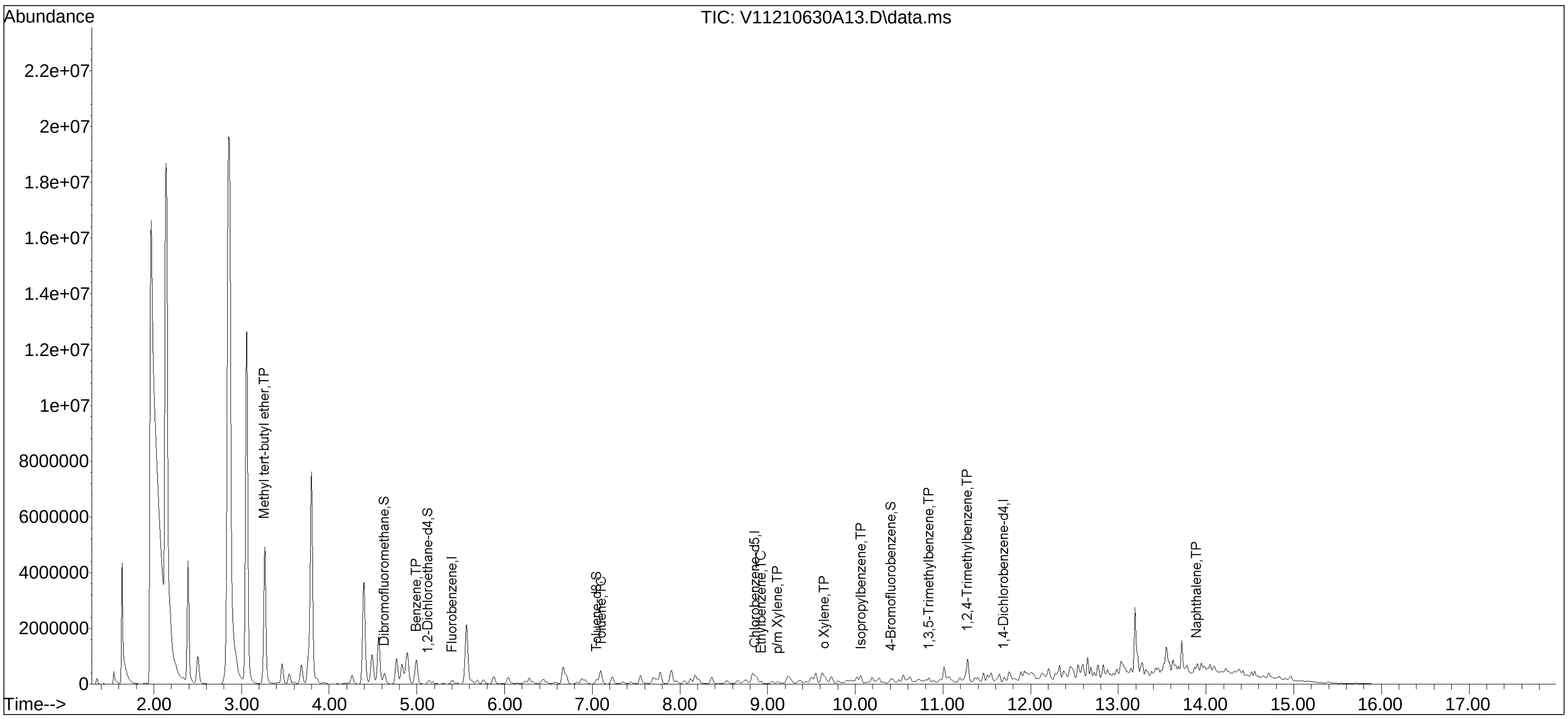


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A13.D
Acq On    : 30 Jun 2021  10:22 am
Operator  : VOA111:AJK
Sample    : L2133823-12,31,5.82,5,,B
Misc      : WG1518909,ICAL18049
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jun 30 16:01:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•
```

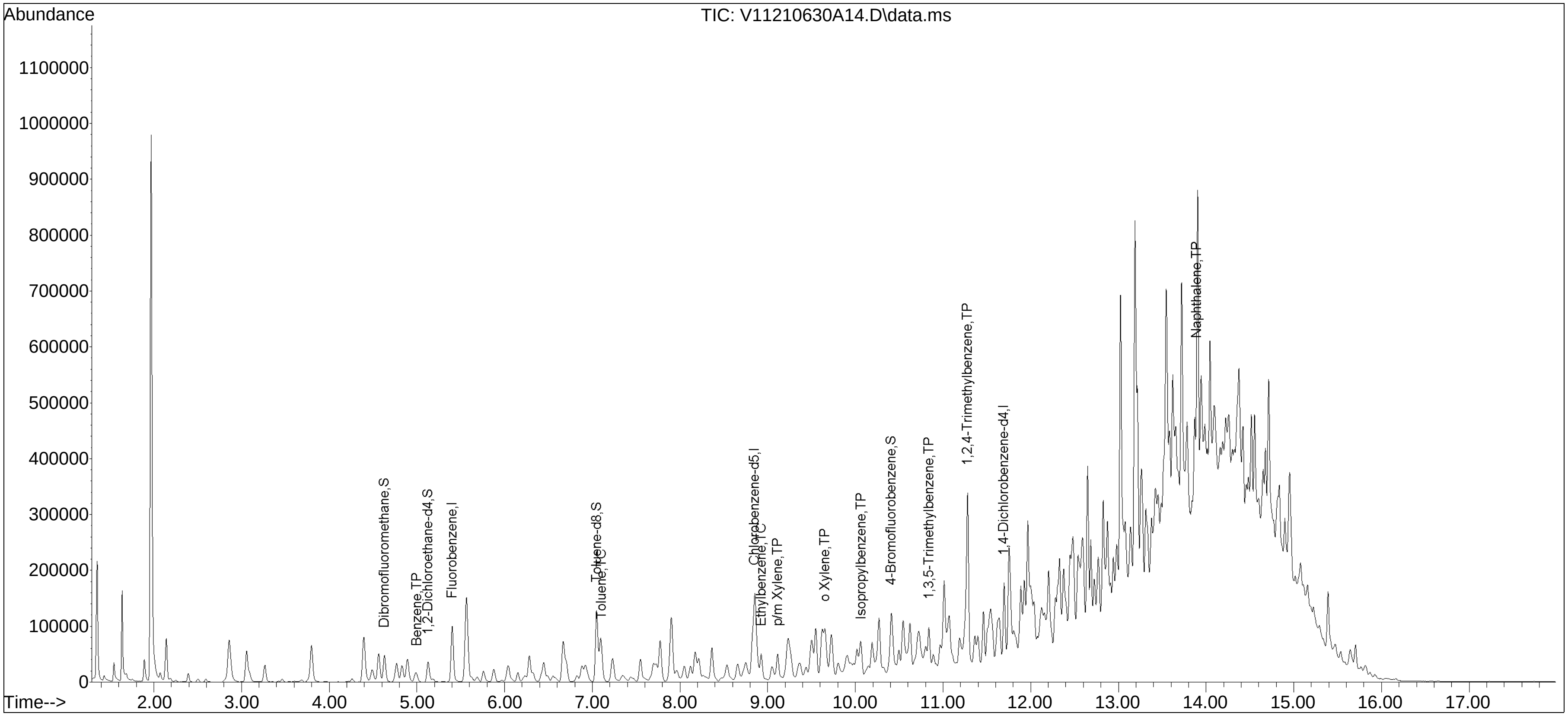


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A14.D
Acq On   : 30 Jun 2021 10:47 am
Operator : VOA111:AJK
Sample   : L2133823-13,31,5.42,5,,B
Misc   : WG1518909,ICAL18049
ALS Vial : 14   Sample Multiplier: 1

Quant Time: Jun 30 15:57:56 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•

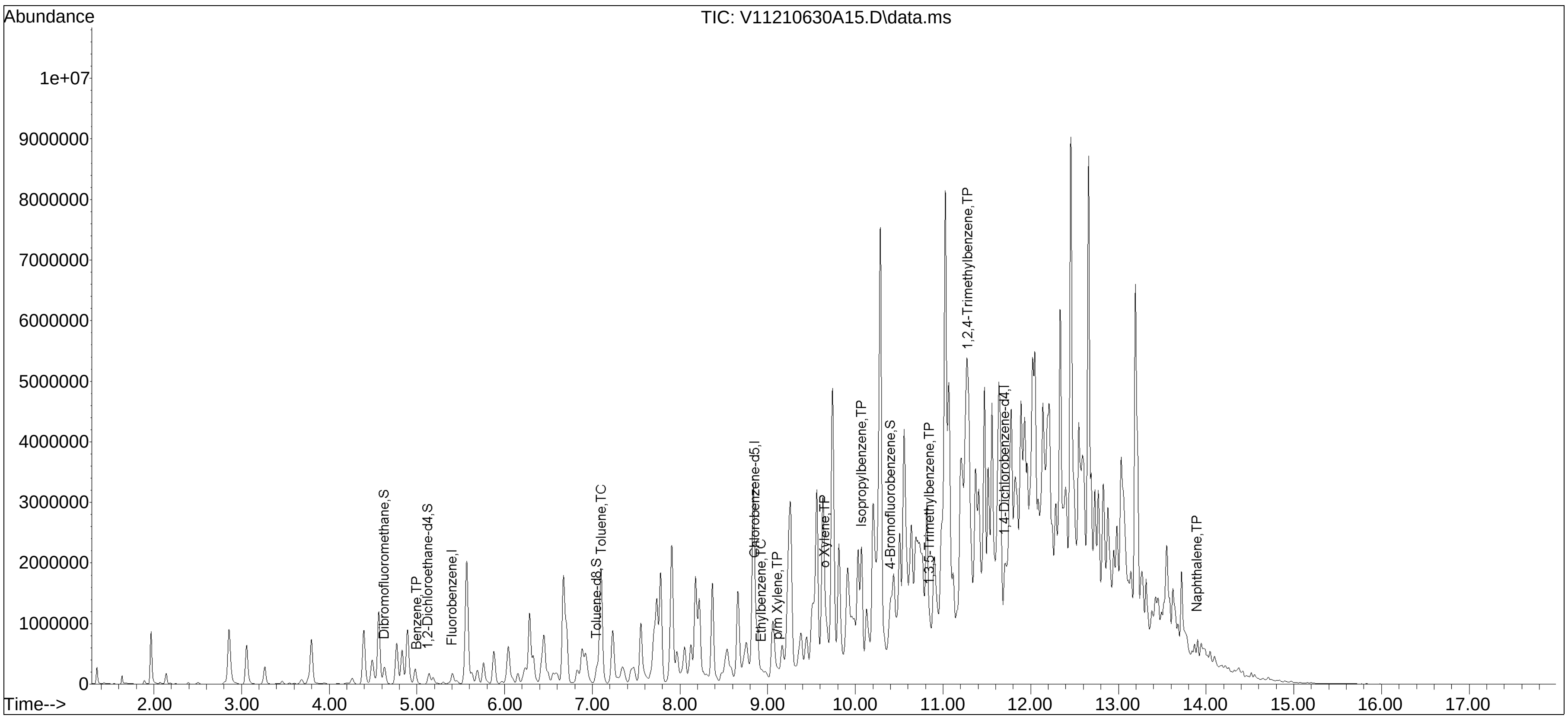


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210630A\
Data File : V11210630A15.D
Acq On : 30 Jun 2021 11:12 am
Operator : VOA111:AJK
Sample : L2133823-14,31,6.07,5,,B
Misc : WG1518909,ICAL18049
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Jun 30 16:02:15 2021
Quant Method : I:\VOLATILES\VOA111\2021\210630A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210630A01.D•



Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210701A\
Data File : V23210701A12.D
Acq On    : 01 Jul 2021  08:55 am
Operator  : VOA123:JC
Sample    : L2133823-17,31,4.48,5,,B
Misc      : WG1519390,ICAL18108
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Jul 01 11:16:05 2021
Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list01A\V23210701A01.D•
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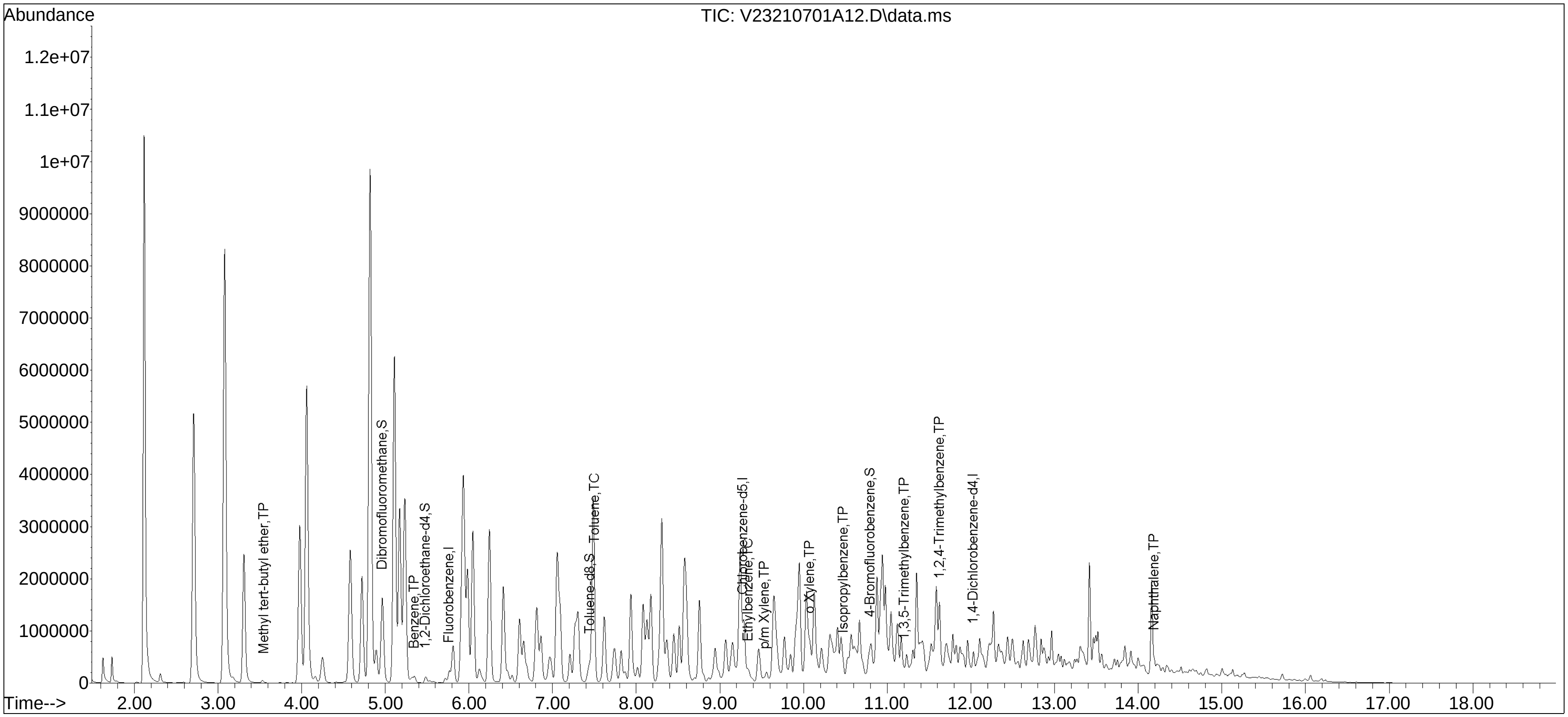
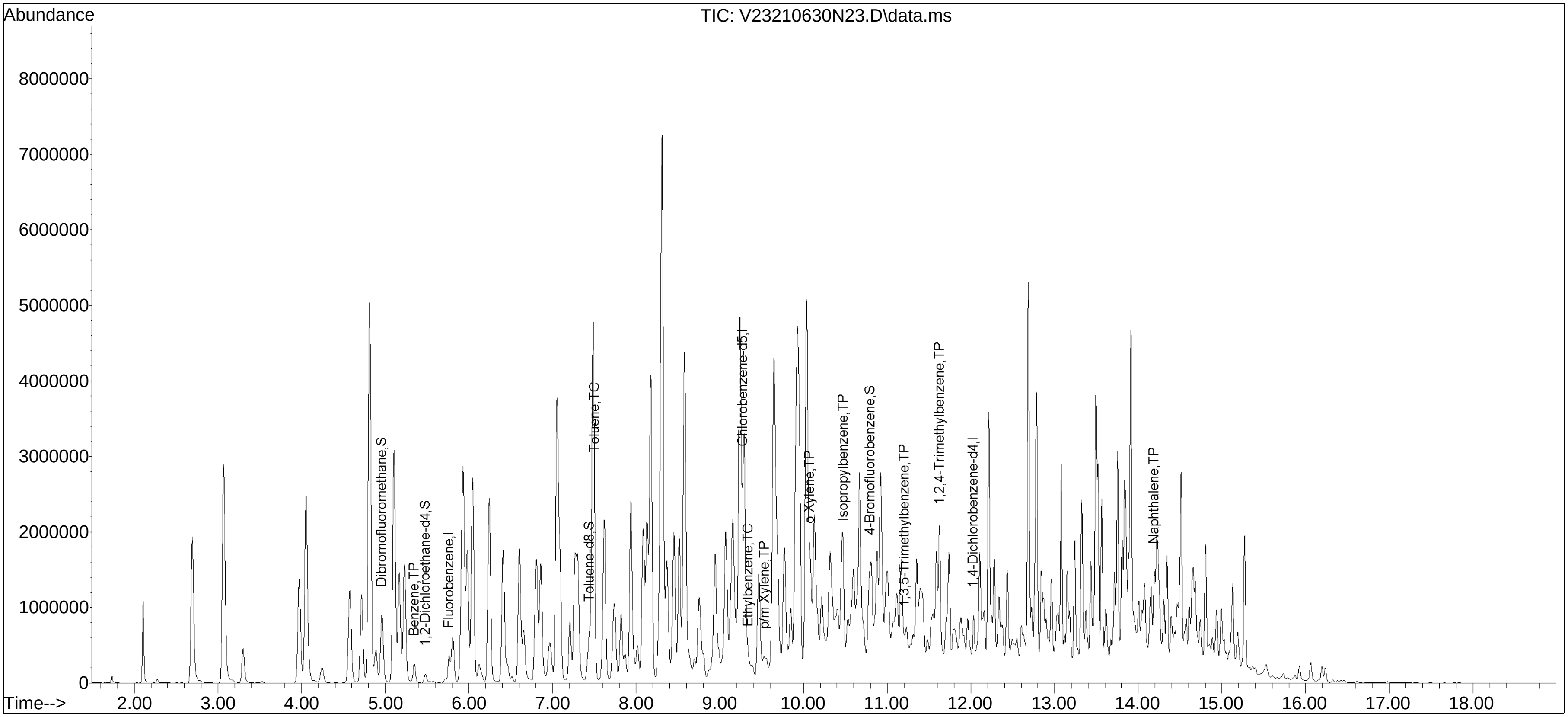


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210630N\
Data File : V23210630N23.D
Acq On : 01 Jul 2021 01:29 am
Operator : VOA123:JC
Sample : L2133823-19,31H,3.86,5,0.100,,A
Misc : WG1519270,ICAL18048
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 01 06:17:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210630N\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30N\V23210630N01.D•

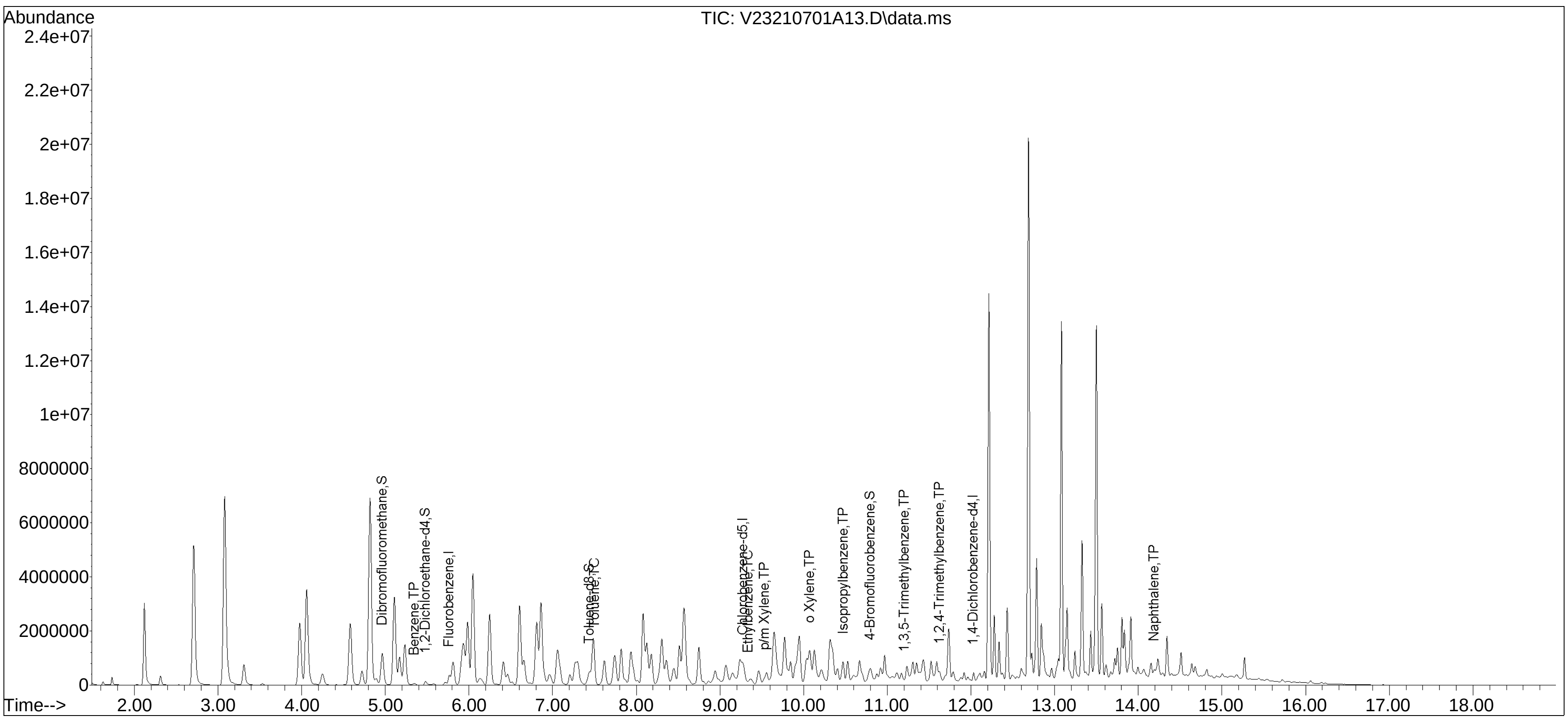


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210701A\
Data File : V23210701A13.D
Acq On : 01 Jul 2021 09:20 am
Operator : VOA123:JC
Sample : L2133823-20,31,3.07,5,,B
Misc : WG1519390,ICAL18108
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 11:25:24 2021
Quant Method : I:\VOLATILES\VOA123\2021\210701A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V23210701A01.D•



ANALYTICAL REPORT

Lab Number:	L2134200
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/28/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134200-01	PB128-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 07:50	06/23/21
L2134200-02	PB128-13-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:10	06/23/21
L2134200-03	PB128-16-SS01	SOIL	PHILADELPHIA, PA	06/23/21 08:20	06/23/21
L2134200-04	PB129-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:00	06/23/21
L2134200-05	PB129-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:15	06/23/21
L2134200-06	PB129-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:25	06/23/21
L2134200-07	PB129-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:30	06/23/21
L2134200-08	PB129-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 09:40	06/23/21
L2134200-09	PB129-14-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:00	06/23/21
L2134200-10	PB129-15-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:10	06/23/21
L2134200-11	PB129-17-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:25	06/23/21
L2134200-12	PB84-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:10	06/23/21
L2134200-13	PB84-02-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:25	06/23/21
L2134200-14	PB84-03-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:30	06/23/21
L2134200-15	PB84-04-SS01	SOIL	PHILADELPHIA, PA	06/23/21 13:45	06/23/21
L2134200-16	PB84-05-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:25	06/23/21
L2134200-17	PB84-06-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:40	06/23/21
L2134200-18	PB84-07-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:45	06/23/21
L2134200-19	PB84-08-SS01	SOIL	PHILADELPHIA, PA	06/23/21 14:55	06/23/21
L2134200-20	FB-210623-1	WATER	PHILADELPHIA, PA	06/23/21 12:00	06/23/21
L2134200-21	FB-210623-2	WATER	PHILADELPHIA, PA	06/23/21 14:00	06/23/21
L2134200-22	TB	WATER	PHILADELPHIA, PA	06/23/21 00:00	06/23/21
L2134200-23	PB129-01-SS01	SOIL	PHILADELPHIA, PA	06/23/21 10:50	06/23/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-04 and -23.

July 28, 2021: The Volatile Organics analyte list has been amended on L2134200-05, -08, -09, -10 and -11.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2134200-01 and -05D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-04: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2134200-04: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (30%) and the surrogate recovery for 4-bromofluorobenzene (184%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. A high-level analysis was performed, and those results are also reported.

L2134200-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-06 and -07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2134200-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (168%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-13: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (197%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-14D and -18D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2134200-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-15D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (138%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-16 and -17: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2134200-17: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (227%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-18D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (131%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2134200-19: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

PAHs

L2134200-04D, -05D, and -23D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2134200-05D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 07/28/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-01	Date Collected:	06/23/21 07:50
Client ID:	PB128-08-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:07
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00033	1
Benzene	ND		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	0.00097	J	mg/kg	0.0032	0.00091	1
o-Xylene	0.00077	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0017	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.00060	J	mg/kg	0.0032	0.00054	1
Naphthalene	0.0019	J	mg/kg	0.0065	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02
Client ID: PB128-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 08:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 10:33
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00018	1
Benzene	0.00041	J	mg/kg	0.00044	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00087	0.00022	1
Toluene	0.00049	J	mg/kg	0.00087	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.00048	J	mg/kg	0.00087	0.00012	1
p/m-Xylene	0.0017		mg/kg	0.0017	0.00049	1
o-Xylene	0.0026		mg/kg	0.00087	0.00025	1
Xylenes, Total	0.0043		mg/kg	0.00087	0.00025	1
Isopropylbenzene	ND		mg/kg	0.00087	0.00009	1
1,3,5-Trimethylbenzene	0.0025		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	0.0022		mg/kg	0.0017	0.00029	1
Naphthalene	ND		mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-03	Date Collected:	06/23/21 08:20
Client ID:	PB128-16-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:00
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00028	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	0.00060	J	mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	0.00034	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.00034	J	mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	ND		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
Client ID: PB129-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 09:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:31
Analyst: MV
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	1
Benzene	0.60		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	0.14		mg/kg	0.11	0.059	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	1
Ethylbenzene	0.075	J	mg/kg	0.11	0.015	1
p/m-Xylene	0.20	J	mg/kg	0.22	0.061	1
o-Xylene	0.060	J	mg/kg	0.11	0.032	1
Xylenes, Total	0.26	J	mg/kg	0.11	0.032	1
Isopropylbenzene	0.042	J	mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.082	J	mg/kg	0.22	0.021	1
1,2,4-Trimethylbenzene	0.16	J	mg/kg	0.22	0.036	1
Naphthalene	0.24	J	mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-04	Date Collected:	06/23/21 09:00
Client ID:	PB129-02-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 09:49
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0030	0.00030	1
Benzene	0.25		mg/kg	0.00075	0.00025	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	0.0036		mg/kg	0.0015	0.00081	1
1,2-Dibromoethane	ND		mg/kg	0.00075	0.00044	1
Ethylbenzene	0.00038	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0037		mg/kg	0.0030	0.00084	1
o-Xylene	0.0025		mg/kg	0.0015	0.00044	1
Xylenes, Total	0.0062		mg/kg	0.0015	0.00044	1
Isopropylbenzene	0.0048		mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0030	0.00029	1
1,2,4-Trimethylbenzene	0.0053		mg/kg	0.0030	0.00050	1
Naphthalene	0.0028	J	mg/kg	0.0060	0.00098	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	**184**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:57
Analyst: MV
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.19	0.019	1
Benzene	0.96		mg/kg	0.048	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.096	0.025	1
Toluene	0.45		mg/kg	0.096	0.052	1
1,2-Dibromoethane	ND		mg/kg	0.048	0.028	1
Ethylbenzene	3.6		mg/kg	0.096	0.014	1
p/m-Xylene	2.3		mg/kg	0.19	0.054	1
o-Xylene	3.8		mg/kg	0.096	0.028	1
Xylenes, Total	6.1		mg/kg	0.096	0.028	1
Isopropylbenzene	7.1		mg/kg	0.096	0.010	1
1,3,5-Trimethylbenzene	21.		mg/kg	0.19	0.018	1
1,2,4-Trimethylbenzene	46.	E	mg/kg	0.19	0.032	1
Naphthalene	13.		mg/kg	0.38	0.062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05 D	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 10:15
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	44.		mg/kg	0.38	0.064	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-06	Date Collected:	06/23/21 09:25
Client ID:	PB129-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:26
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.0084		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	ND		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.00036	J	mg/kg	0.00090	0.00013	1
p/m-Xylene	0.0018		mg/kg	0.0018	0.00050	1
o-Xylene	ND		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.0018		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.0032		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.61	E	mg/kg	0.0018	0.00030	1
Naphthalene	0.090		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06
Date Collected: 06/23/21 09:25
Client ID: PB129-04-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:49
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	ND		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	ND		mg/kg	0.046	0.0066	1
p/m-Xylene	ND		mg/kg	0.093	0.026	1
o-Xylene	ND		mg/kg	0.046	0.014	1
Xylenes, Total	ND		mg/kg	0.046	0.014	1
Isopropylbenzene	ND		mg/kg	0.046	0.0051	1
1,3,5-Trimethylbenzene	0.11		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.093	0.016	1
Naphthalene	0.10	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-07	Date Collected:	06/23/21 09:30
Client ID:	PB129-05-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 11:53
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.42	E	mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.75	E	mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00032	1
Ethylbenzene	0.041		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.045		mg/kg	0.0022	0.00062	1
o-Xylene	0.081		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.13		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0054		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.067		mg/kg	0.0022	0.00037	1
Naphthalene	0.010		mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
Client ID: PB129-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 21:15
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0093	1
Benzene	0.32		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.046	0.012	1
Toluene	0.45		mg/kg	0.046	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.039	J	mg/kg	0.046	0.0065	1
p/m-Xylene	0.072	J	mg/kg	0.093	0.026	1
o-Xylene	0.066		mg/kg	0.046	0.013	1
Xylenes, Total	0.14	J	mg/kg	0.046	0.013	1
Isopropylbenzene	0.0094	J	mg/kg	0.046	0.0050	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.093	0.015	1
Naphthalene	0.033	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08	D2	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01		Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 10:41
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.4	0.24	25
Benzene	ND		mg/kg	0.59	0.20	25
1,2-Dichloroethane	ND		mg/kg	1.2	0.30	25
Toluene	360	E	mg/kg	1.2	0.64	25
1,2-Dibromoethane	ND		mg/kg	0.59	0.35	25
Ethylbenzene	230		mg/kg	1.2	0.17	25
p/m-Xylene	1800	E	mg/kg	2.4	0.66	25
o-Xylene	450		mg/kg	1.2	0.34	25
Isopropylbenzene	14.		mg/kg	1.2	0.13	25
1,3,5-Trimethylbenzene	170		mg/kg	2.4	0.23	25
1,2,4-Trimethylbenzene	640	E	mg/kg	2.4	0.40	25
Naphthalene	42.		mg/kg	4.8	0.77	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08 D
Client ID: PB129-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 09:40
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 00:46
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	250		mg/kg	4.8	2.6	100
p/m-Xylene	910		mg/kg	9.5	2.7	100
Xylenes, Total	1400		mg/kg	1.2	0.34	100
1,2,4-Trimethylbenzene	390		mg/kg	9.5	1.6	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
Client ID: PB129-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 10:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 01:12
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0094	1
Benzene	ND		mg/kg	0.023	0.0077	1
1,2-Dichloroethane	ND		mg/kg	0.047	0.012	1
Toluene	ND		mg/kg	0.047	0.025	1
1,2-Dibromoethane	ND		mg/kg	0.023	0.014	1
Ethylbenzene	0.042	J	mg/kg	0.047	0.0066	1
p/m-Xylene	0.15		mg/kg	0.093	0.026	1
o-Xylene	0.016	J	mg/kg	0.047	0.014	1
Xylenes, Total	0.17	J	mg/kg	0.047	0.014	1
Isopropylbenzene	0.36		mg/kg	0.047	0.0051	1
1,3,5-Trimethylbenzene	3.0		mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	12.		mg/kg	0.093	0.016	1
Naphthalene	1.2		mg/kg	0.19	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-10	Date Collected:	06/23/21 10:10
Client ID:	PB129-15-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 12:19
Analyst: JC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00053	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00027	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1
Naphthalene	ND		mg/kg	0.0043	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11
Client ID: PB129-17-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 10:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 12:46
Analyst: KJD
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00066	1
o-Xylene	ND		mg/kg	0.0012	0.00034	1
Xylenes, Total	ND		mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0047	0.00077	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-12	D	Date Collected:	06/23/21 13:10
Client ID:	PB84-01-SS01		Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 01:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	ND		mg/kg	0.064	0.021	2
Toluene	ND		mg/kg	0.13	0.070	2
Ethylbenzene	ND		mg/kg	0.13	0.018	2
Isopropylbenzene	3.5		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.49		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	23.		mg/kg	0.26	0.043	2
Naphthalene	1.0		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**168**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200

Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-13
Client ID: PB84-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:04
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.027		mg/kg	0.027	0.0091	1
Toluene	0.041	J	mg/kg	0.055	0.030	1
Ethylbenzene	0.042	J	mg/kg	0.055	0.0077	1
Isopropylbenzene	2.5		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.11	0.018	1
Naphthalene	0.81		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**197**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-14 D
Client ID: PB84-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:30
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2
Benzene	ND		mg/kg	0.070	0.023	2
Toluene	ND		mg/kg	0.14	0.076	2
Ethylbenzene	ND		mg/kg	0.14	0.020	2
Isopropylbenzene	1.9		mg/kg	0.14	0.015	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.28	0.027	2
1,2,4-Trimethylbenzene	0.79		mg/kg	0.28	0.047	2
Naphthalene	0.55	J	mg/kg	0.56	0.091	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15 D2
Client ID: PB84-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:07
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.52	0.052	5
Benzene	2.1		mg/kg	0.13	0.043	5
Toluene	3.0		mg/kg	0.26	0.14	5
Ethylbenzene	15.		mg/kg	0.26	0.037	5
Isopropylbenzene	5.1		mg/kg	0.26	0.028	5
1,3,5-Trimethylbenzene	29.		mg/kg	0.52	0.050	5
1,2,4-Trimethylbenzene	120	E	mg/kg	0.52	0.087	5
Naphthalene	74.		mg/kg	1.0	0.17	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**138**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-15 D
Client ID: PB84-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 02:56
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	110		mg/kg	1.0	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-16
Client ID: PB84-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 14:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 03:22
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	0.011	J	mg/kg	0.072	0.010	1
Isopropylbenzene	0.63		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.039	J	mg/kg	0.14	0.024	1
Naphthalene	0.40		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-17	Date Collected:	06/23/21 14:40
Client ID:	PB84-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 03:48
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.099	0.0099	1
Benzene	0.047		mg/kg	0.025	0.0082	1
Toluene	ND		mg/kg	0.049	0.027	1
Ethylbenzene	0.014	J	mg/kg	0.049	0.0070	1
Isopropylbenzene	1.3		mg/kg	0.049	0.0054	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.099	0.0095	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.099	0.016	1
Naphthalene	0.26		mg/kg	0.20	0.032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	**227**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-18 D
Client ID: PB84-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:45
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 04:14
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.64	0.065	5
Benzene	ND		mg/kg	0.16	0.054	5
Toluene	ND		mg/kg	0.32	0.18	5
Ethylbenzene	0.69		mg/kg	0.32	0.045	5
Isopropylbenzene	4.9		mg/kg	0.32	0.035	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.64	0.062	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.64	0.11	5
Naphthalene	1.2	J	mg/kg	1.3	0.21	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-19
Client ID: PB84-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:55
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 13:12
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00050	1
Ethylbenzene	0.00019	J	mg/kg	0.00091	0.00013	1
Isopropylbenzene	0.027		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.028		mg/kg	0.0018	0.00030	1
Naphthalene	0.049		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
Client ID: FB-210623-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:23
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
Client ID: FB-210623-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 12:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:06
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
Client ID: FB-210623-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:29
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
Client ID: FB-210623-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:34
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-22	Date Collected:	06/23/21 00:00
Client ID:	TB	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:36		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-22	Date Collected:	06/23/21 00:00
Client ID:	TB	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 15:15
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23 D2	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:33
Analyst: JC
Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.79	0.080	2.5
Benzene	0.17	J	mg/kg	0.20	0.066	2.5
1,2-Dichloroethane	ND		mg/kg	0.40	0.10	2.5
Toluene	0.33	J	mg/kg	0.40	0.22	2.5
1,2-Dibromoethane	ND		mg/kg	0.20	0.12	2.5
Ethylbenzene	ND		mg/kg	0.40	0.056	2.5
p/m-Xylene	440	E	mg/kg	0.79	0.22	2.5
o-Xylene	5.7		mg/kg	0.40	0.12	2.5
Isopropylbenzene	0.54		mg/kg	0.40	0.043	2.5
1,3,5-Trimethylbenzene	1.4		mg/kg	0.79	0.076	2.5
1,2,4-Trimethylbenzene	5.4		mg/kg	0.79	0.13	2.5
Naphthalene	1.1	J	mg/kg	1.6	0.26	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-23 D
Client ID: PB129-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:50
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 04:41
Analyst: JC
Percent Solids: 59%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	340		mg/kg	1.6	0.44	5
Xylenes, Total	340		mg/kg	0.40	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 20-22 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 06:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05,08,15,23 Batch: WG1519723-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-09,12-18,23 Batch: WG1519723-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1519895-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:39
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 20-21 Batch: WG1520399-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:04
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 22 Batch: WG1520863-5					
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 20-22 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,06-07,10-11,19 Batch: WG1519440-3 WG1519440-4								
Methyl tert butyl ether	85		88		66-130	3		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	90		89		70-130	1		30
Toluene	87		85		70-130	2		30
1,2-Dibromoethane	98		97		70-130	1		30
Ethylbenzene	89		88		70-130	1		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	90		89		70-130	1		30
Isopropylbenzene	94		89		70-130	5		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	90		86		70-130	5		30
Naphthalene	94		92		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-09,12-18,23 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	90		90		70-130	0		30
1,2-Dibromoethane	101		99		70-130	2		30
Ethylbenzene	92		93		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	91		91		70-130	0		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05,08,15,23 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
1,2-Dichloroethane	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
1,2-Dibromoethane	101		112		70-130	10		30
Ethylbenzene	86		99		70-130	14		30
p/m-Xylene	84		96		70-130	13		30
o-Xylene	85		97		70-130	13		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 20-21 Batch: WG1520399-3 WG1520399-4								
Methyl tert butyl ether	97		97		63-130	0		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	95		93		70-130	2		20
Ethylbenzene	96		94		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	97		96		70-130	1		20
1,3,5-Trimethylbenzene	96		96		64-130	0		20
1,2,4-Trimethylbenzene	96		95		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		110		70-130
Toluene-d8	98		100		70-130
4-Bromofluorobenzene	98		98		70-130
Dibromofluoromethane	105		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 22 Batch: WG1520863-3 WG1520863-4								
Benzene	96		98		70-130	2		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	94		97		70-130	3		20
1,2-Dibromoethane	90		92		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	90		95		70-130	5		20
Isopropylbenzene	98		98		70-130	0		20
1,3,5-Trimethylbenzene	96		97		64-130	1		20
1,2,4-Trimethylbenzene	96		96		70-130	0		20
Naphthalene	75		83		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	103		103		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04 D
Client ID: PB129-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/07/21 13:59
Analyst: SZ
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	770	J	ug/kg	2100	260	10
Benzo(a)anthracene	400	J	ug/kg	1200	240	10
Benzo(a)pyrene	ND		ug/kg	1700	510	10
Benzo(b)fluoranthene	ND		ug/kg	1200	350	10
Chrysene	480	J	ug/kg	1200	220	10
Anthracene	ND		ug/kg	1200	410	10
Benzo(ghi)perylene	1200	J	ug/kg	1700	250	10
Fluorene	ND		ug/kg	2100	200	10
Phenanthrene	600	J	ug/kg	1200	250	10
Pyrene	780	J	ug/kg	1200	210	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	29		23-120
2-Fluorobiphenyl	**25**	Q	30-120
4-Terphenyl-d14	31		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05 D
Client ID: PB129-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:15
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/07/21 14:23
Analyst: SZ
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7200		ug/kg	5500	670	10
Benzo(a)anthracene	4700		ug/kg	3300	620	10
Benzo(a)pyrene	2900	J	ug/kg	4400	1300	10
Benzo(b)fluoranthene	4400		ug/kg	3300	920	10
Chrysene	9000		ug/kg	3300	570	10
Anthracene	2700	J	ug/kg	3300	1100	10
Benzo(ghi)perylene	1800	J	ug/kg	4400	640	10
Fluorene	2400	J	ug/kg	5500	530	10
Phenanthrene	12000		ug/kg	3300	670	10
Pyrene	9800		ug/kg	3300	540	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	46		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-06	Date Collected:	06/23/21 09:25
Client ID:	PB129-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 17:20		
Analyst:	WR		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	370		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	19.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	22	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	53		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
Client ID: PB129-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/04/21 17:43
Analyst: WR
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 18:07		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10000	E	ug/kg	170	21.	1
Benzo(a)anthracene	22	J	ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	42.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	19	J	ug/kg	100	18.	1
Anthracene	39	J	ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	120	J	ug/kg	170	17.	1
Phenanthrene	270		ug/kg	100	21.	1
Pyrene	93	J	ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	54		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-08 D	Date Collected:	06/23/21 09:40
Client ID:	PB129-06-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/07/21 14:47		
Analyst:	SZ		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9400		ug/kg	870	110	5

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
Client ID: PB129-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/04/21 18:30
Analyst: WR
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1400		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	19	J	ug/kg	180	17.	1
Phenanthrene	25	J	ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	67		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10
Client ID: PB129-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 10:10
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/04/21 18:54
Analyst: WR
Percent Solids: 93%
Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	22.	1
Benzo(a)anthracene	ND		ug/kg	110	20.	1
Benzo(a)pyrene	ND		ug/kg	140	44.	1
Benzo(b)fluoranthene	ND		ug/kg	110	30.	1
Chrysene	ND		ug/kg	110	19.	1
Anthracene	ND		ug/kg	110	35.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	110	22.	1
Pyrene	ND		ug/kg	110	18.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-11	Date Collected:	06/23/21 10:25
Client ID:	PB129-17-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 19:59
Analytical Date:	07/04/21 19:17		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	170	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	29.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	20.	1
Fluorene	ND		ug/kg	170	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20
Client ID: FB-210623-1
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 12:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 07/01/21 18:31
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 06/30/21 13:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	98		15-120
4-Terphenyl-d14	114		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21
Client ID: FB-210623-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 07/01/21 18:51
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 06/30/21 13:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	106		15-120
4-Terphenyl-d14	127		41-149

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23 D	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/02/21 20:01
Analytical Date:	07/07/21 15:10		
Analyst:	SZ		
Percent Solids:	59%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	500	J	ug/kg	1400	170	5
Benzo(a)anthracene	2600		ug/kg	840	160	5
Benzo(a)pyrene	4200		ug/kg	1100	340	5
Benzo(b)fluoranthene	4600		ug/kg	840	240	5
Chrysene	2900		ug/kg	840	140	5
Anthracene	420	J	ug/kg	840	270	5
Benzo(ghi)perylene	3500		ug/kg	1100	160	5
Fluorene	340	J	ug/kg	1400	140	5
Phenanthrene	1000		ug/kg	840	170	5
Pyrene	2700		ug/kg	840	140	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	48		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	07/01/21 18:11	Extraction Date:	06/30/21 13:07
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 20-21 Batch: WG1518888-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	71		21-120
Phenol-d6	68		10-120
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	110		15-120
2,4,6-Tribromophenol	**130**	Q	10-120
4-Terphenyl-d14	128		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/04/21 12:54
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 07/02/21 19:59

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 04-11,23 Batch: WG1519998-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	99	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	99	28.
Chrysene	ND		ug/kg	99	17.
Anthracene	ND		ug/kg	99	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	99	20.
Pyrene	ND		ug/kg	99	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	70		25-120
Phenol-d6	70		10-120
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		30-120
2,4,6-Tribromophenol	76		10-136
4-Terphenyl-d14	78		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 20-21 Batch: WG1518888-2 WG1518888-3								
Naphthalene	85		94		40-140	10		40
Fluorene	92		103		40-140	11		40
Phenanthrene	86		95		40-140	10		40
Anthracene	93		104		40-140	11		40
Pyrene	92		100		26-127	8		40
Benzo(a)anthracene	87		99		40-140	13		40
Chrysene	92		101		40-140	9		40
Benzo(b)fluoranthene	97		100		40-140	3		40
Benzo(a)pyrene	83		105		40-140	23		40
Benzo(ghi)perylene	92		103		40-140	11		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	83		95		21-120
Phenol-d6	68		78		10-120
Nitrobenzene-d5	112		**122**	Q	23-120
2-Fluorobiphenyl	103		113		15-120
2,4,6-Tribromophenol	**169**	Q	**187**	Q	10-120
4-Terphenyl-d14	121		130		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-11,23 Batch: WG1519998-2 WG1519998-3								
Naphthalene	51		48		40-140	6		50
Benzo(a)anthracene	56		52		40-140	7		50
Benzo(a)pyrene	54		53		40-140	2		50
Benzo(b)fluoranthene	56		54		40-140	4		50
Chrysene	54		52		40-140	4		50
Anthracene	56		54		40-140	4		50
Benzo(ghi)perylene	54		53		40-140	2		50
Fluorene	56		52		40-140	7		50
Phenanthrene	56		54		40-140	4		50
Pyrene	57		54		35-142	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	56		53		25-120
Phenol-d6	56		53		10-120
Nitrobenzene-d5	55		52		23-120
2-Fluorobiphenyl	50		48		30-120
2,4,6-Tribromophenol	55		53		10-136
4-Terphenyl-d14	54		52		18-120

METALS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-01
Date Collected: 06/23/21 07:50
Client ID: PB128-08-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	844		mg/kg	2.66	0.142	1	06/30/21 12:17	07/13/21 21:15	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-02	Date Collected:	06/23/21 08:10
Client ID:	PB128-13-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.88		mg/kg	2.08	0.112	1	06/30/21 12:17	07/13/21 21:19	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-03	Date Collected:	06/23/21 08:20
Client ID:	PB128-16-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	182		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:24	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04 Date Collected: 06/23/21 09:00
Client ID: PB129-02-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	175		mg/kg	2.49	0.133	1	06/30/21 12:17	07/13/21 21:38	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-05 Date Collected: 06/23/21 09:15
Client ID: PB129-03-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	119		mg/kg	2.34	0.125	1	06/30/21 12:17	07/13/21 21:42	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-06	Date Collected:	06/23/21 09:25
Client ID:	PB129-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.92		mg/kg	2.04	0.109	1	06/30/21 12:17	07/13/21 21:46	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07 Date Collected: 06/23/21 09:30

Client ID: PB129-05-SS01 Date Received: 06/23/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.81		mg/kg	2.06	0.110	1	06/30/21 12:17	07/13/21 21:51	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08 Date Collected: 06/23/21 09:40
Client ID: PB129-06-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.44		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 21:55	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09 Date Collected: 06/23/21 10:00
Client ID: PB129-14-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.74		mg/kg	2.02	0.108	1	06/30/21 12:17	07/13/21 22:00	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-10	Date Collected:	06/23/21 10:10
Client ID:	PB129-15-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.84		mg/kg	2.03	0.109	1	06/30/21 12:17	07/13/21 22:05	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-11	Date Collected:	06/23/21 10:25
Client ID:	PB129-17-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	36.1		mg/kg	2.11	0.113	1	06/30/21 12:17	07/13/21 22:09	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200

Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-20 Date Collected: 06/23/21 12:00

Client ID: FB-210623-1 Date Received: 06/23/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 20:02	EPA 3005A	1,6020B	CD

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134200
Project Number: 200.00135.005.03 | **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-21 | Date Collected: 06/23/21 14:00
Client ID: FB-210623-2 | Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 20:53	EPA 3005A	1,6020B	CD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	59%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3920		mg/kg	6.81	0.365	2	06/30/21 12:17	07/13/21 22:14	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 20-21 Batch: WG1517707-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	06/29/21 05:20	07/22/21 17:50	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-11,23 Batch: WG1518458-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	06/30/21 12:17	07/13/21 11:18	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 Batch: WG1517707-2								
Lead, Total	98		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 Batch: WG1518458-2 SRM Lot Number: D109-540								
Lead, Total	105		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1517707-3 QC Sample: L2134745-01 Client ID: MS Sample												
Lead, Total	ND	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-3 WG1518458-4 QC Sample: L2134209-04 Client ID: MS Sample												
Lead, Total	283	47.9	256	**0**	Q	308	**53**	Q	75-125	18		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20-21 QC Batch ID: WG1517707-4 QC Sample: L2134745-01 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20

Lab Serial Dilution Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-11,23 QC Batch ID: WG1518458-6 QC Sample: L2134209-04 Client ID: DUP Sample						
Lead, Total	283	316	mg/kg	12		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-01	Date Collected:	06/23/21 07:50
Client ID:	PB128-08-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-02
Date Collected: 06/23/21 08:10
Client ID: PB128-13-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-03	Date Collected:	06/23/21 08:20
Client ID:	PB128-16-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-04
Client ID: PB129-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/23/21 09:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-05	Date Collected:	06/23/21 09:15
Client ID:	PB129-03-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-06 Date Collected: 06/23/21 09:25
Client ID: PB129-04-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-07
Date Collected: 06/23/21 09:30
Client ID: PB129-05-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-08
Client ID: PB129-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 09:40
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-09
Client ID: PB129-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 10:00
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-10 Date Collected: 06/23/21 10:10
Client ID: PB129-15-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.0		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134200
Project Number: 200.00135.005.03 **Report Date:** 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-11 Date Collected: 06/23/21 10:25
Client ID: PB129-17-SS01 Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.4		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-12	Date Collected:	06/23/21 13:10
Client ID:	PB84-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-13
Client ID: PB84-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-14
Client ID: PB84-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 13:30
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-15	Date Collected:	06/23/21 13:45
Client ID:	PB84-04-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-16
Client ID: PB84-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/23/21 14:25
Date Received: 06/23/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-17
Date Collected: 06/23/21 14:40
Client ID: PB84-06-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-18	Date Collected:	06/23/21 14:45
Client ID:	PB84-07-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134200
Project Number: 200.00135.005.03
Report Date: 07/28/21

SAMPLE RESULTS

Lab ID: L2134200-19
Date Collected: 06/23/21 14:55
Client ID: PB84-08-SS01
Date Received: 06/23/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134200
Project Number:	200.00135.005.03	**Report Date:**	07/28/21

SAMPLE RESULTS

Lab ID:	L2134200-23	Date Collected:	06/23/21 10:50
Client ID:	PB129-01-SS01	Date Received:	06/23/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	58.6		%	0.100	NA	1	-	06/24/21 12:46	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2134200
Report Date: 07/28/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-19,23 QC Batch ID: WG1516505-1 QC Sample: L2134200-01 Client ID: PB128-08-SS01						
Solids, Total	72.7	74.1	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-01A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-01B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-01E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-02A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-02B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-02E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-03A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-03B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-03E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-04B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-04E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-04F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-05A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-05B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-05E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-05F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-06A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-06B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-06E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-06F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-07A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134200-07B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260H(14),PA-8260HLW(14)
L2134200-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-07E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-07F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-08A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-08B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-08E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-08F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-09B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-09E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134200
Report Date: 07/28/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-09F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-10B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-10E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-10F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-11B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-11E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-11F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2134200-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-12B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-12D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-13B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-13D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-14B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-14D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-15A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-15B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-15C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-15D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-16B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-16D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-17A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-17B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-17D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-18A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-18B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-18D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-19A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134200-19B	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19C	Vial water preserved	B	NA		3.2	Y	Absent	24-JUN-21 10:43	PA-8260HLW(14)
L2134200-19D	Plastic 120ml unpreserved	B	NA		3.2	Y	Absent		TS(7)
L2134200-20A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-20D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-20F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-20H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-21A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-21C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134200-21D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-21F	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-8270SIM-LVI(7)
L2134200-21H	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2134200-22A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2134200-22C	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-22D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2134200-23A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2134200-23B	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23C	Vial water preserved	A	NA		5.4	Y	Absent	24-JUN-21 10:37	PA-8260HLW(14)
L2134200-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2134200-23E	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2134200-23F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34200-01	PB128-08-SS01	6/23	0750	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB128-13-SS01		0810	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB128-16-SS01		0820	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB129-02-SS01		0900	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-05	PB129-03-SS01		0915	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB129-04-SS01		0925	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB129-05-SS01		0930	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB129-06-SS01		0940	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB129-14-SS01		1000	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB129-15-SS01		1010	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/23 1402	[signature]	6/23/21
	1802	[signature]	6/23/21
[signature] AAL	6-23-21		6/23 22:00
	6/24 0200	[signature]	6/24/21 01:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF COSTODY

PAGE 2 OF 3

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34200 -11	PB129-17-SS01	6/23	1025	S	JS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-12	~~PB129~~ PB84-01-SS01	↓	1310	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-13	PB84-02-SS01		1325			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-14	PB84-03-SS01		1330			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-15	PB84-04-SS01		1345			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-16	PB84-05-SS01		1425			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-17	PB84-06-SS01		1440			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-18	PB84-07-SS01		1445			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-19	PB84-08-SS01		1455			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-20	FB-210623-1	↓	1200	W	↓	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
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Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ)
(rev. 5-JAN-12)

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 3 OF 3

Date Rec'd in Lab: 6/24/21

ALPHA Job #: L2134200

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

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Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING: Filtration ☐ Done ☒ Not Needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
34200-21	FB-210623-2	6/23	1400	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-22	TB					☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-23	PB129-01-5501	6/23	1050	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
Container Type						-	-	-	-	-	-	-	-	-	-	-	-		
Preservative						-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
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[signature]	1800	[signature]	6/23 1800
[signature]	2030	[signature] 6/23 2230	
[signature]		[signature]	6/24/21 01:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

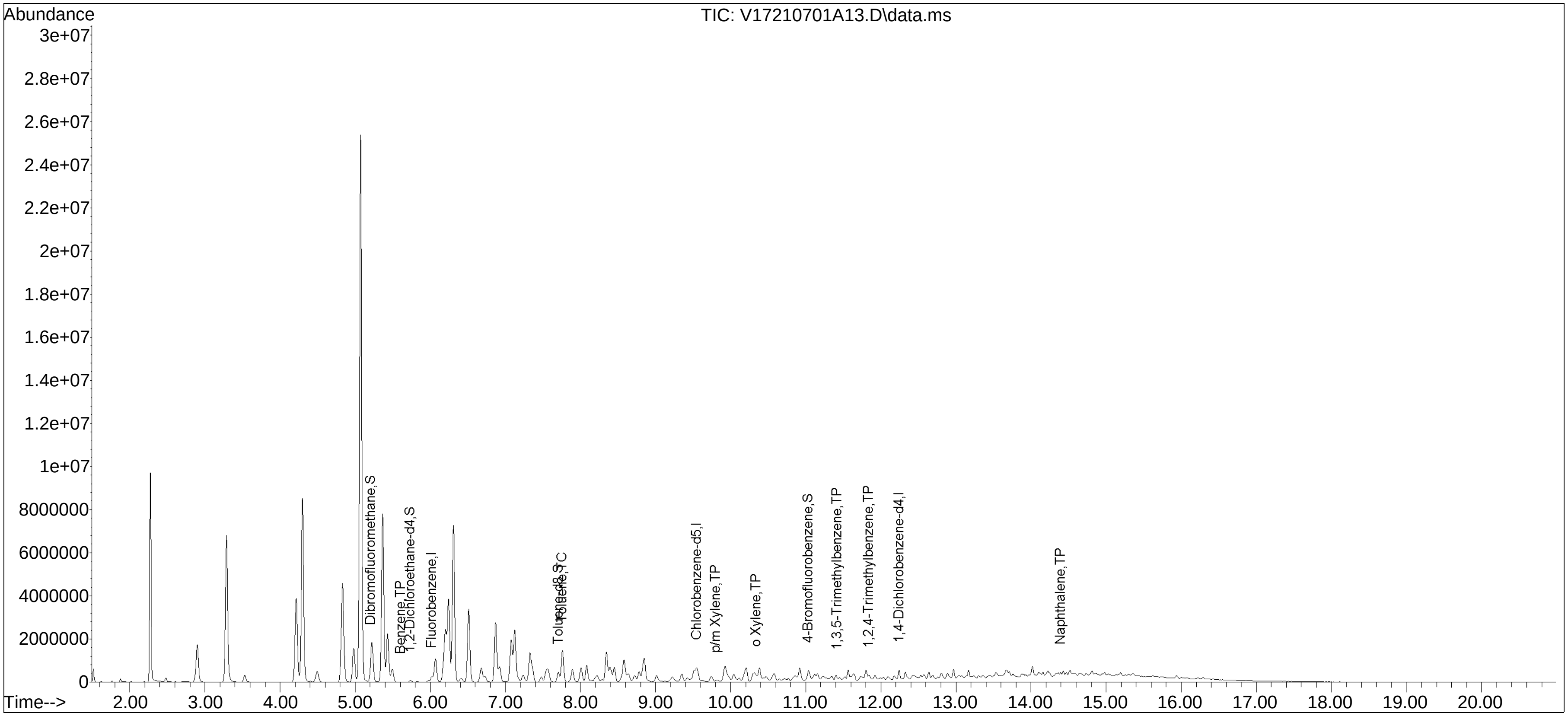
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701A\
Data File : V17210701A13.D
Acq On : 01 Jul 2021 10:07 am
Operator : VOA117:JC
Sample : L2134200-01,31,4.22,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 01 12:43:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•



Quantitation Report (QT Reviewed)

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Data File : V17210702A08.D
Acq On    : 02 Jul 2021  09:49 am
Operator  : VOA117:JC
Sample    : L2134200-04,31,4.30,5,,B
Misc      : WG1519895,ICAL18099
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Jul 02 12:32:14 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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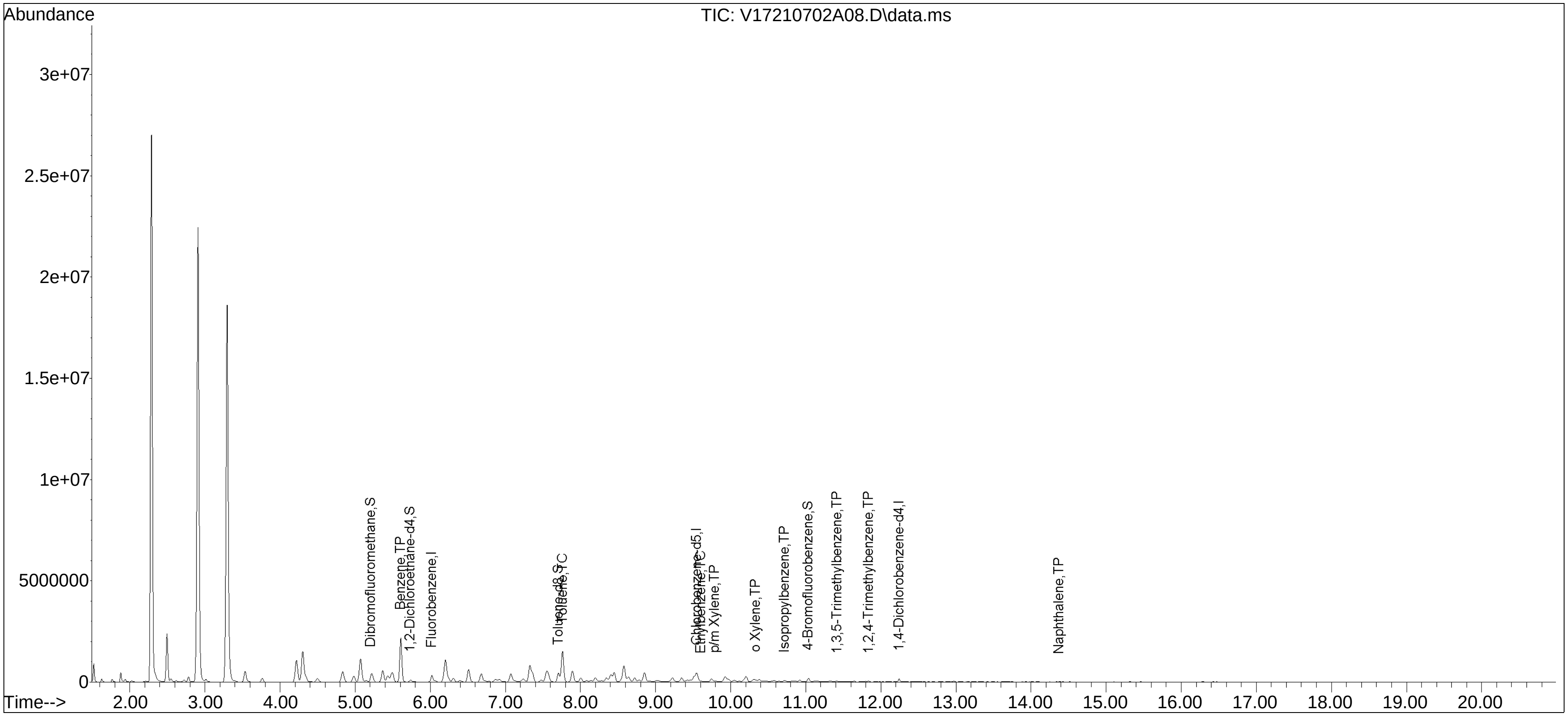

Quantitation Report (QT Reviewed)

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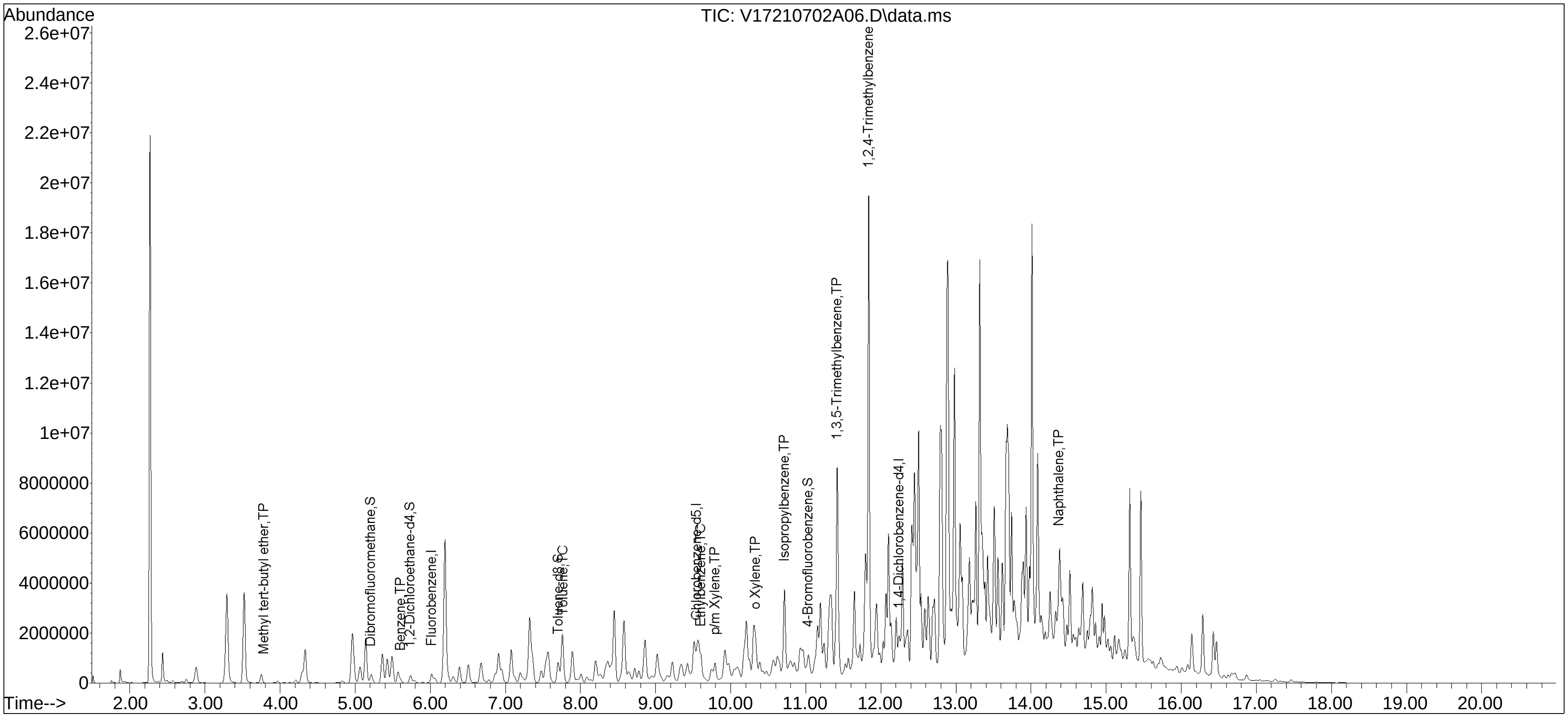
Acq On : 02 Jul 2021 08:57 am
Operator : VOA117:MV
Sample : L2134200-05,31H,3.33,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Jul 02 09:28:16 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•



Quantitation Report (QT Reviewed)

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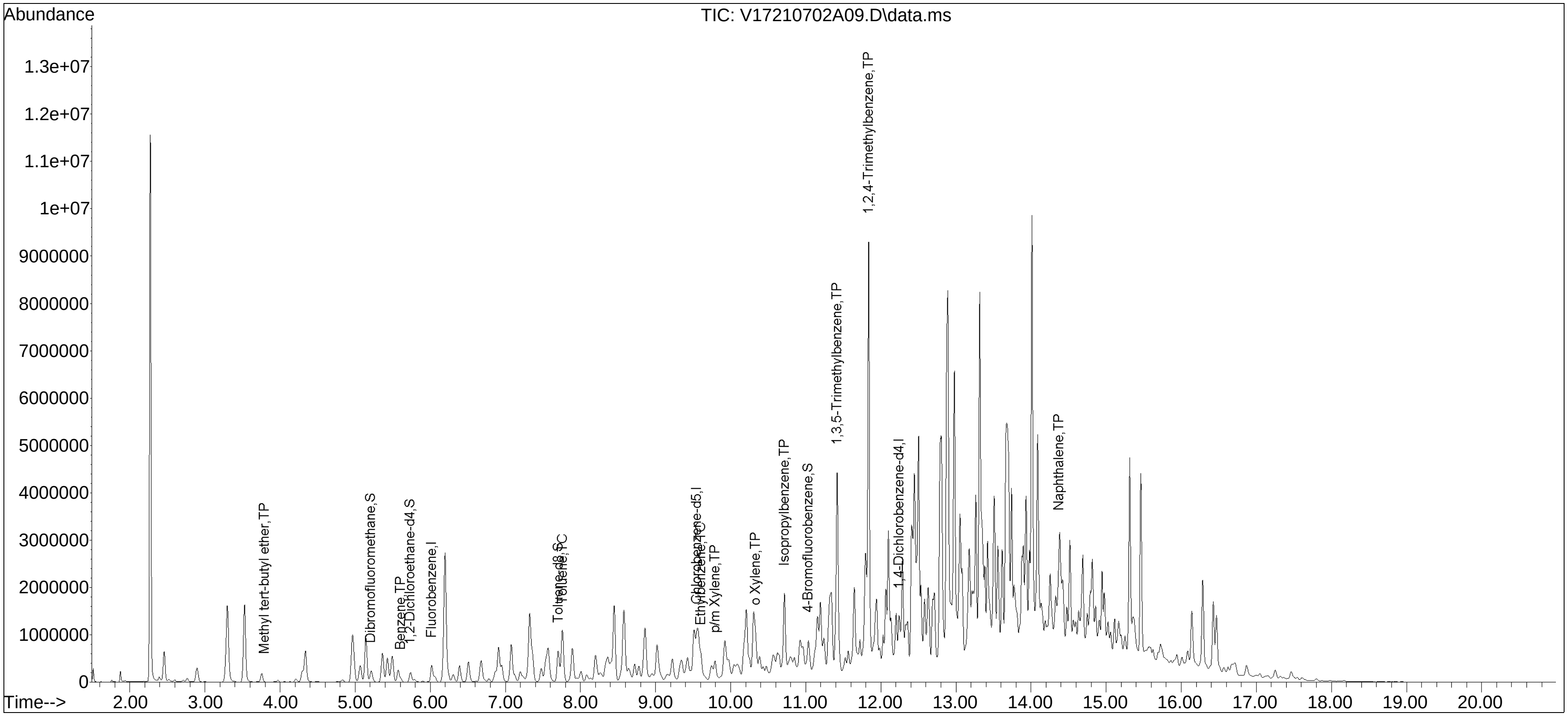
Data File : V17210702A09.D
Acq On : 02 Jul 2021 10:15 am
Operator : VOA117:JC
Sample : L2134200-05D,31H,3.33,5,0.050,,A
Misc : WG1519723,ICAL18099
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Jul 02 13:07:05 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•



Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
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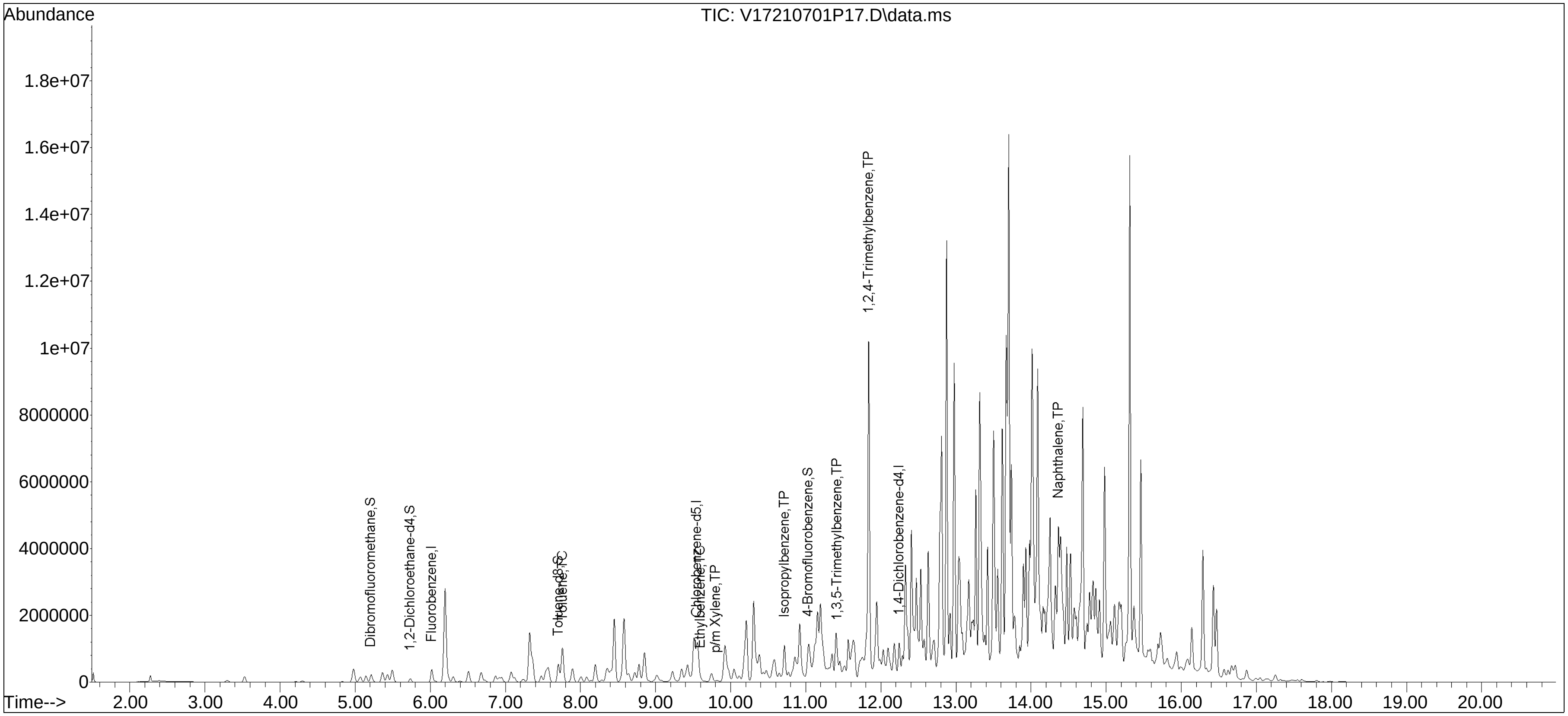
Acq On   : 02 Jul 2021 01:38 am
Operator : VOA117:JC
Sample   : L2134200-12D,31H,5.72,5,0.050,,A
Misc   : WG1519723,ICAL18099
ALS Vial : 17   Sample Multiplier: 1

Quant Time: Jul 02 06:53:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•



Quantitation Report (QT Reviewed)

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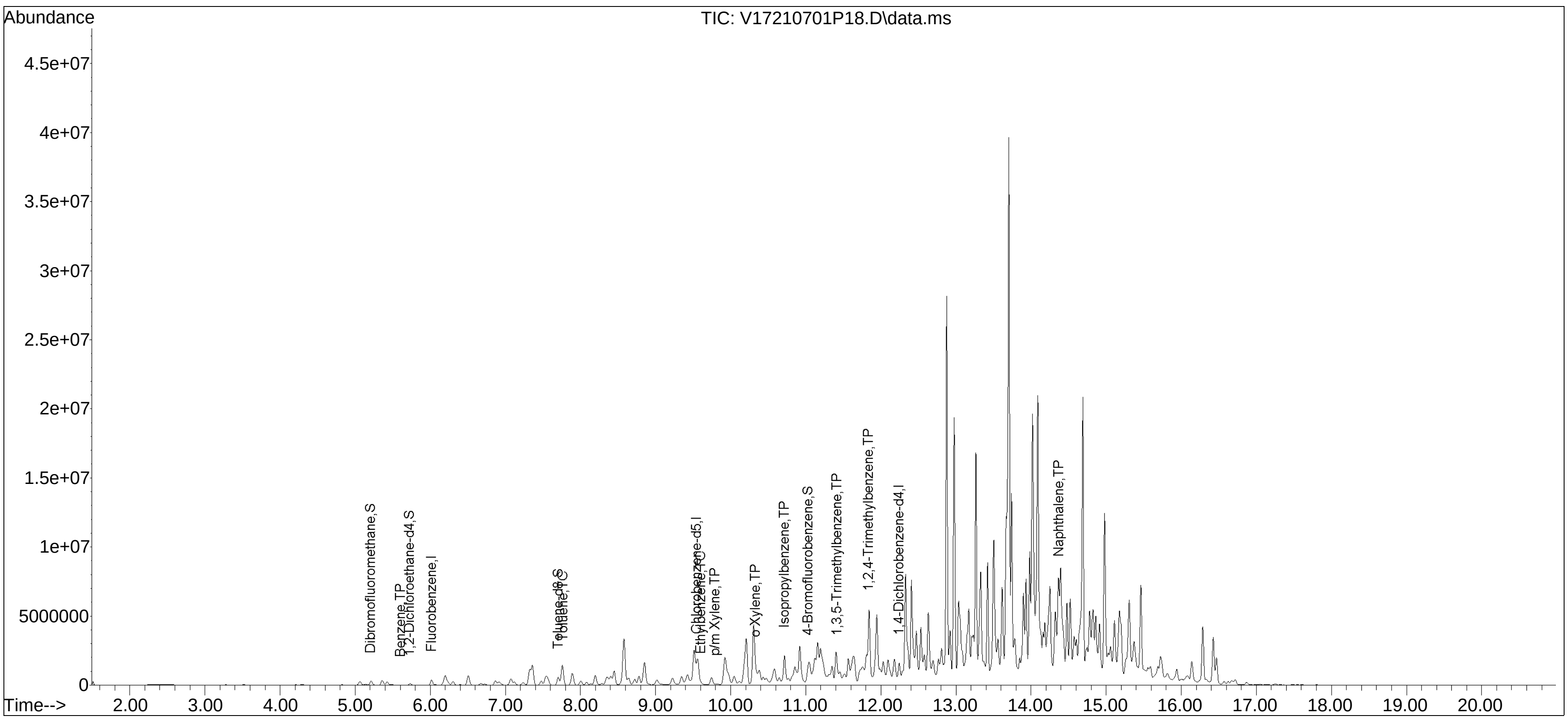
Data File : V17210701P18.D
Acq On : 02 Jul 2021 02:04 am
Operator : VOA117:JC
Sample : L2134200-13,31H,6.92,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 02 07:04:06 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•



Quantitation Report   (QT Reviewed)

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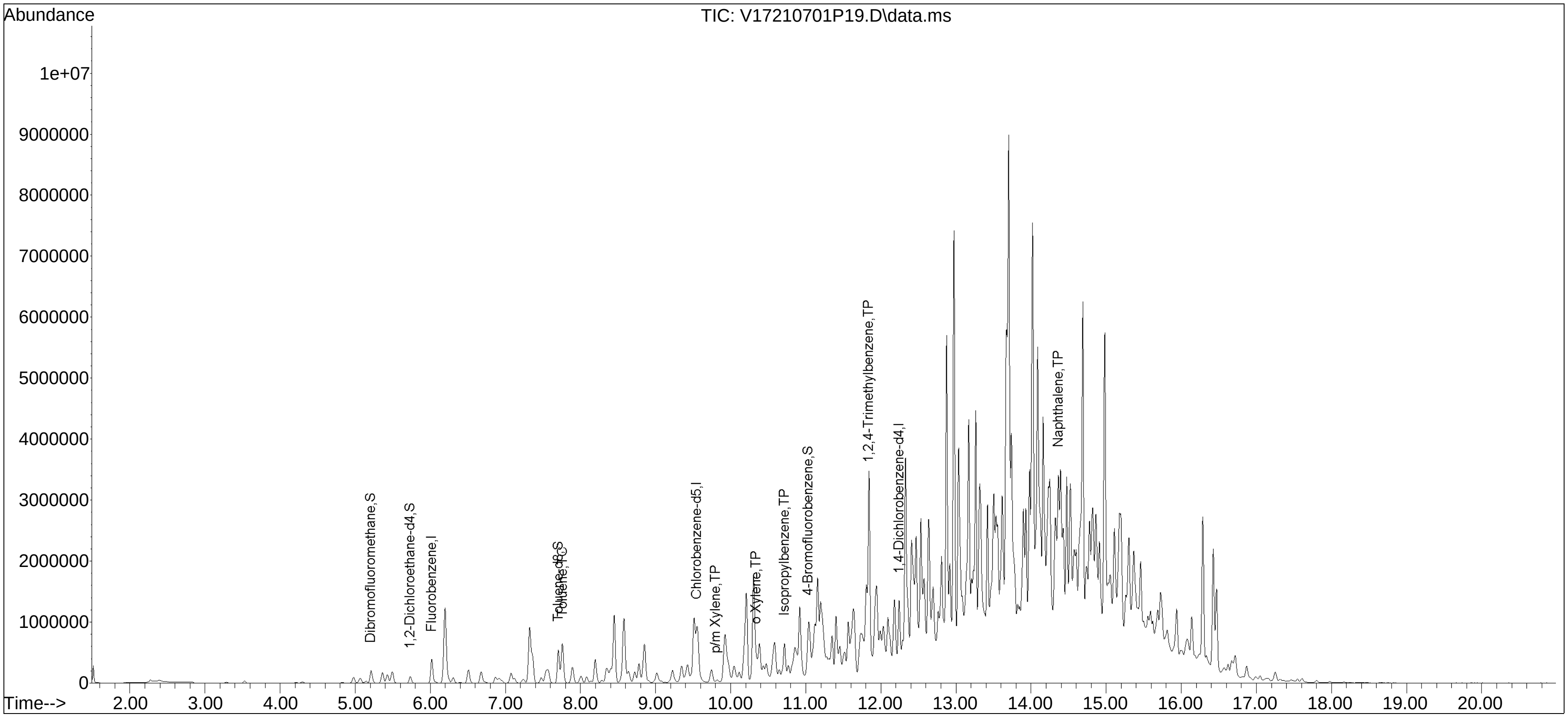
Data File : V17210701P19.D
Acq On   : 02 Jul 2021 02:30 am
Operator : VOA117:JC
Sample   : L2134200-14D,31H,5.58,5,0.050,,A
Misc   : WG1519723,ICAL18099
ALS Vial : 19   Sample Multiplier: 1

Quant Time: Jul 02 06:53:16 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

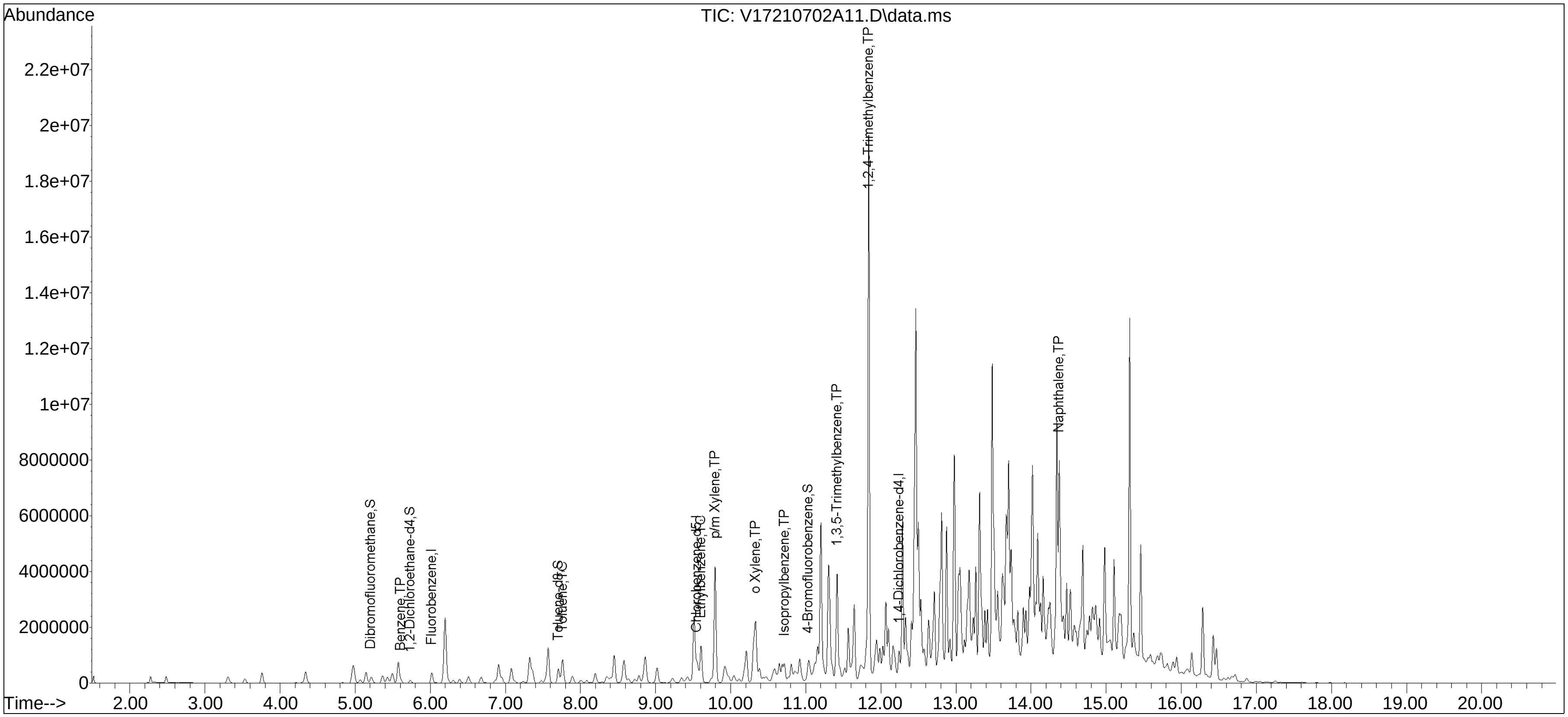


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A11.D
Acq On : 02 Jul 2021 11:07 am
Operator : VOA117:JC
Sample : L2134200-15D2,31H,7.06,5,0.020,,A
Misc : WG1519723,ICAL18099
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 02 12:15:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

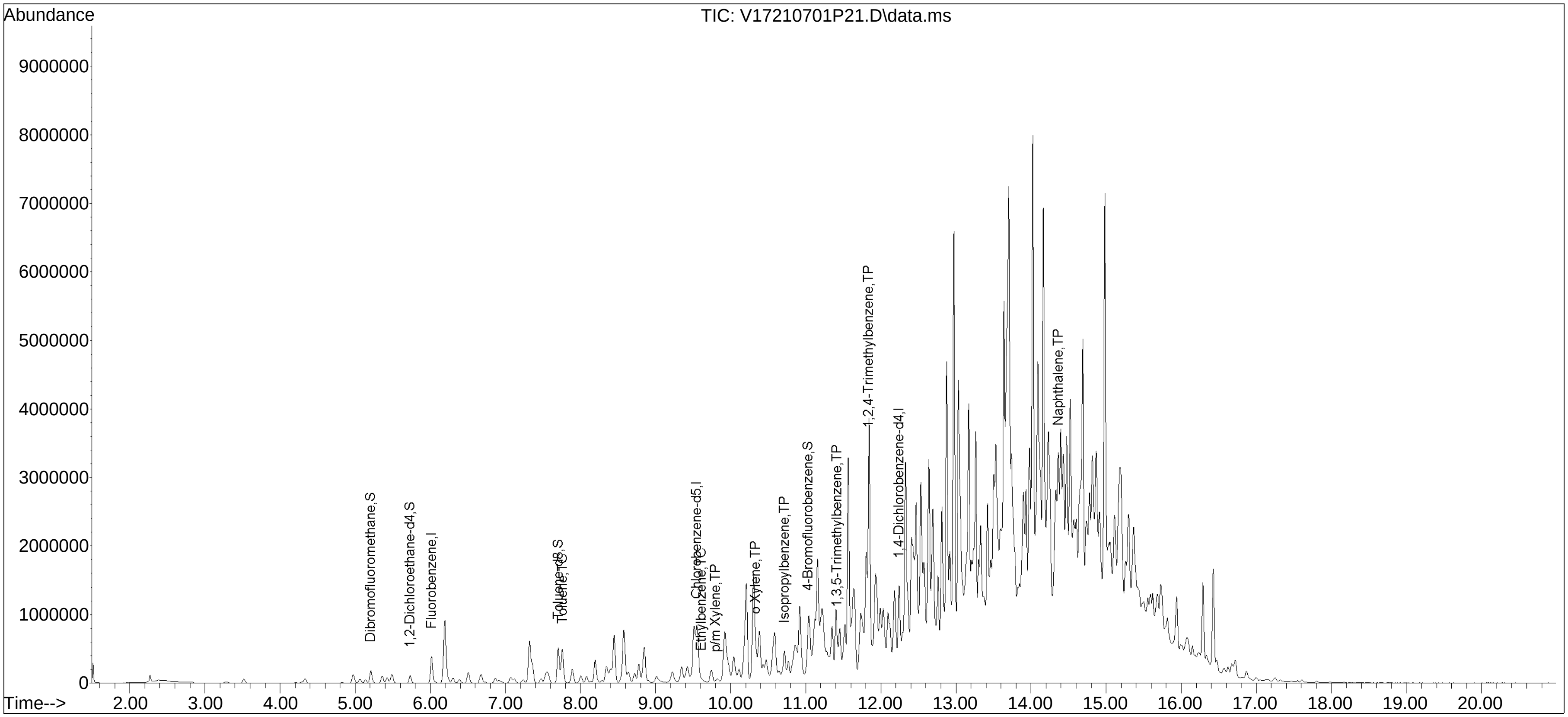


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P21.D
Acq On : 02 Jul 2021 03:22 am
Operator : VOA117:JC
Sample : L2134200-16,31H,5.06,5,0.100,,A
Misc : WG1519723,ICAL18099
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 07:06:11 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

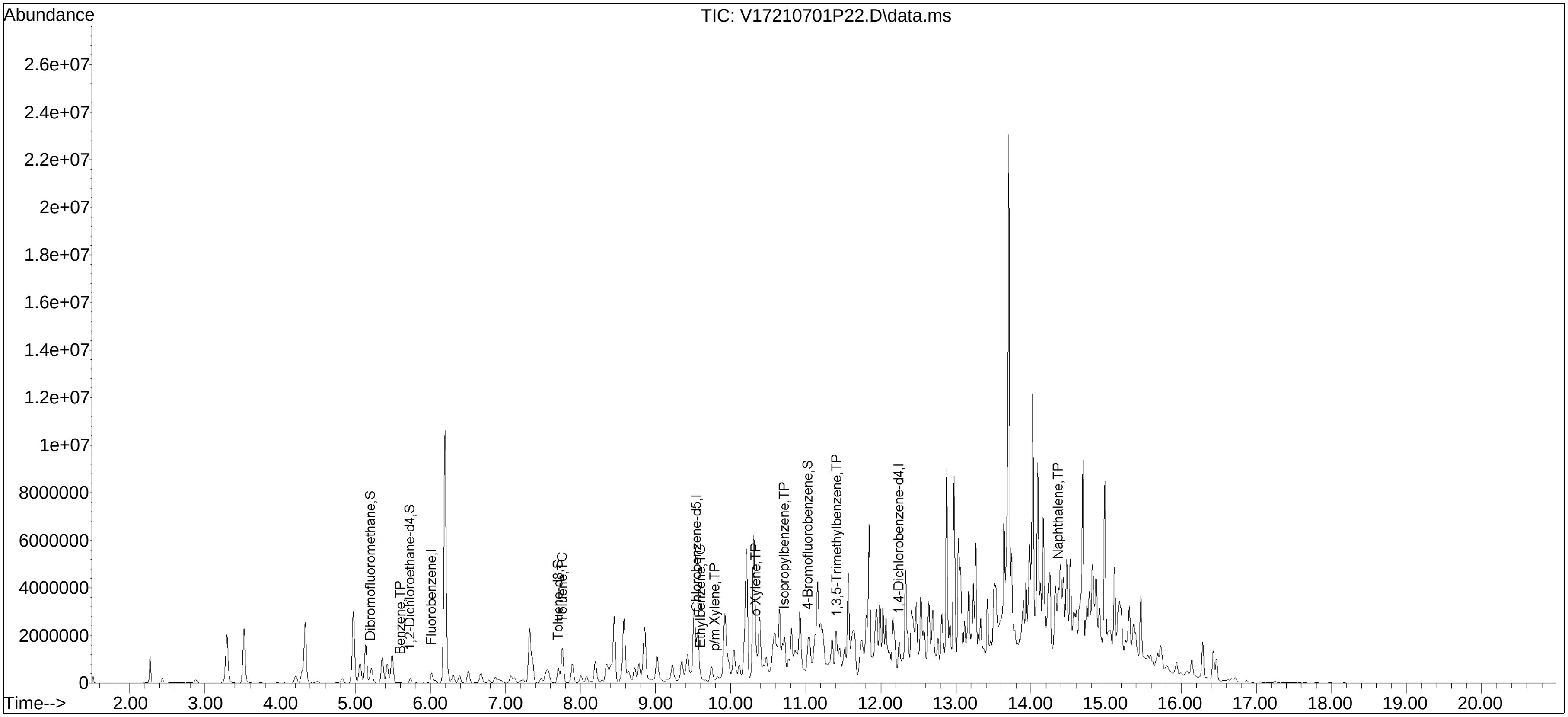


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P22.D
Acq On   : 02 Jul 2021 03:48 am
Operator : VOA117:JC
Sample   : L2134200-17,31H,7.74,5,0.100,,A
Misc   : WG1519723,ICAL18099
ALS Vial : 22   Sample Multiplier: 1

Quant Time: Jul 02 07:06:39 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

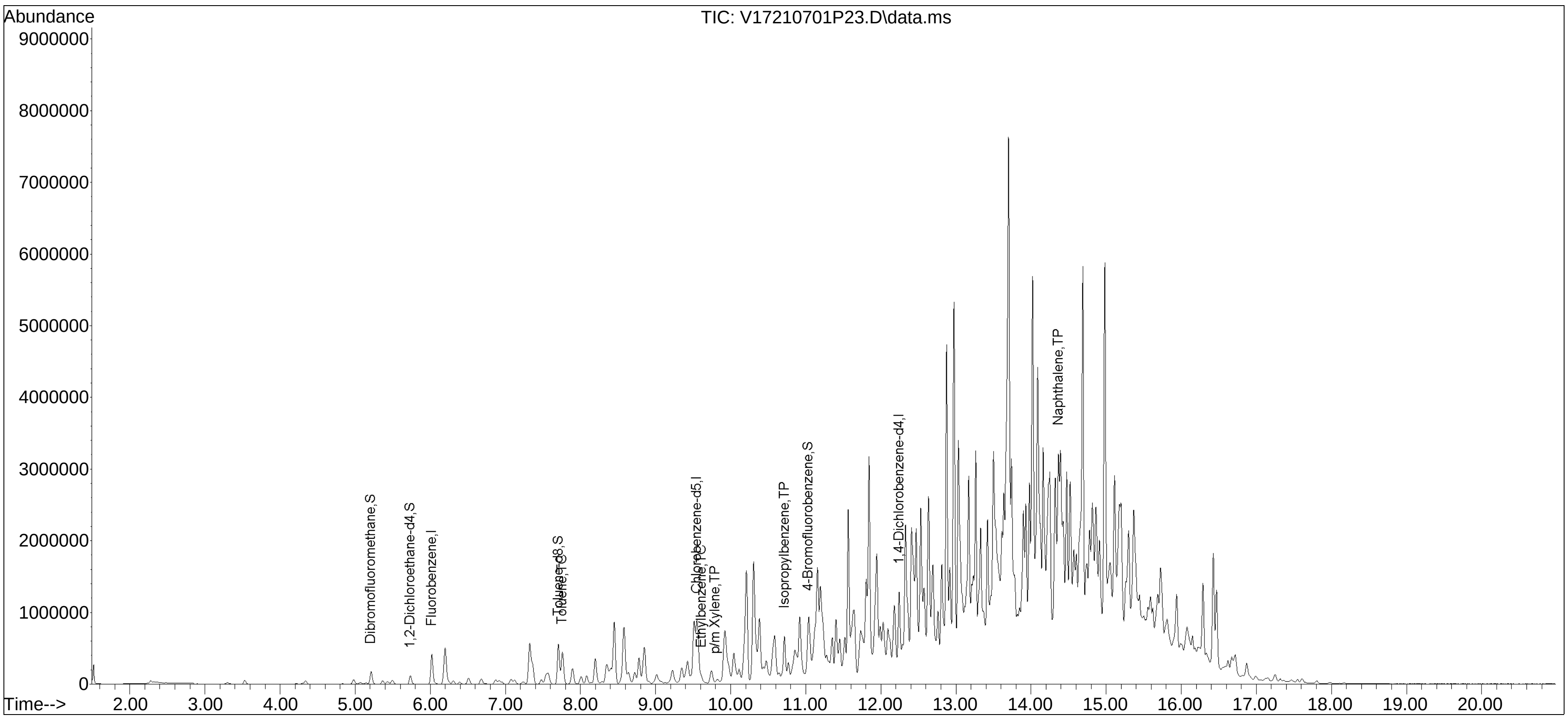


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701P\
Data File : V17210701P23.D
Acq On : 02 Jul 2021 04:14 am
Operator : VOA117:JC
Sample : L2134200-18D,31H,6.06,5,0.020,,A
Misc : WG1519723,ICAL18099
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 07:07:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701P\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01P\V17210701P01.D•

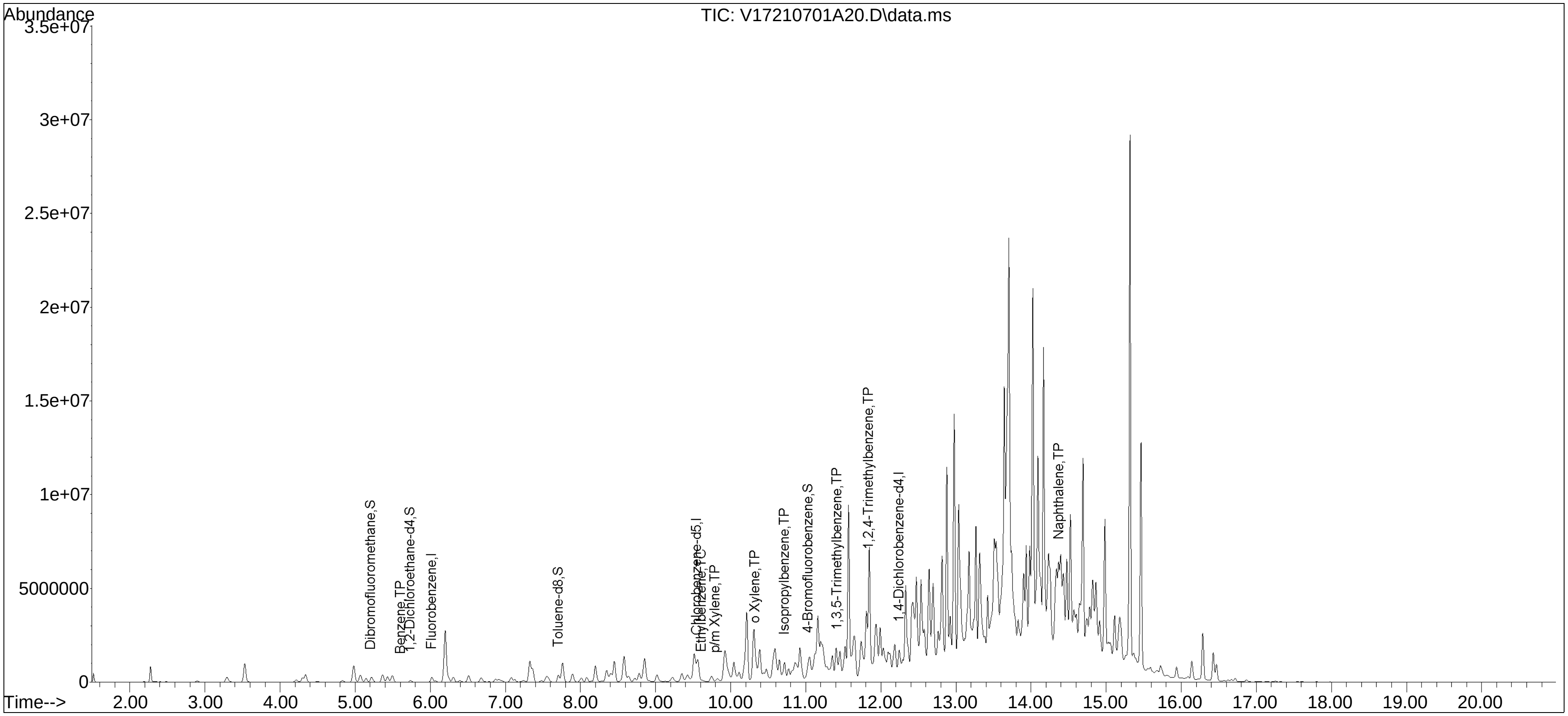


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210701A\
Data File : V17210701A20.D
Acq On : 01 Jul 2021 01:12 pm
Operator : VOA117:KJD
Sample : L2134200-19,31,6.68,5,,B
Misc : WG1519440,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 01 13:40:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\210701A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list01A\V17210701A01.D•



ANALYTICAL REPORT

Lab Number:	L2134501
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/07/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-01	PB84-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:00	06/24/21
L2134501-02	PB84-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:20	06/24/21
L2134501-03	PB84-18-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:25	06/24/21
L2134501-04	PB84-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:35	06/24/21
L2134501-05	PB84-19-SS01	SOIL	PHILADELPHIA, PA	06/24/21 08:50	06/24/21
L2134501-06	PB84-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:00	06/24/21
L2134501-07	PB84-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 09:05	06/24/21
L2134501-08	PB42-01-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:00	06/24/21
L2134501-09	PB42-02-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:10	06/24/21
L2134501-10	PB42-03-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:25	06/24/21
L2134501-11	PB42-04-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:35	06/24/21
L2134501-12	PB42-05-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:40	06/24/21
L2134501-13	PB42-06-SS01	SOIL	PHILADELPHIA, PA	06/24/21 10:50	06/24/21
L2134501-14	PB42-07-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:00	06/24/21
L2134501-15	PB42-08-SS01	SOIL	PHILADELPHIA, PA	06/24/21 11:10	06/24/21
L2134501-16	PB42-09-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:30	06/24/21
L2134501-17	PB42-10-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:40	06/24/21
L2134501-18	PB42-11-SS01	SOIL	PHILADELPHIA, PA	06/24/21 12:45	06/24/21
L2134501-19	PB42-12-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:00	06/24/21
L2134501-20	PB42-13-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:15	06/24/21
L2134501-21	PB42-14-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:25	06/24/21
L2134501-22	PB42-15-SS01	SOIL	PHILADELPHIA, PA	06/24/21 13:40	06/24/21
L2134501-23	PB42-16-SS01	SOIL	PHILADELPHIA, PA	06/24/21 14:00	06/24/21
L2134501-24	FB-210624-1	WATER	PHILADELPHIA, PA	06/24/21 12:00	06/24/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134501-25	FB-210624-2	WATER	PHILADELPHIA, PA	06/24/21 14:10	06/24/21
L2134501-26	TB	WATER	PHILADELPHIA, PA	06/24/21 00:00	06/24/21
L2134501-27	DUP-9	SOIL	PHILADELPHIA, PA	06/24/21 08:05	06/24/21
L2134501-28	DUP-10	SOIL	PHILADELPHIA, PA	06/24/21 13:30	06/24/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision
July 07, 2021: The Volatile Organics analyte list has been amended on L2134501-02 through -23, -27, and -28.

Report Submission
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics
The following samples have surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:
L2134501-01D2: 4-bromofluorobenzene (134%)
L2134501-04: 4-bromofluorobenzene (149%)
L2134501-05: 4-bromofluorobenzene (132%)
L2134501-08: 4-bromofluorobenzene (262%)
L2134501-09: 4-bromofluorobenzene (236%)
L2134501-10: 4-bromofluorobenzene (156%)
L2134501-11D: 4-bromofluorobenzene (184%)
L2134501-12: 4-bromofluorobenzene (246%)
L2134501-13: 4-bromofluorobenzene (303%)
L2134501-14D: 4-bromofluorobenzene (158%)
L2134501-15D: 4-bromofluorobenzene (205%)
L2134501-16: 4-bromofluorobenzene (907%)
L2134501-17: toluene-d8 (145%) and 4-bromofluorobenzene (197%)
L2134501-18: 4-bromofluorobenzene (299%)
L2134501-20D: toluene-d8 (143%) and 4-bromofluorobenzene (181%)
L2134501-21: 1,2-dichloroethane-d4 (157%), toluene-d8 (149%), and 4-bromofluorobenzene (578%)

Case Narrative (continued)

L2134501-22: 4-bromofluorobenzene (309%)

L2134501-23: 4-bromofluorobenzene (280%)

L2134501-27D: 4-bromofluorobenzene (148%)

L2134501-27D2: 4-bromofluorobenzene (134%)

L2134501-04: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2134501-07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2134501-07: The internal standard (IS) response for chlorobenzene-d5 (325%) and the surrogate recoveries for toluene-d8 (43%) and 4-bromofluorobenzene (3503%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report.

L2134501-09, -10, -12, -17, -18, and -22: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2134501-11D, -14D, -15D, and -20D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2134501-16 and -21: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

Microextractables

The WG1517669-2 LCS recovery for 1,2,3-trichloropropane (124%), associated with L2134501-24 through -26, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 07/07/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01 D2
Client ID: PB84-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 11:59
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.62	0.062	5
Benzene	ND		mg/kg	0.15	0.051	5
Toluene	ND		mg/kg	0.31	0.17	5
Ethylbenzene	0.42		mg/kg	0.31	0.043	5
Isopropylbenzene	0.61		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.62	0.059	5
1,2,4-Trimethylbenzene	130	E	mg/kg	0.62	0.10	5
Naphthalene	13.		mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-01 D	Date Collected:	06/24/21 08:00
Client ID:	PB84-09-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 22:35
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	120		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-02	Date Collected:	06/24/21 08:20
Client ID:	PB84-10-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 21:42
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-03	Date Collected:	06/24/21 08:25
Client ID:	PB84-18-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 22:08
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00061	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY

Lab Number: L2134501

Project Number: 200.00135.005.03

Report Date: 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-04	Date Collected:	06/24/21 08:35
Client ID:	PB84-16-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/01/21 23:01
Analyst:	JC
Percent Solids:	81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
Toluene	ND		mg/kg	0.070	0.038	1
Ethylbenzene	0.060	J	mg/kg	0.070	0.0099	1
Isopropylbenzene	0.024	J	mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	1.6		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	2.6		mg/kg	0.14	0.023	1
Naphthalene	0.62		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04
Client ID: PB84-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:35
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 12:25
Analyst: LAC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	0.00033	J	mg/kg	0.00096	0.00014	1
Isopropylbenzene	0.00039	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.050		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0019	0.00032	1
Naphthalene	0.0067		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05
Client ID: PB84-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:50
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 12:51
Analyst: LAC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.0025		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00034	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-06	Date Collected:	06/24/21 09:00
Client ID:	PB84-15-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/01/21 23:53
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.010	1
Toluene	ND		mg/kg	0.064	0.035	1
Ethylbenzene	ND		mg/kg	0.064	0.0090	1
Isopropylbenzene	0.13		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.1		mg/kg	0.13	0.021	1
Naphthalene	4.2		mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-07	Date Collected:	06/24/21 09:05
Client ID:	PB84-12-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 00:19
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.13		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.020	1
Naphthalene	0.23	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-07	Date Collected:	06/24/21 09:05
Client ID:	PB84-12-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:17
Analyst: LAC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0012	J	mg/kg	0.0018	0.00018	1
Benzene	0.00016	J	mg/kg	0.00044	0.00015	1
Toluene	0.00050	J	mg/kg	0.00088	0.00048	1
Ethylbenzene	ND		mg/kg	0.00088	0.00012	1
Isopropylbenzene	0.32	E	mg/kg	0.00088	0.00009	1
1,3,5-Trimethylbenzene	0.0021		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00029	1
Naphthalene	0.0014	J	mg/kg	0.0035	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	**43**	Q	70-130
4-Bromofluorobenzene	**3500**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-08
Client ID: PB42-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:43
Analyst: LAC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.0010		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	0.00032	J	mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.042		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00086	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0082		mg/kg	0.0023	0.00038	1
Naphthalene	0.0085		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**262**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-09
Client ID: PB42-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 10:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:19
Analyst: KJD
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	ND		mg/kg	0.037	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	ND		mg/kg	0.075	0.010	1
Isopropylbenzene	2.1		mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.15	0.025	1
Naphthalene	0.75		mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	**236**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-10	Date Collected:	06/24/21 10:25
Client ID:	PB42-03-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 16:45
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0085	1
Isopropylbenzene	0.65		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.048	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.17		mg/kg	0.12	0.020	1
Naphthalene	0.26		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501

Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-11 D	Date Collected:	06/24/21 10:35
Client ID:	PB42-04-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:01
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.84	0.084	5
Benzene	ND		mg/kg	0.21	0.070	5
Toluene	ND		mg/kg	0.42	0.23	5
Ethylbenzene	0.12	J	mg/kg	0.42	0.059	5
Isopropylbenzene	10.		mg/kg	0.42	0.046	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.84	0.081	5
1,2,4-Trimethylbenzene	0.55	J	mg/kg	0.84	0.14	5
Naphthalene	ND		mg/kg	1.7	0.27	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**184**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-12 Date Collected: 06/24/21 10:40
Client ID: PB42-05-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:11
Analyst: KJD
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	0.047	J	mg/kg	0.065	0.036	1
Ethylbenzene	ND		mg/kg	0.065	0.0092	1
Isopropylbenzene	1.0		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.13	0.022	1
Naphthalene	0.18	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**246**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-13	Date Collected:	06/24/21 10:50
Client ID:	PB42-06-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:09
Analyst: LAC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00026	J	mg/kg	0.0021	0.00021	1
Benzene	0.00033	J	mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.066		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.00089	J	mg/kg	0.0021	0.00034	1
Naphthalene	0.012		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	**303**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14 D
Client ID: PB42-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 11:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:27
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.29	0.029	2
Benzene	ND		mg/kg	0.072	0.024	2
Toluene	ND		mg/kg	0.14	0.079	2
Ethylbenzene	0.067	J	mg/kg	0.14	0.020	2
Isopropylbenzene	0.59		mg/kg	0.14	0.016	2
1,3,5-Trimethylbenzene	0.034	J	mg/kg	0.29	0.028	2
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.29	0.048	2
Naphthalene	0.52	J	mg/kg	0.58	0.094	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**158**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15 D
Client ID: PB42-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:53
Analyst: KJD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.22	0.022	2
Benzene	0.028	J	mg/kg	0.056	0.019	2
Toluene	0.072	J	mg/kg	0.11	0.061	2
Ethylbenzene	1.2		mg/kg	0.11	0.016	2
Isopropylbenzene	3.0		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.024	J	mg/kg	0.22	0.022	2
1,2,4-Trimethylbenzene	1.3		mg/kg	0.22	0.037	2
Naphthalene	0.88		mg/kg	0.45	0.073	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**205**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Client ID: PB42-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:37
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.78		mg/kg	0.037	0.012	1
Toluene	0.078		mg/kg	0.073	0.040	1
Ethylbenzene	0.21		mg/kg	0.073	0.010	1
Isopropylbenzene	0.52		mg/kg	0.073	0.0080	1
1,3,5-Trimethylbenzene	0.24		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	2.7		mg/kg	0.15	0.024	1
Naphthalene	0.74		mg/kg	0.29	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Client ID: PB42-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/05/21 22:41
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.14		mg/kg	0.00053	0.00018	1
Toluene	0.0050		mg/kg	0.0010	0.00057	1
Ethylbenzene	0.017		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.30		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.045		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	1.7	E	mg/kg	0.0021	0.00035	1
Naphthalene	0.033		mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**907**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-17	Date Collected:	06/24/21 12:40
Client ID:	PB42-10-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:30
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.030	J	mg/kg	0.034	0.011	1
Toluene	0.064	J	mg/kg	0.068	0.037	1
Ethylbenzene	0.049	J	mg/kg	0.068	0.0097	1
Isopropylbenzene	1.1		mg/kg	0.068	0.0075	1
1,3,5-Trimethylbenzene	0.033	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.14	0.023	1
Naphthalene	0.18	J	mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**145**	Q	70-130
4-Bromofluorobenzene	**197**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-18	Date Collected:	06/24/21 12:45
Client ID:	PB42-11-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:55
Analyst: MV
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.23	0.023	1
Benzene	ND		mg/kg	0.057	0.019	1
Toluene	0.068	J	mg/kg	0.11	0.062	1
Ethylbenzene	0.042	J	mg/kg	0.11	0.016	1
Isopropylbenzene	1.8		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.23	0.022	1
1,2,4-Trimethylbenzene	0.20	J	mg/kg	0.23	0.038	1
Naphthalene	2.1		mg/kg	0.46	0.074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**299**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-19
Client ID: PB42-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:26
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00032	J	mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00056	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-20 D
Client ID: PB42-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:15
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 14:05
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	2
Benzene	0.062		mg/kg	0.061	0.020	2
Toluene	ND		mg/kg	0.12	0.066	2
Ethylbenzene	0.069	J	mg/kg	0.12	0.017	2
Isopropylbenzene	2.2		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	0.026	J	mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	0.098	J	mg/kg	0.24	0.041	2
Naphthalene	0.30	J	mg/kg	0.49	0.079	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	**181**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
Date Collected: 06/24/21 13:25
Client ID: PB42-14-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 17:52
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00053	J	mg/kg	0.0020	0.00020	1
Benzene	0.041		mg/kg	0.00051	0.00017	1
Toluene	0.0089		mg/kg	0.0010	0.00055	1
Ethylbenzene	0.44	E	mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.23		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.78	E	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	2.1	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.064		mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**157**	Q	70-130
Toluene-d8	**149**	Q	70-130
4-Bromofluorobenzene	**578**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-21	Date Collected:	06/24/21 13:25
Client ID:	PB42-14-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 09:01
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.15	0.015	1
Benzene	0.068		mg/kg	0.038	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	0.22		mg/kg	0.075	0.011	1
Isopropylbenzene	0.073	J	mg/kg	0.075	0.0082	1
1,3,5-Trimethylbenzene	0.20		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	0.79		mg/kg	0.15	0.025	1
Naphthalene	0.24	J	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-22
Date Collected: 06/24/21 13:40
Client ID: PB42-15-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:20
Analyst: MV
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.043	0.014	1
Toluene	0.064	J	mg/kg	0.086	0.046	1
Ethylbenzene	ND		mg/kg	0.086	0.012	1
Isopropylbenzene	0.30		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.66		mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**309**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-23	Date Collected:	06/24/21 14:00
Client ID:	PB42-16-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:23
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00040	J	mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00090	0.00049	1
Ethylbenzene	0.00016	J	mg/kg	0.00090	0.00013	1
Isopropylbenzene	0.012		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.00029	J	mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0018	0.00030	1
Naphthalene	0.0063		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**280**	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-24
Client ID: FB-210624-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 12:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:42
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-24
Client ID: FB-210624-1
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 12:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/04/21 16:02
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-25
Client ID: FB-210624-2
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/28/21 17:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501

Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-25	Date Collected:	06/24/21 14:10
Client ID:	FB-210624-2	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/04/21 16:29
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-26	Date Collected:	06/24/21 00:00
Client ID:	TB	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/28/21 14:37
Analytical Date:	06/28/21 17:55		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-26
Client ID: TB
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 00:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 12:23
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-27 D2	Date Collected:	06/24/21 08:05
Client ID:	DUP-9	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:36
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	100		mg/kg	1.3	0.22	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501

Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-27 D
Client ID: DUP-9
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 13:40
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	5
Benzene	ND		mg/kg	0.17	0.056	5
Toluene	ND		mg/kg	0.34	0.18	5
Ethylbenzene	0.45		mg/kg	0.34	0.047	5
Isopropylbenzene	0.67		mg/kg	0.34	0.036	5
1,3,5-Trimethylbenzene	37.		mg/kg	0.67	0.065	5
1,2,4-Trimethylbenzene	110	E	mg/kg	0.67	0.11	5
Naphthalene	14.		mg/kg	1.3	0.22	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-28
Date Collected: 06/24/21 13:30
Client ID: DUP-10
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/02/21 15:46
Analyst: MV
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.34		mg/kg	0.036	0.012	1
Toluene	0.087		mg/kg	0.072	0.039	1
Ethylbenzene	1.0		mg/kg	0.072	0.010	1
Isopropylbenzene	0.45		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.99		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	4.4		mg/kg	0.14	0.024	1
Naphthalene	1.1		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/28/21 15:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/28/21 14:37

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 24-26 Batch: WG1517669-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1519723-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04,06-07 Batch: WG1519723-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/01/21 20:23
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1519724-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 06:53
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 17-18,20,22,27-28 Batch: WG1519793-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 08:10
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 21,27 Batch: WG1519793-15					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04-05,07-08,13 Batch: WG1519895-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 09:44
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19,21 Batch: WG1520074-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00049	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/02/21 08:05
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09-12,14-16 Batch: WG1520303-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	0.0096	J	mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/04/21 10:10
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 24-25 Batch: WG1520457-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 10:24
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 23 Batch: WG1520495-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	0.00025	J	mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	0.00039	J	mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 16 Batch: WG1520600-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 10:36
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 26 Batch: WG1520891-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134501

Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 24-26 Batch: WG1517669-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04,06-07 Batch: WG1519723-3 WG1519723-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1519723-8 WG1519723-9								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1519724-3 WG1519724-4								
Methyl tert butyl ether	89		87		66-130	2		30
Benzene	88		86		70-130	2		30
Toluene	90		90		70-130	0		30
Ethylbenzene	92		93		70-130	1		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		93		70-130	1		30
1,2,4-Trimethylbenzene	91		91		70-130	0		30
Naphthalene	95		92		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		89		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	96		98		70-130
Dibromofluoromethane	97		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 21,27 Batch: WG1519793-13 WG1519793-14								
Methyl tert butyl ether	92		92		66-130	0		30
Benzene	89		87		70-130	2		30
Toluene	91		92		70-130	1		30
Ethylbenzene	99		97		70-130	2		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	106		103		70-130	3		30
1,2,4-Trimethylbenzene	107		103		70-130	4		30
Naphthalene	105		111		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		96		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	108		106		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 17-18,20,22,27-28 Batch: WG1519793-8 WG1519793-9								
Methyl tert butyl ether	88		86		66-130	2		30
Benzene	87		83		70-130	5		30
Toluene	93		88		70-130	6		30
Ethylbenzene	99		94		70-130	5		30
Isopropylbenzene	109		102		70-130	7		30
1,3,5-Trimethylbenzene	108		102		70-130	6		30
1,2,4-Trimethylbenzene	108		103		70-130	5		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
Toluene-d8	107		107		70-130
4-Bromofluorobenzene	109		108		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04-05,07-08,13 Batch: WG1519895-3 WG1519895-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19,21 Batch: WG1520074-3 WG1520074-4								
Methyl tert butyl ether	106		105		66-130	1		30
Benzene	103		103		70-130	0		30
Toluene	96		95		70-130	1		30
Ethylbenzene	99		98		70-130	1		30
Isopropylbenzene	107		109		70-130	2		30
1,3,5-Trimethylbenzene	108		108		70-130	0		30
1,2,4-Trimethylbenzene	111		111		70-130	0		30
Naphthalene	107		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		107		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	106		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09-12,14-16 Batch: WG1520303-3 WG1520303-4								
Methyl tert butyl ether	89		98		66-130	10		30
Benzene	87		98		70-130	12		30
Toluene	86		97		70-130	12		30
Ethylbenzene	86		99		70-130	14		30
Isopropylbenzene	91		105		70-130	14		30
1,3,5-Trimethylbenzene	86		98		70-130	13		30
1,2,4-Trimethylbenzene	83		96		70-130	15		30
Naphthalene	90		102		70-130	13		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 24-25 Batch: WG1520457-3 WG1520457-4								
Methyl tert butyl ether	82		89		63-130	8		20
Benzene	89		92		70-130	3		20
Toluene	87		90		70-130	3		20
Ethylbenzene	88		93		70-130	6		20
Isopropylbenzene	90		94		70-130	4		20
1,3,5-Trimethylbenzene	92		94		64-130	2		20
1,2,4-Trimethylbenzene	92		94		70-130	2		20
Naphthalene	73		78		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		111		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	105		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 23 Batch: WG1520495-3 WG1520495-4								
Methyl tert butyl ether	108		107		66-130	1		30
Benzene	105		106		70-130	1		30
Toluene	95		98		70-130	3		30
Ethylbenzene	100		104		70-130	4		30
Isopropylbenzene	115		116		70-130	1		30
1,3,5-Trimethylbenzene	117		117		70-130	0		30
1,2,4-Trimethylbenzene	120		120		70-130	0		30
Naphthalene	111		108		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	113		110		70-130
Toluene-d8	94		96		70-130
4-Bromofluorobenzene	114		110		70-130
Dibromofluoromethane	110		111		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 16 Batch: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134501
Report Date: 07/07/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 26 Batch: WG1520891-3 WG1520891-4								
Methyl tert butyl ether	87		92		63-130	6		20
Benzene	99		100		70-130	1		20
Toluene	98		100		70-130	2		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	98		100		64-130	2		20
1,2,4-Trimethylbenzene	98		100		70-130	2		20
Naphthalene	87		90		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		105		70-130
Toluene-d8	103		105		70-130
4-Bromofluorobenzene	105		98		70-130
Dibromofluoromethane	100		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-01
Date Collected: 06/24/21 08:00
Client ID: PB84-09-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-02 Date Collected: 06/24/21 08:20
Client ID: PB84-10-SS01 Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-03
Client ID: PB84-18-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 08:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-04
Date Collected: 06/24/21 08:35
Client ID: PB84-16-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-05
Client ID: PB84-19-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 08:50
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-06
Client ID: PB84-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-07
Client ID: PB84-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 09:05
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-08
Date Collected: 06/24/21 10:00
Client ID: PB42-01-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134501
Project Number: 200.00135.005.03 **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-09
Client ID: PB42-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 10:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-10
Client ID: PB42-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 10:25
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-11	Date Collected:	06/24/21 10:35
Client ID:	PB42-04-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-12	Date Collected:	06/24/21 10:40
Client ID:	PB42-05-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-13
Client ID: PB42-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 10:50
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-14
Date Collected: 06/24/21 11:00
Client ID: PB42-07-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-15
Client ID: PB42-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 11:10
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-16
Client ID: PB42-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:30
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-17
Client ID: PB42-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 12:40
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-18
Client ID: PB42-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/24/21 12:45
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.9		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-19	Date Collected:	06/24/21 13:00
Client ID:	PB42-12-SS01	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.5		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-20
Client ID: PB42-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:15
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	06/25/21 10:15	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-21
Date Collected: 06/24/21 13:25
Client ID: PB42-14-SS01
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134501
Project Number: 200.00135.005.03 | **Report Date:** 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-22
Client ID: PB42-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 13:40
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.0		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-23
Client ID: PB42-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/24/21 14:00
Date Received: 06/24/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134501
Project Number:	200.00135.005.03	**Report Date:**	07/07/21

SAMPLE RESULTS

Lab ID:	L2134501-27	Date Collected:	06/24/21 08:05
Client ID:	DUP-9	Date Received:	06/24/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134501
Project Number: 200.00135.005.03
Report Date: 07/07/21

SAMPLE RESULTS

Lab ID: L2134501-28
Date Collected: 06/24/21 13:30
Client ID: DUP-10
Date Received: 06/24/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.7		%	0.100	NA	1	-	06/25/21 10:31	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1516881-1 QC Sample: L2134501-01 Client ID: PB84-09-SS01						
Solids, Total	82.8	82.3	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 21-23,27-28 QC Batch ID: WG1516883-1 QC Sample: L2134493-01 Client ID: DUP Sample						
Solids, Total	90.6	90.7	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent
C	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2134501-01A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-01B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-01D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-02A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-02B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-02D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-03A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-03B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-03D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-04A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-04B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-04D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-05A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-05B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-05D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-06A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-06B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-06D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-07A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-07B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-07D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-08A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-08B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-08D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-09A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-09B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-09D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-10A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-10B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-10D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-11A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-11B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-11D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-12A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-12B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-12D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-13A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-13B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-13D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-14A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-14B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-14D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-15A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-15B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-15D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-16A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-16B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-16D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-17A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-17B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-17D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-18A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-18B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-18D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-19A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-19B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-19D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-20A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134501
Report Date: 07/07/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-20B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-20D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-21A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2134501-21B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260H(14),PA-8260HLW(14)
L2134501-21C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260H(14),PA-8260HLW(14)
L2134501-21D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-22A	Vial MeOH preserved	A	NA		4.4	Y	Absent		PA-8260HLW(14)
L2134501-22B	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-22C	Vial water preserved	A	NA		4.4	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-22D	Plastic 120ml unpreserved	A	NA		4.4	Y	Absent		TS(7)
L2134501-23A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-23B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-23C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-23D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)
L2134501-24A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-24D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-24E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25A	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25B	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25C	Vial HCl preserved	B	NA		3.6	Y	Absent		PA-8260(14)
L2134501-25D	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-25E	Vial Na2S2O3 preserved	B	NA		3.6	Y	Absent		8011(14)
L2134501-26A	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26B	Vial HCl preserved	A	NA		4.4	Y	Absent		PA-8260(14)
L2134501-26D	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134501-26E	Vial Na2S2O3 preserved	A	NA		4.4	Y	Absent		8011(14)
L2134501-27A	Vial MeOH preserved	C	NA		4.8	Y	Absent		PA-8260HLW(14)
L2134501-27B	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-27C	Vial water preserved	C	NA		4.8	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-27D	Plastic 120ml unpreserved	C	NA		4.8	Y	Absent		TS(7)
L2134501-28A	Vial MeOH preserved	B	NA		3.6	Y	Absent		PA-8260HLW(14)
L2134501-28B	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:16	PA-8260HLW(14)
L2134501-28C	Vial water preserved	B	NA		3.6	Y	Absent	25-JUN-21 08:34	PA-8260HLW(14)
L2134501-28D	Plastic 120ml unpreserved	B	NA		3.6	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34501-01	PB84-09-SS01	6/24	0800	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		7
-02	PB84-10-SS01	↓	0810	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-03	PB84-18-SS01		0825			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-04	PB84-16-SS01		0835			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-05	PB84-19-SS01		0850			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-06	PB84-15-SS01		0900			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-07	PB84-12-SS01		0905			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-08	PB42-01-SS01		1000			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-09	PB42-02-SS01		1010			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-10	PB42-03-SS01	↓	1025	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
				Container Type		-	-	-	-	-	-	-	-	-	-	-	-		
				Preservative		-	-	-	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
Marcia Pearce	6/24 1532	Marcia Pearce	6/24 15:32
Marcia Pearce	6/24/21 1800	AAL	6/24/21 1800
AAL	6/24/21	6/24 2200	
7/24/21 2200		6/25/21 02:15	

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 3

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34501 -11	PB42-04-5501	6/24	1035	S	JS	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-12	PB42-05 -5501		1040	S		☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-13	PB42-06 -5501		1050			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-14	PB42-07 -5501		1100			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-15	PB42-08 -5501		1110			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-16	PB42-09 -5501		1230			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-17	PB42-10 -5501		1240			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-18	PB42-11 -5501		1245			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-19	PB42-12 -5501		1300			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-20	PB42-13 -5501		1315			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	6/24 1536	Marilyn Reane	6/24 1536
Marilyn Reane	6/24 1800	[signature] AAL	6/24/21 1800
[signature] AAL	6/24/21		

[signature] 6/25/21 02:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 3 OF 3

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/25/21

ALPHA Job #: L2134501

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
34501 -21	PB42-14-5501	6/24	1325	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-22	PB42-15-5501	↓	1340	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-23	PB42-16-5501		1400	S		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-24	FB-210624-1		1200	W		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-25	FB-210624-2		1410	W		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-26	TB			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		A
-27	DUP-9		0805	S		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
-28	DUP-10		1330	S		☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		A
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
		↓			↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/24 1532	Marianne Bernier	6/24 1532
Marianne Bernier	6/24/21 1800	[signature] AAL	6/24/21 1800
[signature] AAL	6/24/21	[signature]	6/25/21 02:45

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A13.D
Acq On    : 02 Jul 2021  11:59 am
Operator  : VOA117:JC
Sample    : L2134501-01D2,31H,5.90,5,0.020,,A
Misc      : WG1519723,ICAL18099
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jul 06 09:22:27 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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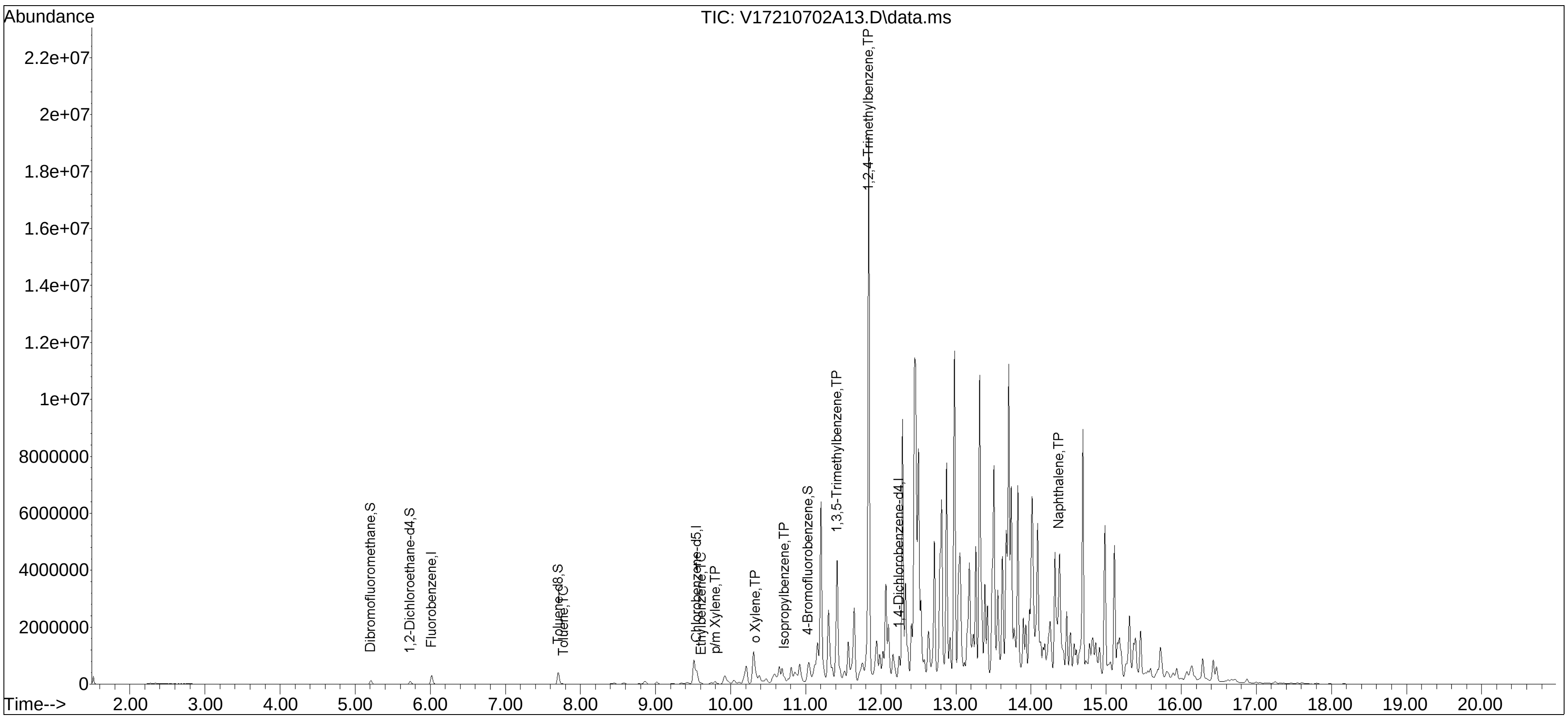

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A14.D
Acq On    : 02 Jul 2021  12:25 pm
Operator  : VOA117:LAC
Sample    : L2134501-04,31,6.41,5,,B
Misc      : WG1519895,ICAL18099
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Jul 02 14:50:21 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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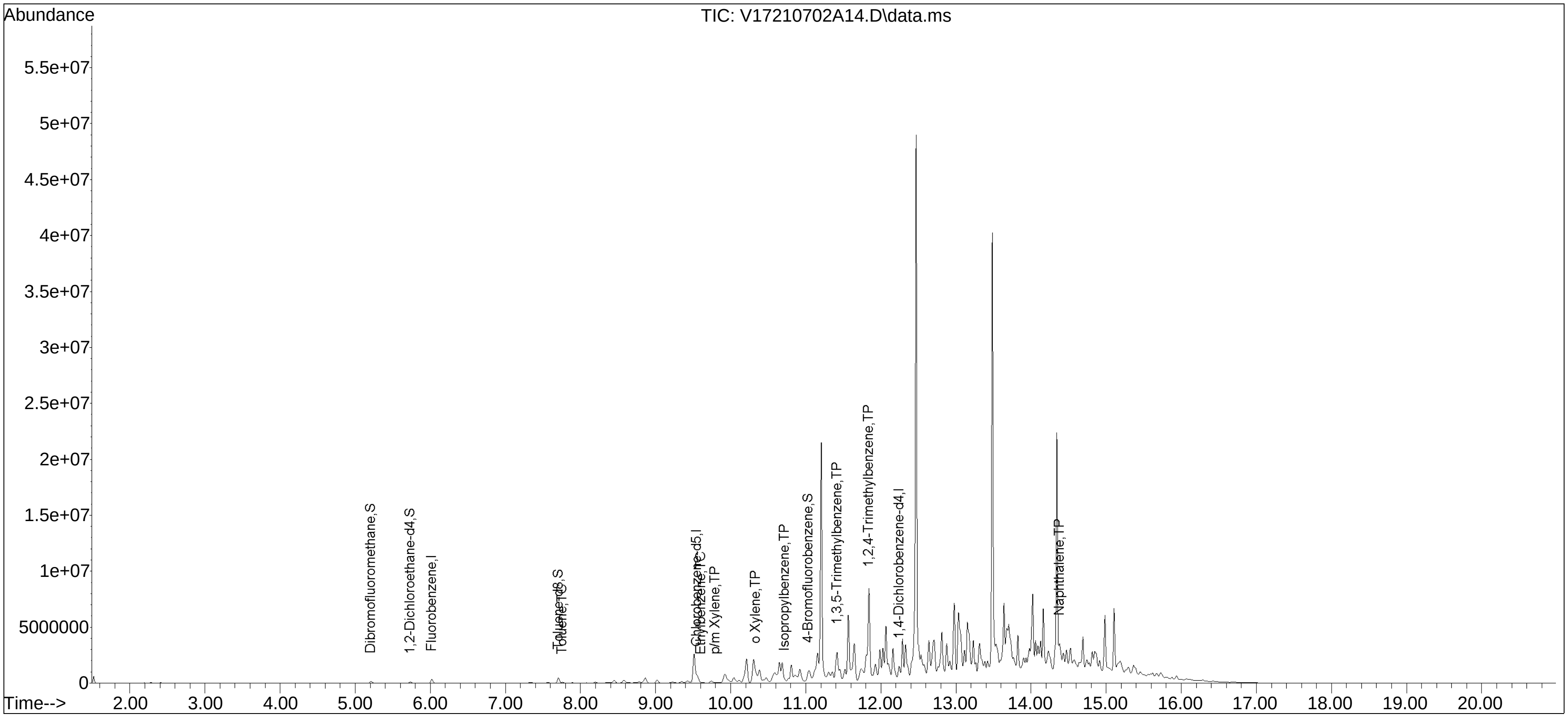

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A15.D
Acq On    : 02 Jul 2021  12:51 pm
Operator  : VOA117:LAC
Sample    : L2134501-05,31,6.10,5,,B
Misc      : WG1519895,ICAL18099
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Jul 02 16:27:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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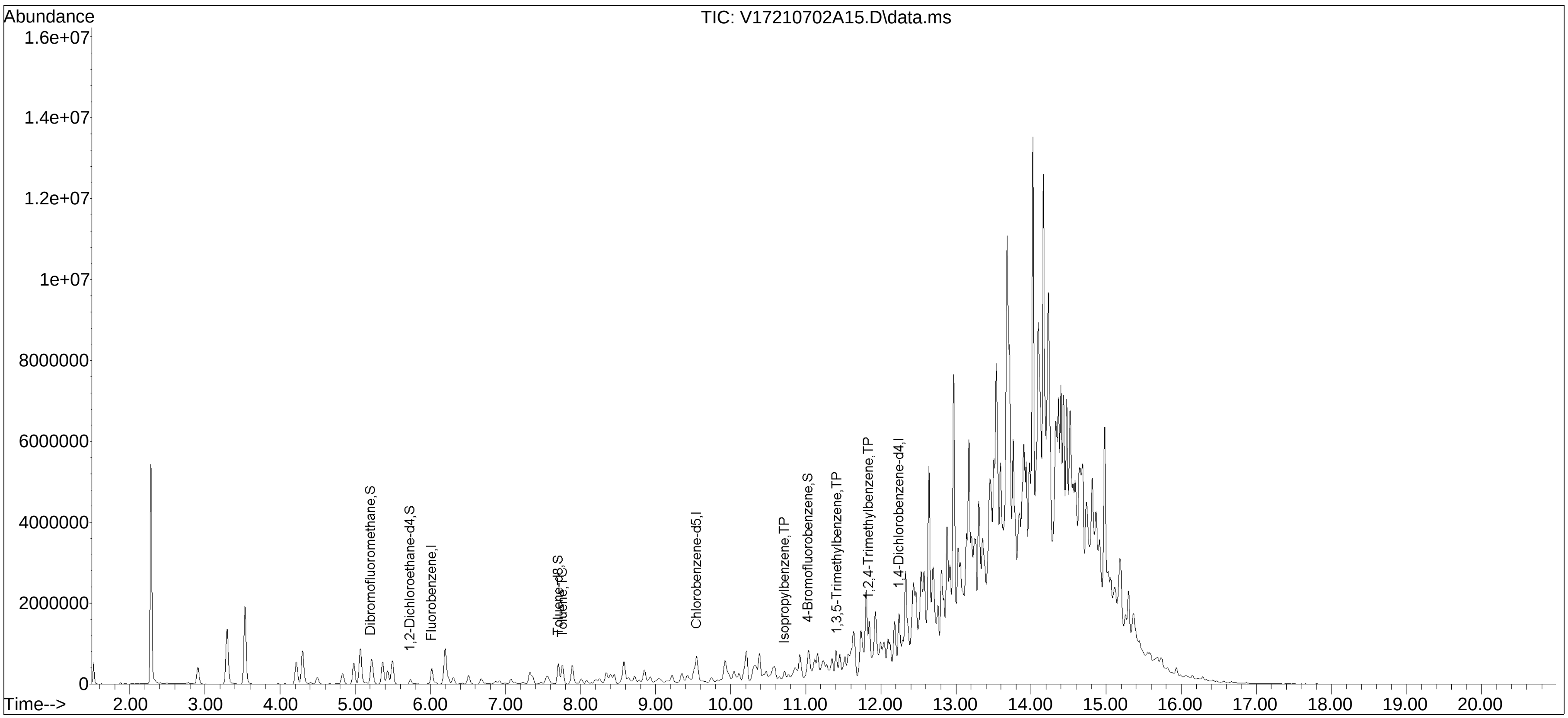

Quantitation Report (QT Reviewed)

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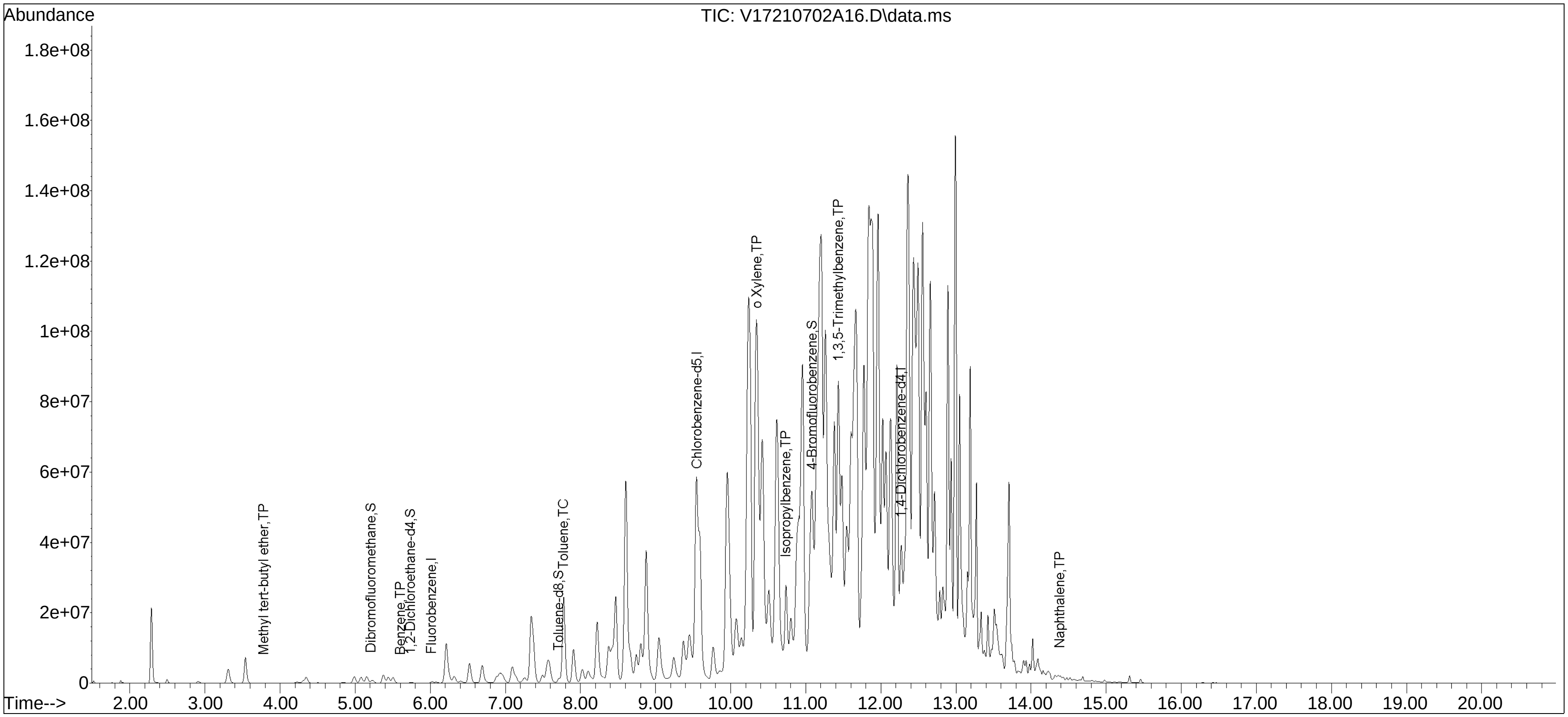
Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A16.D
Acq On    : 02 Jul 2021  01:17 pm
Operator  : VOA117:LAC
Sample    : L2134501-07,31,6.88,5,,B
Misc      : WG1519895,ICAL18099
ALS Vial  : 16   Sample Multiplier: 1

Quant Time: Jul 06 09:28:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
```

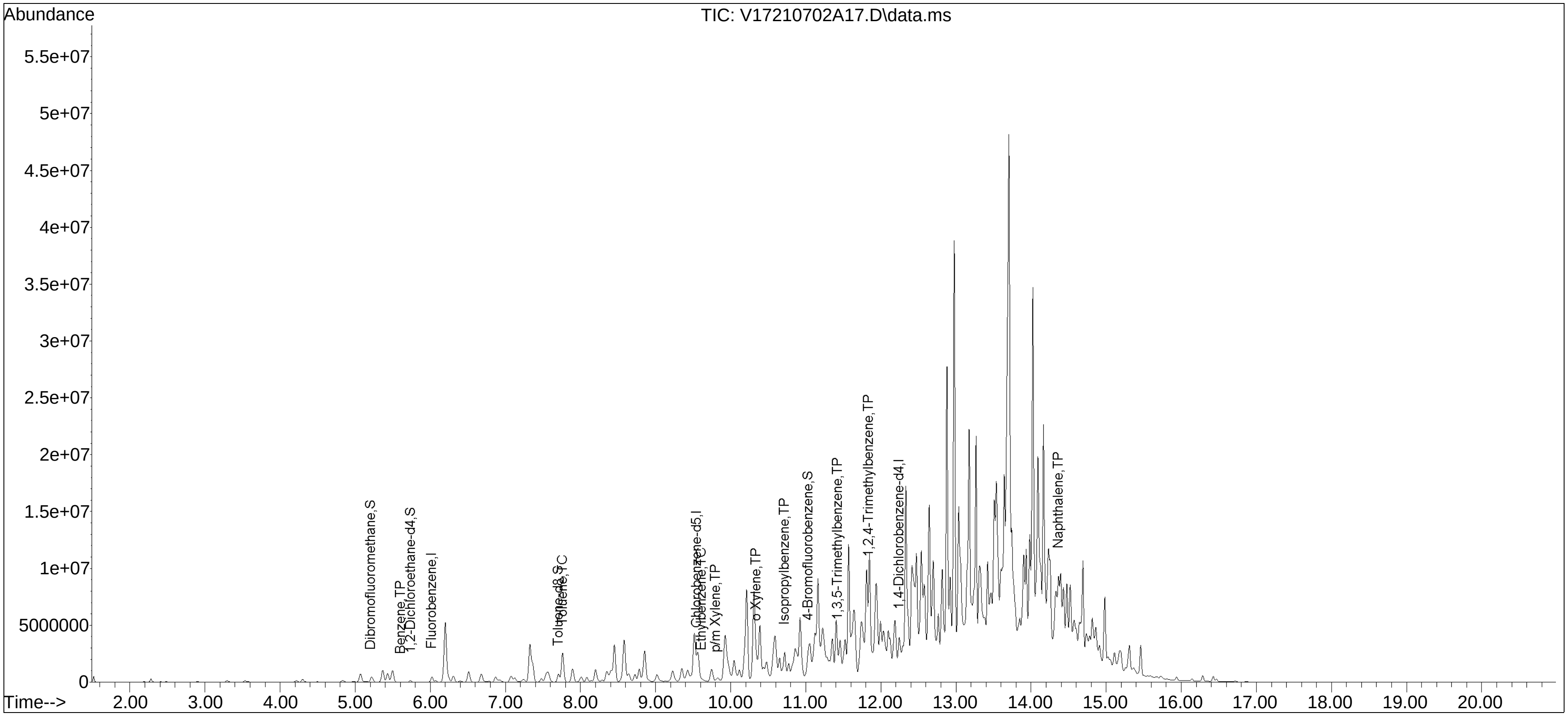


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A17.D
Acq On : 02 Jul 2021 01:43 pm
Operator : VOA117:LAC
Sample : L2134501-08,31,5.61,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Jul 02 15:11:29 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

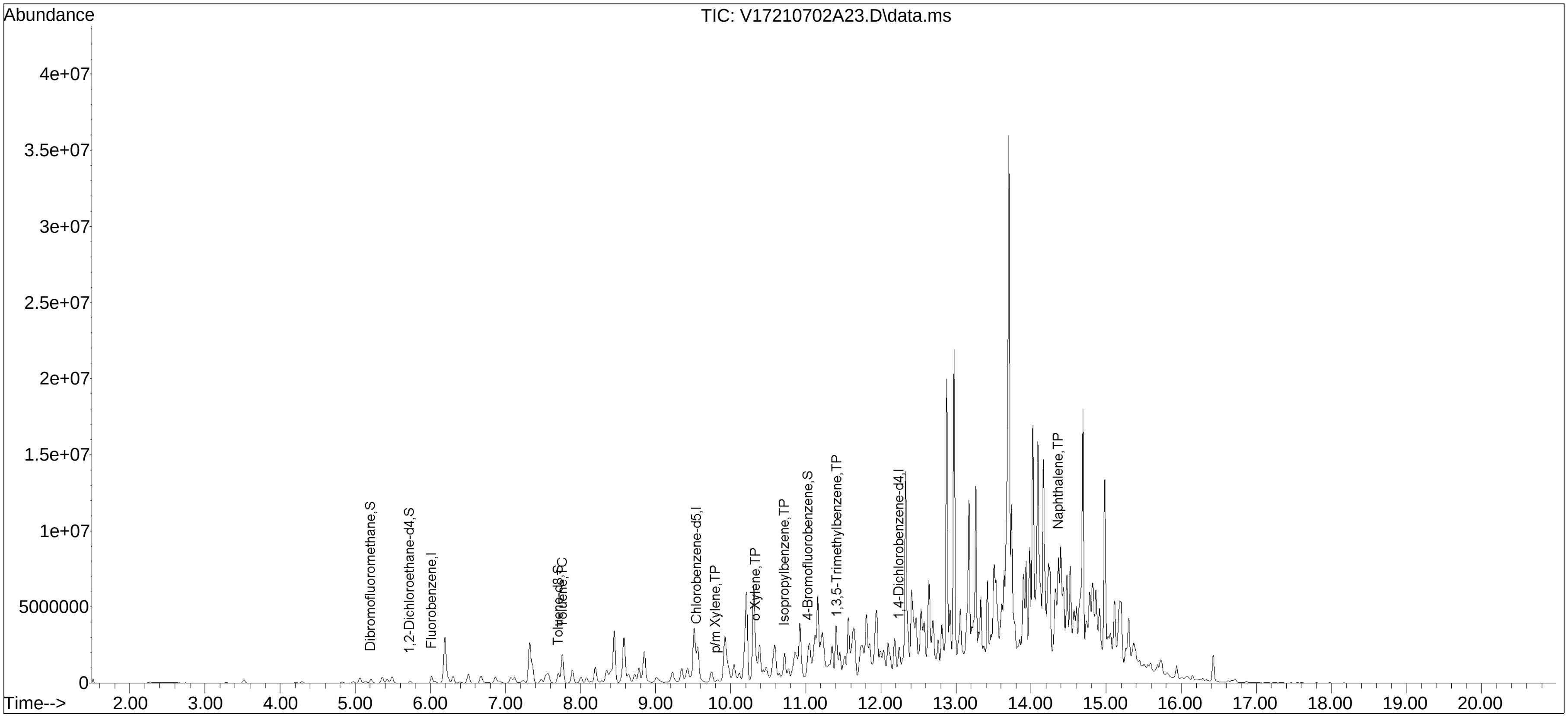


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A23.D
Acq On : 02 Jul 2021 04:19 pm
Operator : VOA117:KJD
Sample : L2134501-09,31H,5.36,5,0.100,,A
Misc : WG1520303,ICAL18099
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 19:54:13 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

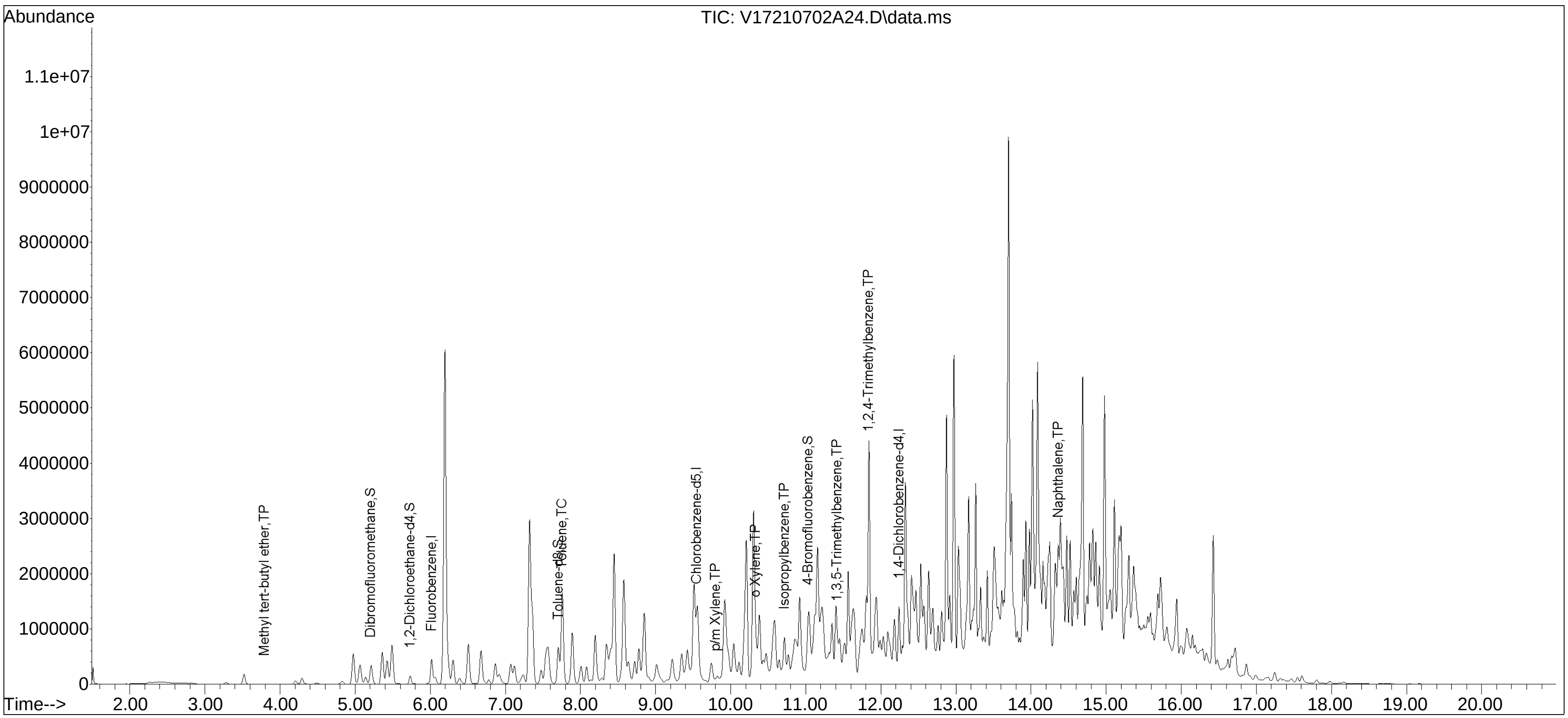


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A24.D
Acq On : 02 Jul 2021 04:45 pm
Operator : VOA117:KJD
Sample : L2134501-10,31H,6.44,5,0.100,A
Misc : WG1520303,ICAL18099
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 02 19:54:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

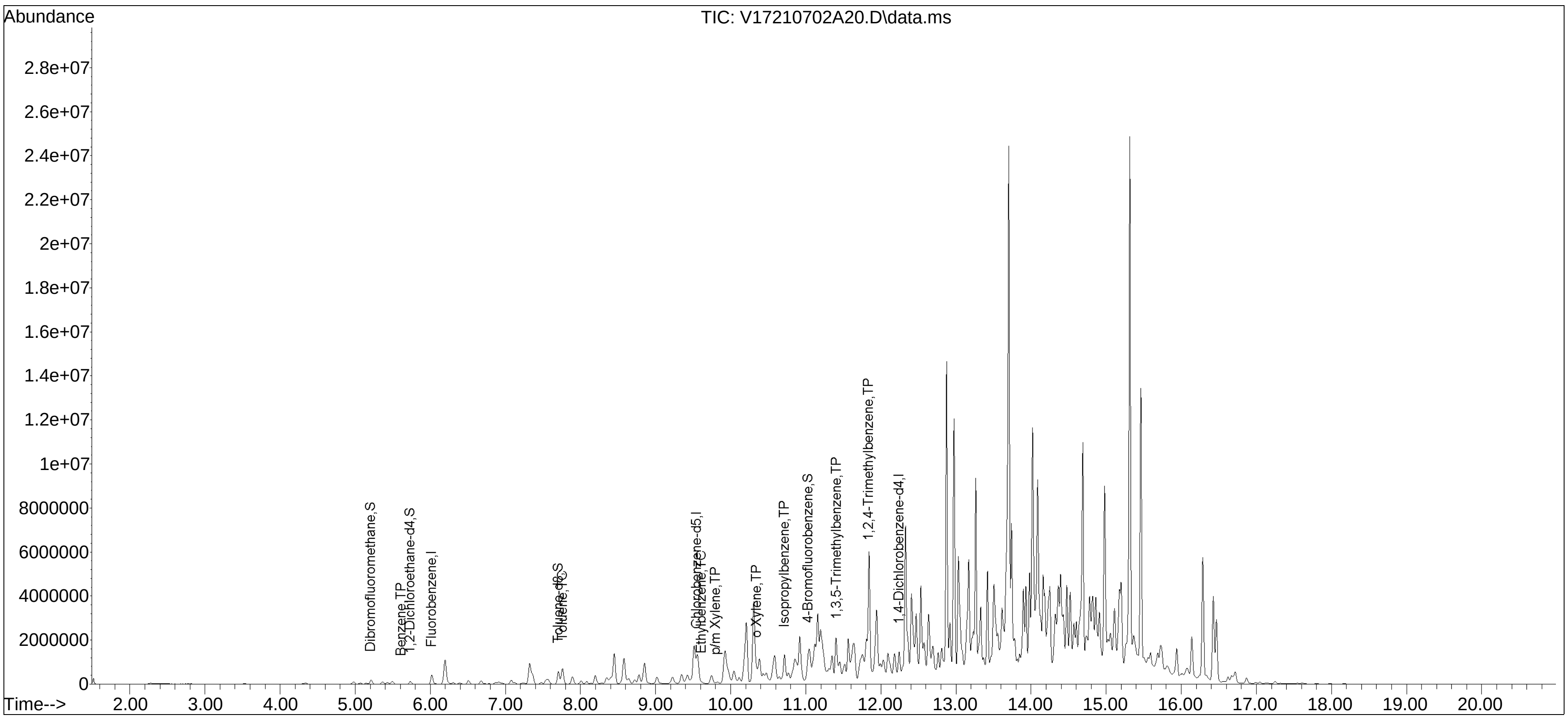


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A20.D
Acq On : 02 Jul 2021 03:01 pm
Operator : VOA117:KJD
Sample : L2134501-11D,31H,4.38,5,0.020,,A
Misc : WG1520303,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 19:46:01 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•



Quantitation Report (QT Reviewed)

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Data File : V17210702A25.D
Acq On    : 02 Jul 2021  05:11 pm
Operator  : VOA117:KJD
Sample    : L2134501-12,31H,6.05,5,0.100,,A
Misc      : WG1520303,ICAL18099
ALS Vial  : 25   Sample Multiplier: 1

Quant Time: Jul 02 19:55:26 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•
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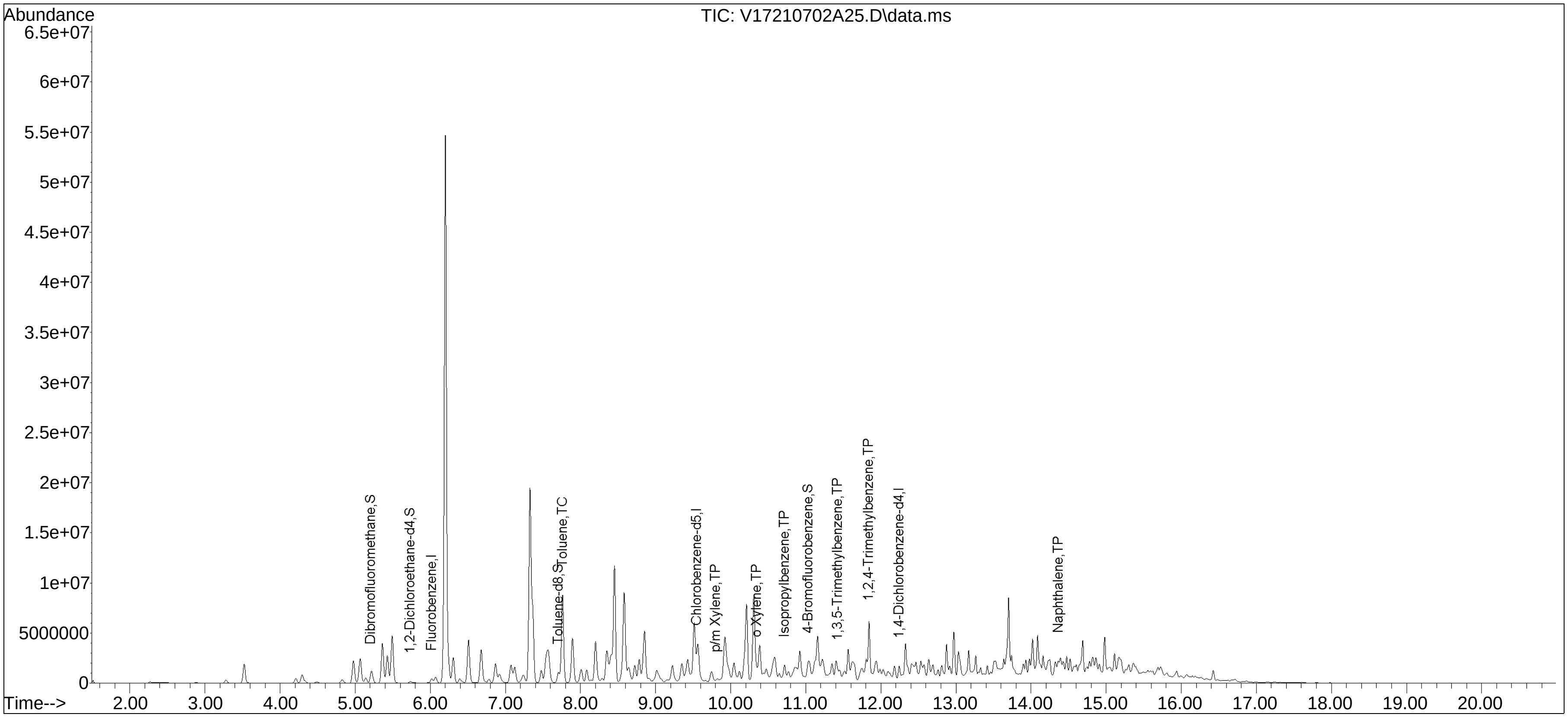
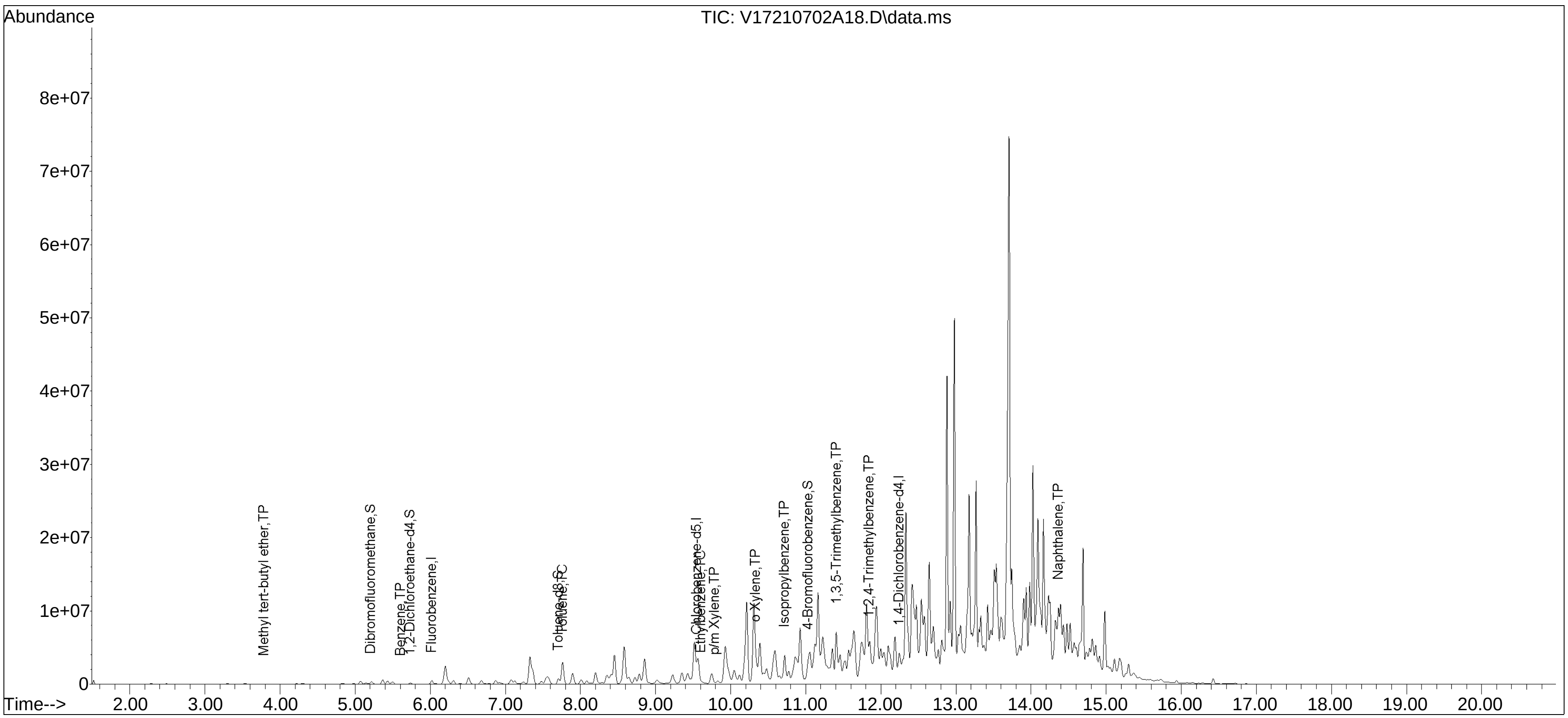


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A18.D
Acq On : 02 Jul 2021 02:09 pm
Operator : VOA117:LAC
Sample : L2134501-13,31,6.04,5,,B
Misc : WG1519895,ICAL18099
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 02 16:38:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

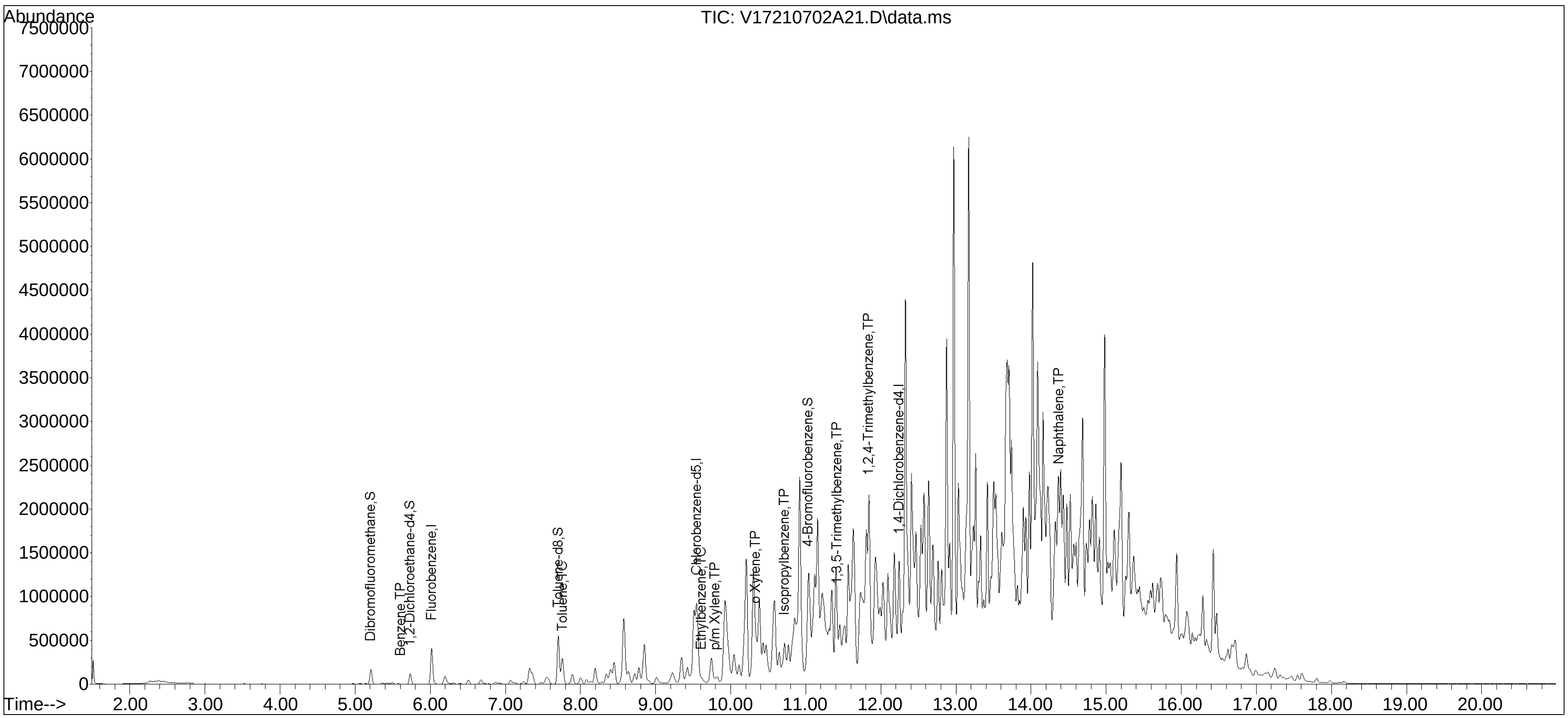


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A21.D
Acq On : 02 Jul 2021 03:27 pm
Operator : VOA117:KJD
Sample : L2134501-14D,31H,5.23,5,0.050,,A
Misc : WG1520303,ICAL18099
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 02 19:46:15 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

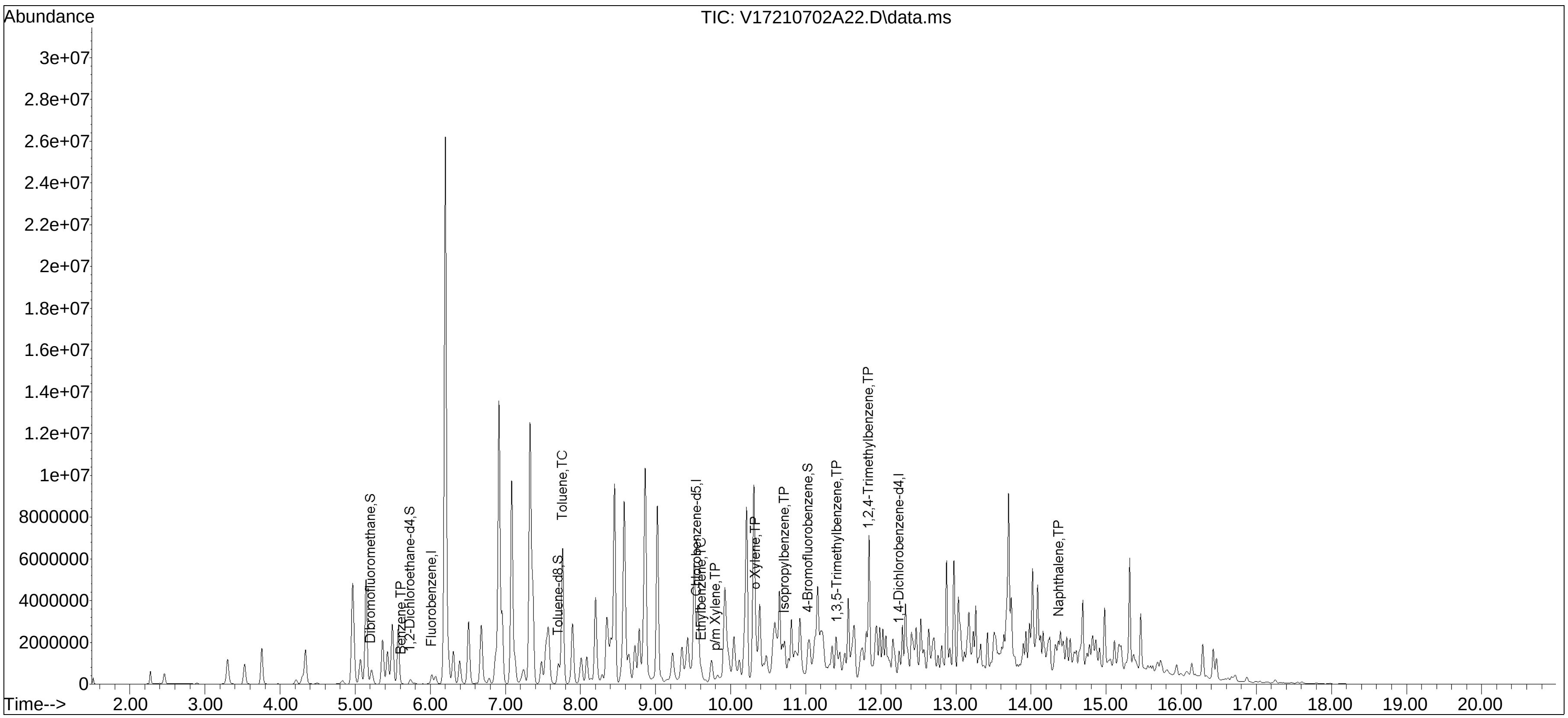


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210702A\
Data File : V17210702A22.D
Acq On   : 02 Jul 2021 03:53 pm
Operator : VOA117:KJD
Sample   : L2134501-15D,31H,6.36,5,0.050,,A
Misc   : WG1520303,ICAL18099
ALS Vial : 22   Sample Multiplier: 1

Quant Time: Jul 02 19:47:07 2021
Quant Method : I:\VOLATILES\VOA117\2021\210702A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list02A\V17210702A01.D•

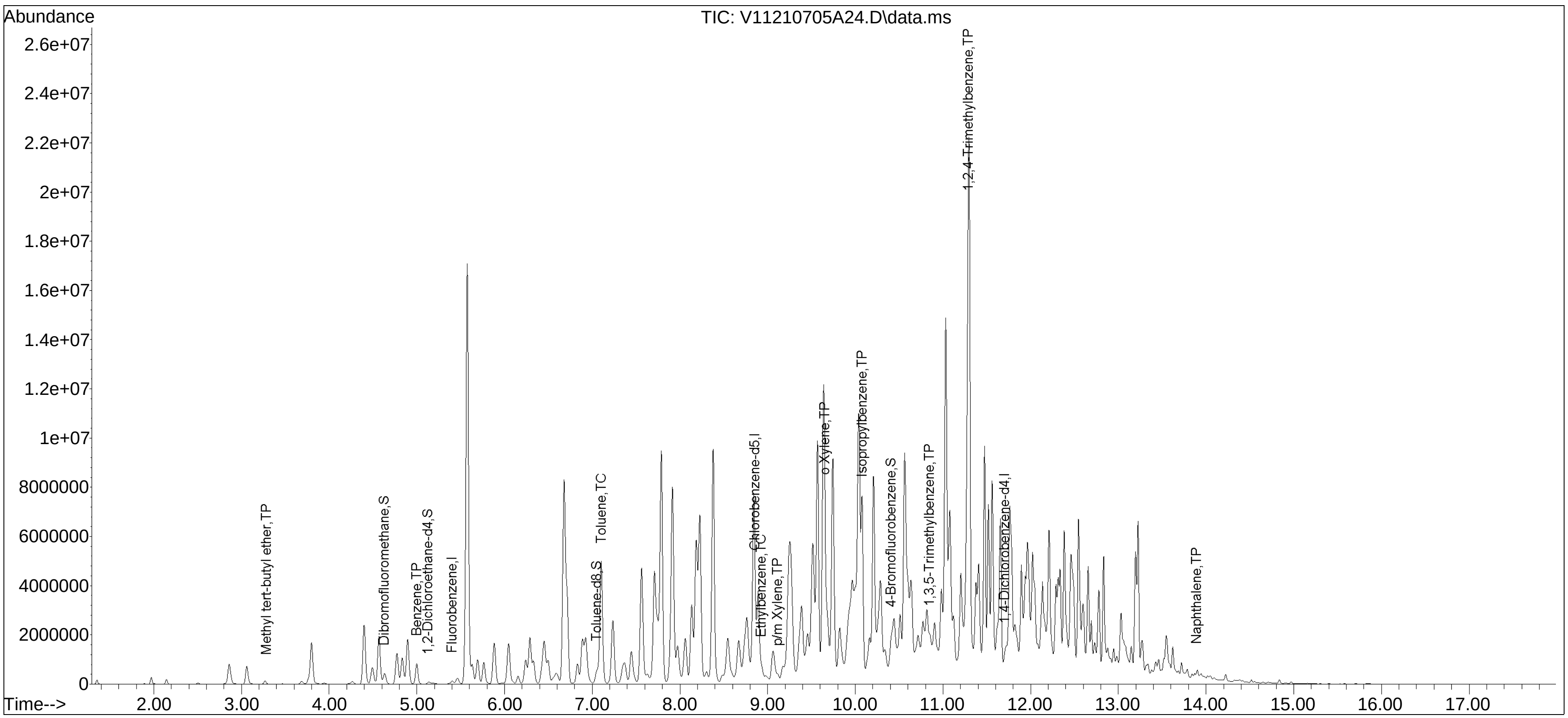


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210705A\
Data File : V11210705A24.D
Acq On : 05 Jul 2021 10:41 pm
Operator : VOA111:MV
Sample : L2134501-16,31,5.86,5,,B
Misc : WG1520600,ICAL18049
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Jul 06 07:17:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210705A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list05A\V11210705A01.D•

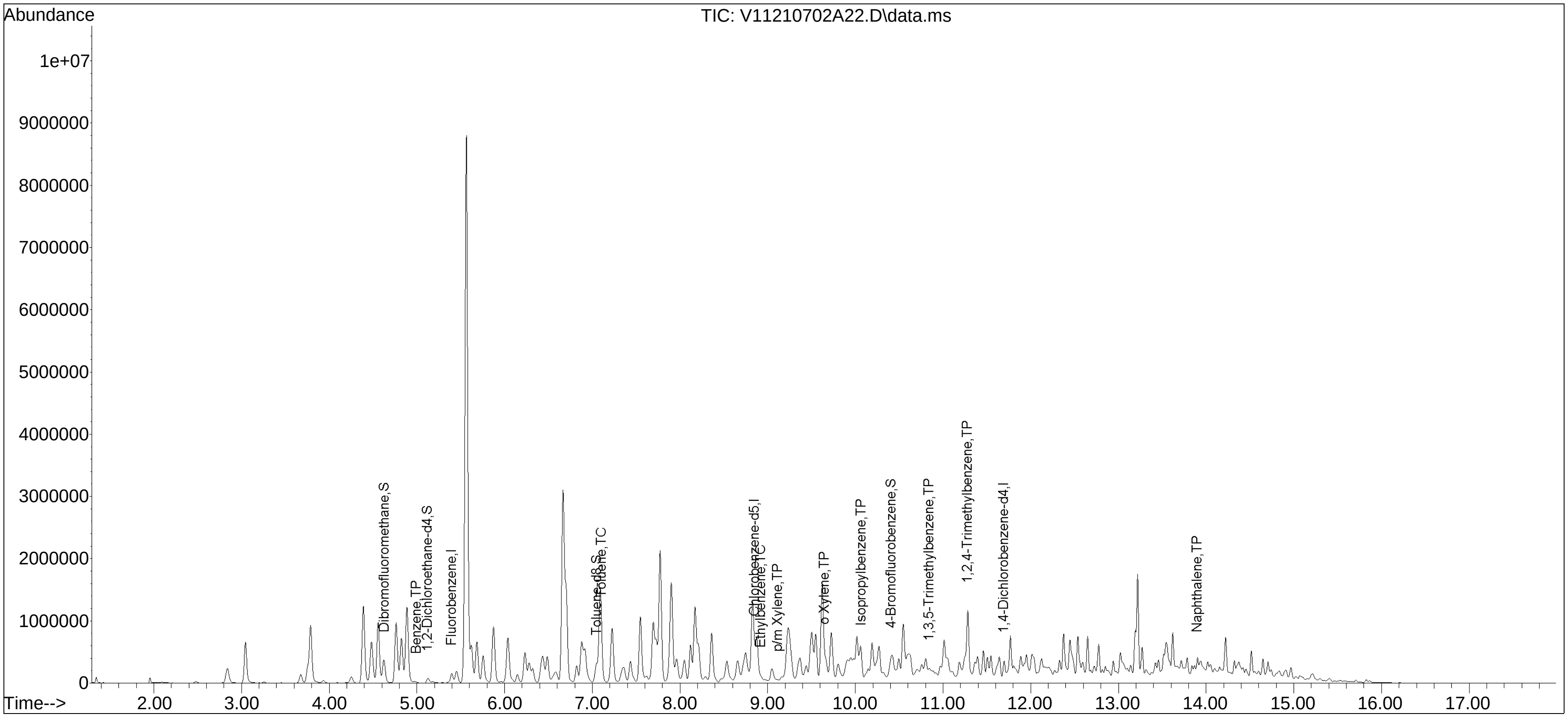


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A22.D
Acq On    : 02 Jul 2021  02:30 pm
Operator  : VOA111:MV
Sample    : L2134501-17,31H,5.35,5,0.100,,A
Misc      : WG1519793,ICAL18049
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Jul 02 20:21:52 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•
```

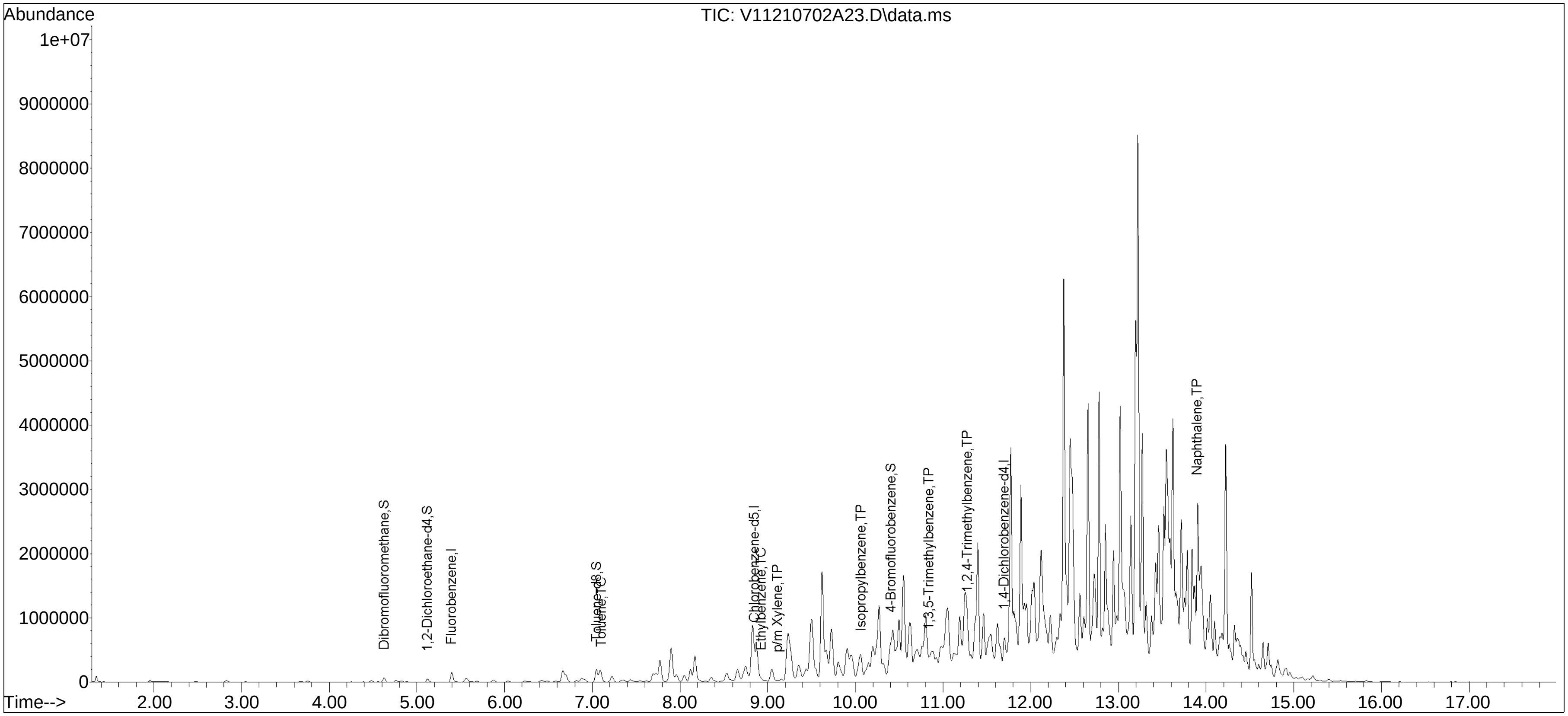


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A23.D
Acq On : 02 Jul 2021 02:55 pm
Operator : VOA111:MV
Sample : L2134501-18,31H,3.34,5,0.100,,A
Misc : WG1519793,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 02 20:22:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

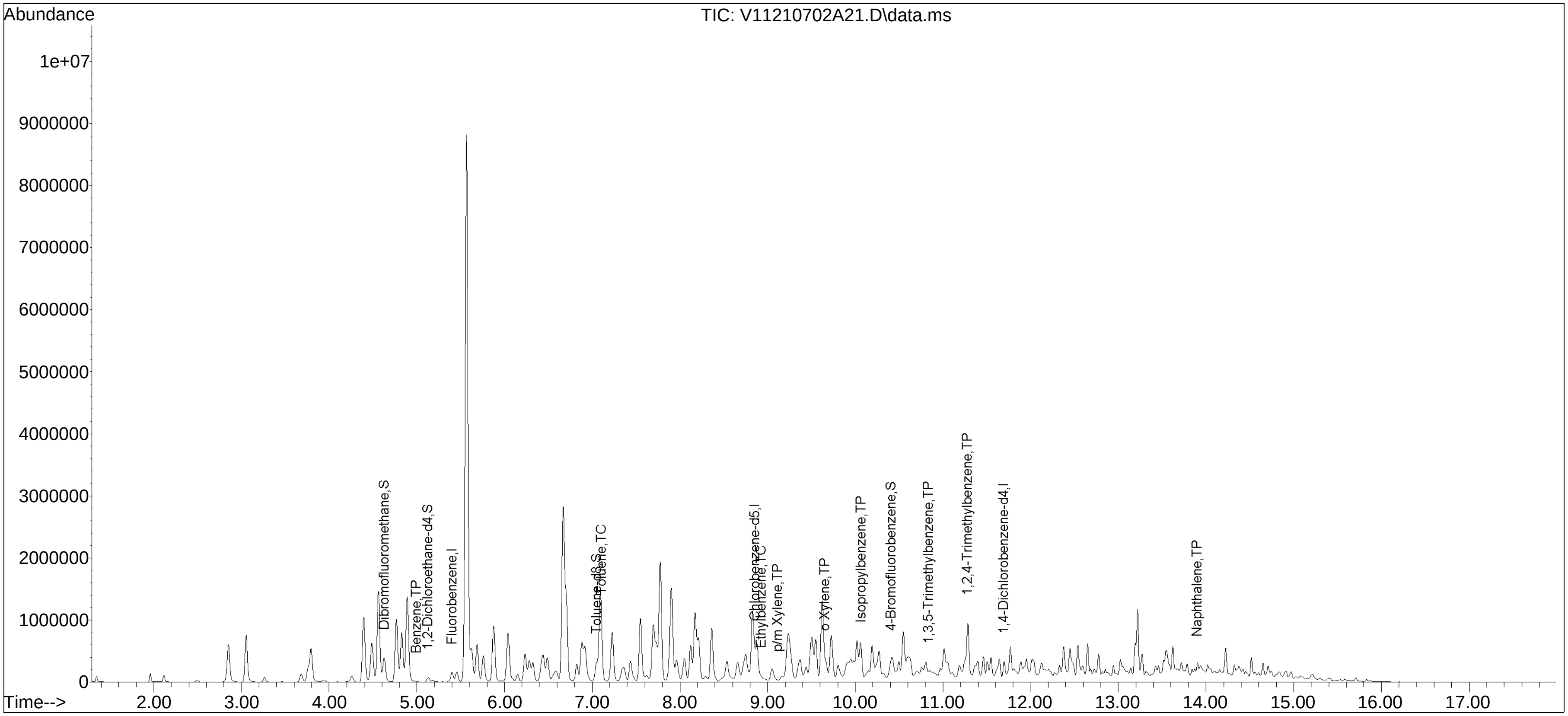


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A21.D
Acq On    : 02 Jul 2021  02:05 pm
Operator  : VOA111:MV
Sample    : L2134501-20D,31H,6.29,5,0.050,,A
Misc      : WG1519793,ICAL18049
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 02 20:20:05 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•
```

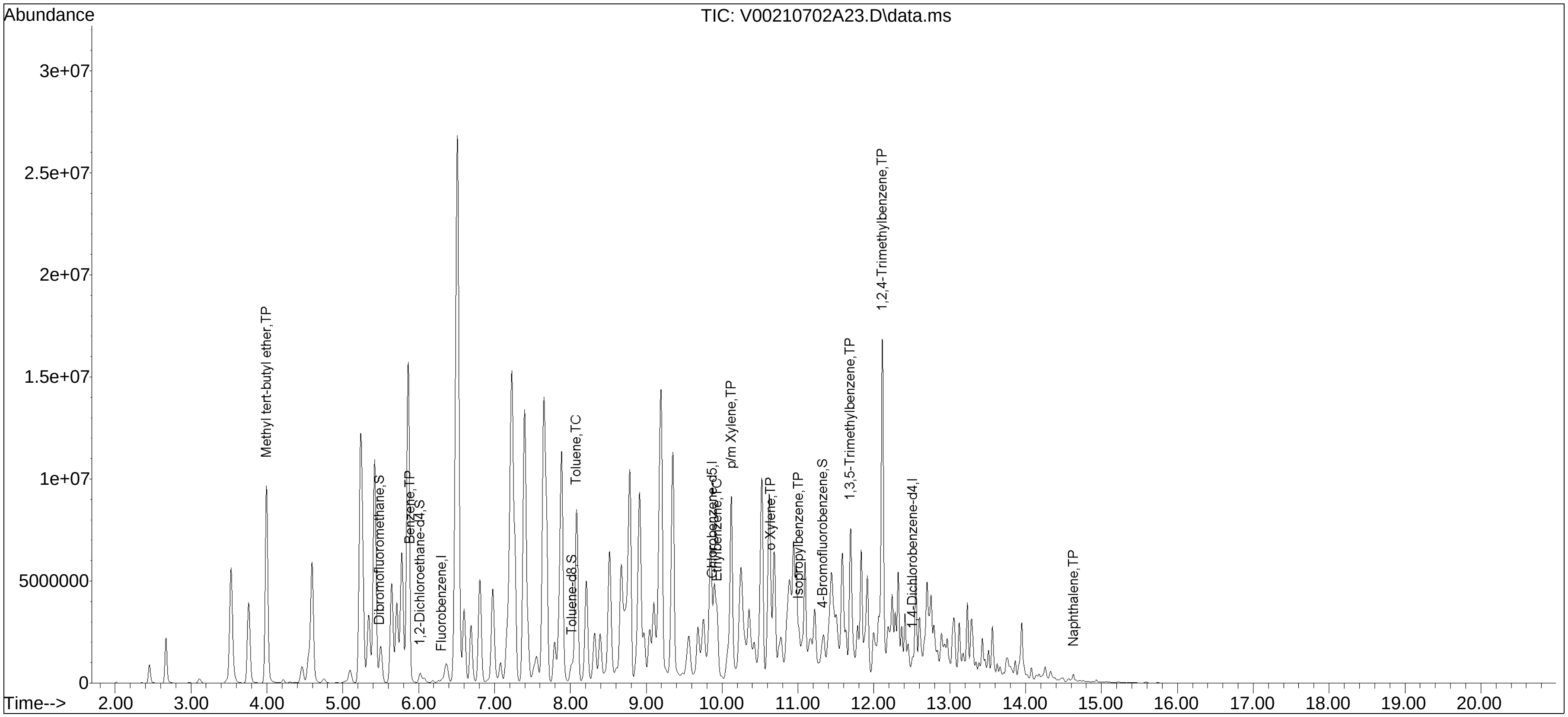


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\210702A\
Data File : V00210702A23.D
Acq On : 2 Jul 2021 5:52 pm
Operator : VOA100:MV
Sample : L2134501-21,31,6.17,5,,B
Misc : WG1520074,ICAL18027
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 03 05:57:01 2021
Quant Method : I:\VOLATILES\VOA100\2021\210702A\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V00210702A01.D•

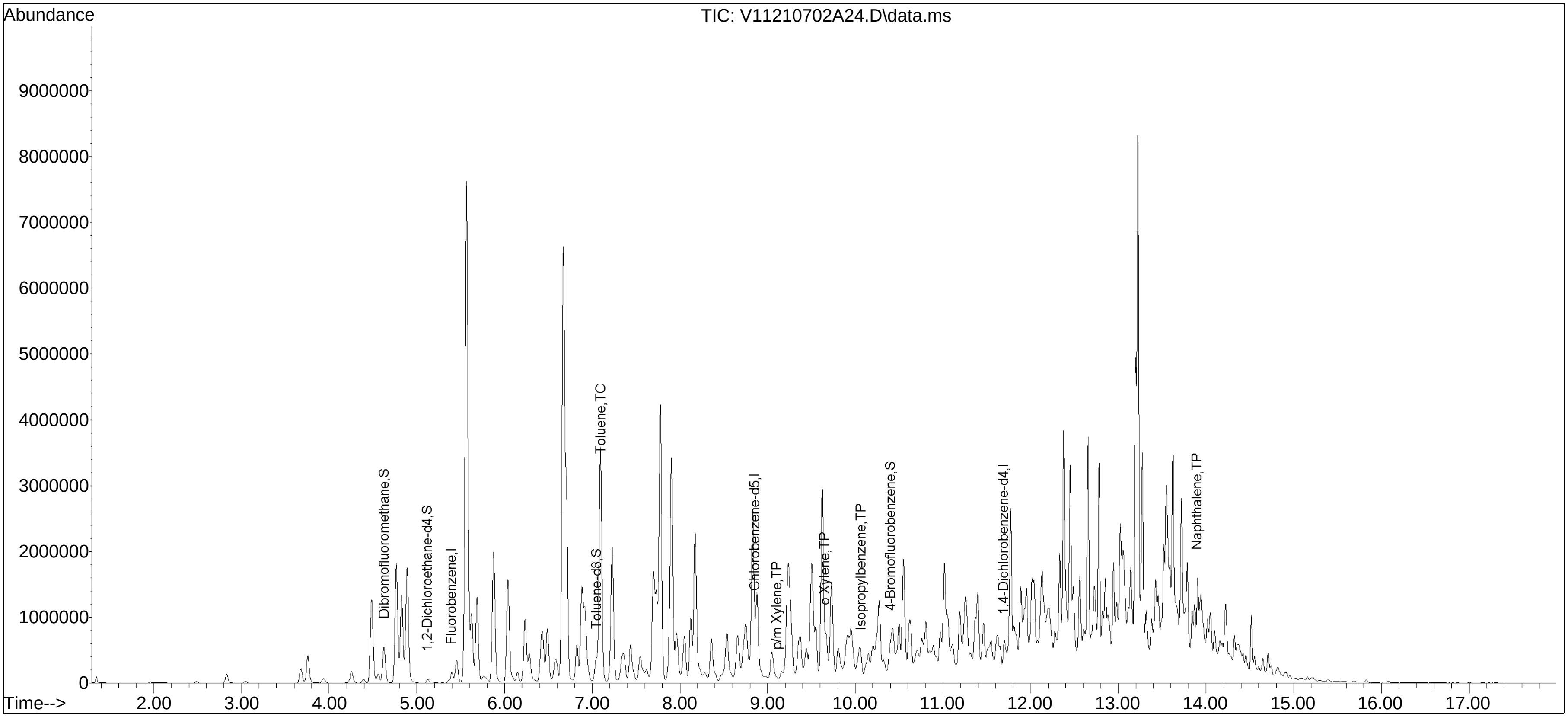


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A24.D
Acq On   : 02 Jul 2021 03:20 pm
Operator : VOA111:MV
Sample   : L2134501-22,31H,5.09,5,0.100,,A
Misc   : WG1519793,ICAL18049
ALS Vial : 24   Sample Multiplier: 1

Quant Time: Jul 02 20:23:04 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

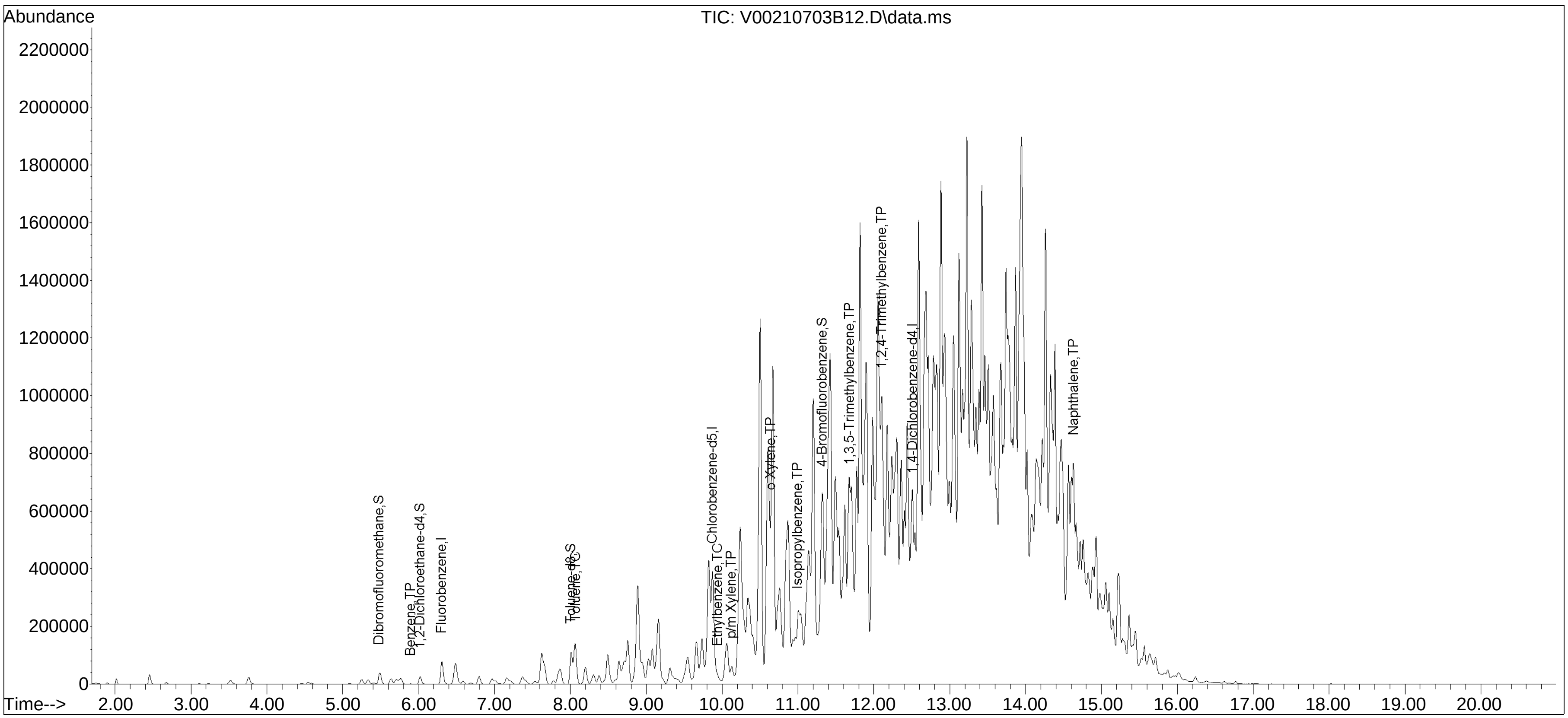


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\210703B\
Data File : V00210703B12.D
Acq On : 3 Jul 2021 1:23 pm
Operator : VOA100:AJK
Sample : L2134501-23,31,5.98,5,,C
Misc : WG1520495,ICAL18027
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 04 10:21:48 2021
Quant Method : I:\VOLATILES\VOA100\2021\210703B\V100_210602_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jun 04 14:34:44 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03B\V00210703B01.D•

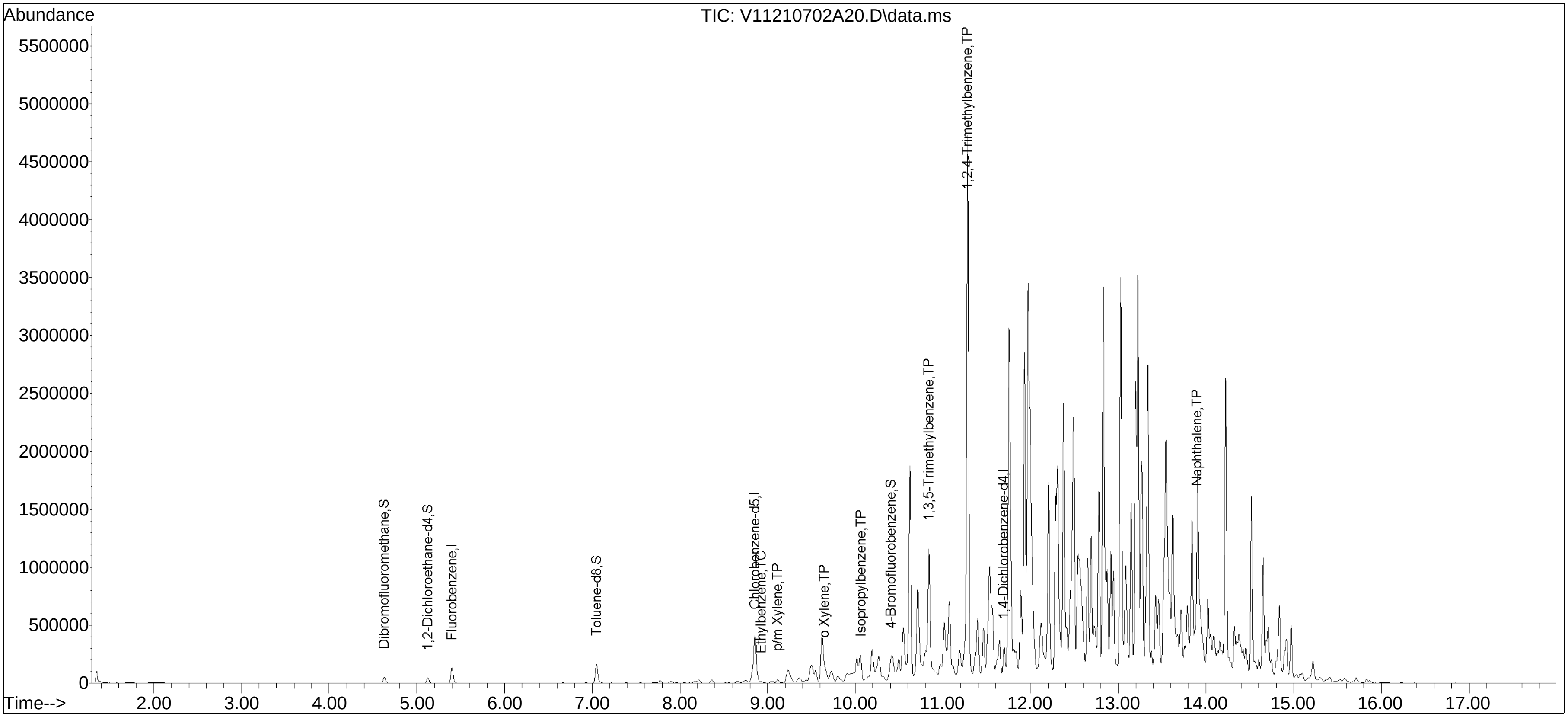


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210702A\
Data File : V11210702A20.D
Acq On : 02 Jul 2021 01:40 pm
Operator : VOA111:MV
Sample : L2134501-27D,31H,5.09,5,0.020,,A
Misc : WG1519793,ICAL18049
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 02 20:11:11 2021
Quant Method : I:\VOLATILES\VOA111\2021\210702A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210702A01.D•

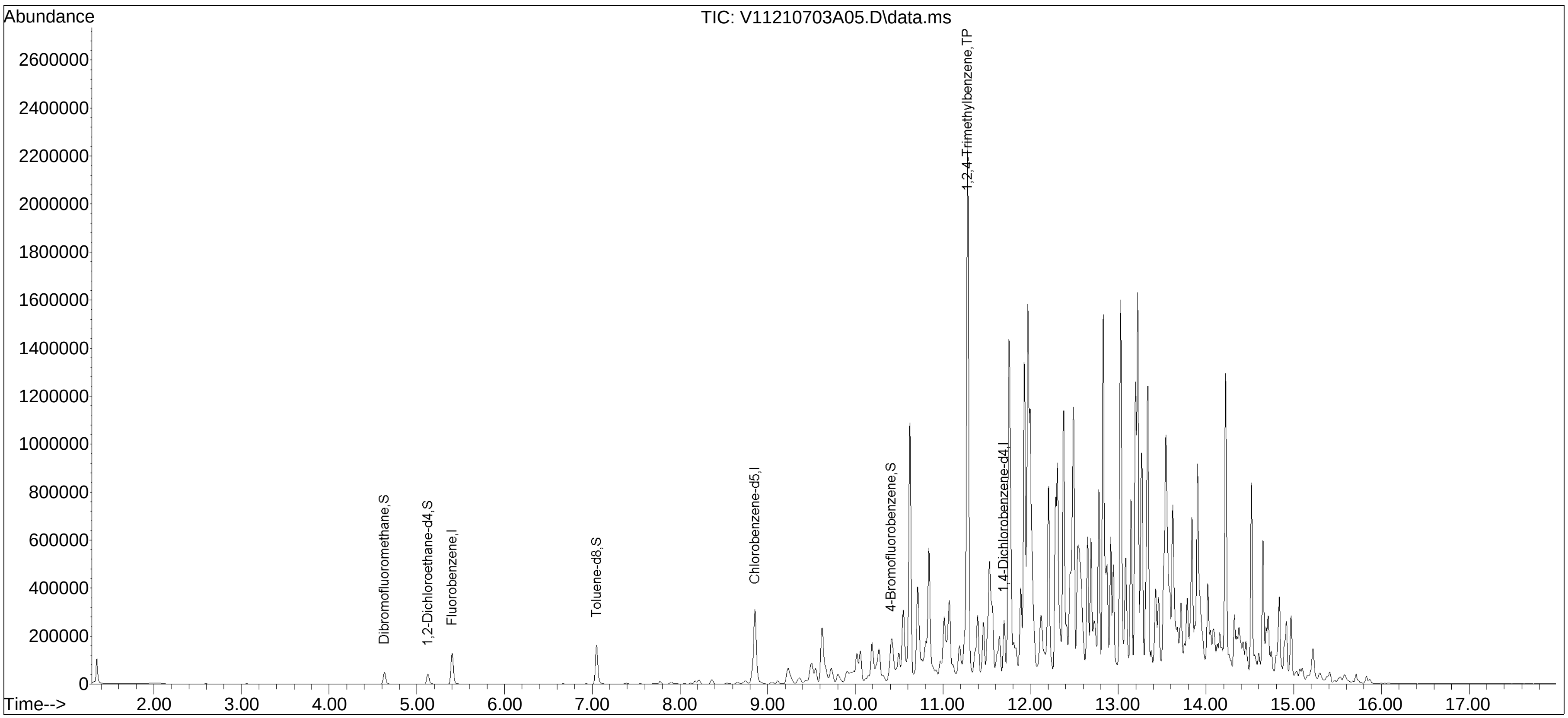


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210703A\
Data File : V11210703A05.D
Acq On : 03 Jul 2021 08:36 am
Operator : VOA111:KJD
Sample : L2134501-27D2,31H,5.09,5,0.010,,A
Misc : WG1519793,ICAL18049
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 04 17:26:59 2021
Quant Method : I:\VOLATILES\VOA111\2021\210703A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-1,2,4-TMB - 1,2,4-Trimethylbenzene only03A01.D•



ANALYTICAL REPORT

Lab Number:	L2134780
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/08/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2134780-01	PB43-04-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:30	06/25/21
L2134780-02	PB43-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 08:55	06/25/21
L2134780-03	PB43-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:05	06/25/21
L2134780-04	PB43-13-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:20	06/25/21
L2134780-05	PB43-14-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:35	06/25/21
L2134780-06	PB83-08-SS01	SOIL	PHILADELPHIA, PA	06/25/21 09:45	06/25/21
L2134780-07	PB83-09-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:05	06/25/21
L2134780-08	PB83-10-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:20	06/25/21
L2134780-09	PB83-01-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:35	06/25/21
L2134780-10	PB83-02-SS01	SOIL	PHILADELPHIA, PA	06/25/21 10:50	06/25/21
L2134780-11	PB83-03-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:00	06/25/21
L2134780-12	PB83-07-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:10	06/25/21
L2134780-13	PB83-12-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:20	06/25/21
L2134780-14	PB43-15-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:40	06/25/21
L2134780-15	PB43-16-SS01	SOIL	PHILADELPHIA, PA	06/25/21 11:50	06/25/21
L2134780-16	TB	WATER	PHILADELPHIA, PA	06/21/21 00:00	06/25/21
L2134780-17	FB-210625	WATER	PHILADELPHIA, PA	06/25/21 12:00	06/25/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2134780-03, -04, and -11: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

The surrogate recovery for the following samples is outside the acceptance criteria for 4-bromofluorobenzene; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2137480-03: 139%

L2134780-04: 153%

L2134780-09D2: 149%

L2134780-10: 144%

L2134780-11: 322%

Microextractables

The WG1518183-2 LCS recovery for 1,2,3-trichloropropane (128%), associated with L2134780-16 and -17, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative

Date: 07/08/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-01
Client ID: PB43-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 08:30
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 15:38
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0088		mg/kg	0.0019	0.00019	1
Benzene	0.035		mg/kg	0.00047	0.00016	1
Toluene	0.0013		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	0.0010		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-02	Date Collected:	06/25/21 08:55
Client ID:	PB43-09-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/03/21 16:04
Analyst:	AJK
Percent Solids:	84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00096	0.00052	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
Isopropylbenzene	ND		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-03	Date Collected:	06/25/21 09:05
Client ID:	PB43-12-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:32
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	ND		mg/kg	0.060	0.033	1
Ethylbenzene	ND		mg/kg	0.060	0.0085	1
Isopropylbenzene	0.059	J	mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1
Naphthalene	0.17	J	mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-04
Client ID: PB43-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 09:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:58
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0098	1
Toluene	ND		mg/kg	0.059	0.032	1
Ethylbenzene	ND		mg/kg	0.059	0.0084	1
Isopropylbenzene	0.076		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.020	J	mg/kg	0.12	0.020	1
Naphthalene	0.20	J	mg/kg	0.24	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-05
Client ID: PB43-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:35
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 19:06
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	ND		mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-06	Date Collected:	06/25/21 09:45
Client ID:	PB83-08-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/05/21 22:16
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00046	0.00015	1
Toluene	ND		mg/kg	0.00093	0.00050	1
Ethylbenzene	ND		mg/kg	0.00093	0.00013	1
Isopropylbenzene	ND		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-07	Date Collected:	06/25/21 10:05
Client ID:	PB83-09-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:02
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1
Naphthalene	ND		mg/kg	0.0040	0.00065	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-08	Date Collected:	06/25/21 10:20
Client ID:	PB83-10-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 16:56
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0029	0.00029	1
Benzene	ND		mg/kg	0.00072	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	0.00048	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00048	1
Naphthalene	ND		mg/kg	0.0058	0.00094	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09 D2
Client ID: PB83-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:35
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:36
Analyst: MV
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.25	0.026	2
Benzene	5.0		mg/kg	0.064	0.021	2
Toluene	0.53		mg/kg	0.13	0.069	2
Ethylbenzene	40.	E	mg/kg	0.13	0.018	2
Isopropylbenzene	9.0		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	19.		mg/kg	0.25	0.024	2
1,2,4-Trimethylbenzene	71.	E	mg/kg	0.25	0.042	2
Naphthalene	14.		mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-09 D	Date Collected:	06/25/21 10:35
Client ID:	PB83-01-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/03/21 20:50
Analyst:	AJK
Percent Solids:	84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	38.		mg/kg	0.64	0.090	10
1,2,4-Trimethylbenzene	51.		mg/kg	1.3	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-10	Date Collected:	06/25/21 10:50
Client ID:	PB83-02-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 21:16
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.64		mg/kg	0.032	0.010	1
Toluene	0.24		mg/kg	0.064	0.035	1
Ethylbenzene	12.		mg/kg	0.064	0.0090	1
Isopropylbenzene	3.0		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	3.3		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	4.8		mg/kg	0.13	0.021	1
Naphthalene	1.3		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	77		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-11
Client ID: PB83-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 11:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 21:42
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.010	1
Toluene	0.036	J	mg/kg	0.061	0.033	1
Ethylbenzene	0.016	J	mg/kg	0.061	0.0086	1
Isopropylbenzene	0.012	J	mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.015	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.12	0.020	1
Naphthalene	0.044	J	mg/kg	0.24	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	80		70-130
4-Bromofluorobenzene	**322**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
Client ID: PB83-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/03/21 17:22
Analyst: AJK
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00026	1
Benzene	ND		mg/kg	0.00063	0.00021	1
Toluene	ND		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13 Date Collected: 06/25/21 11:20
Client ID: PB83-12-SS01 Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:29
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0039	0.00040	1
Benzene	ND		mg/kg	0.00098	0.00033	1
Toluene	ND		mg/kg	0.0020	0.0011	1
Ethylbenzene	ND		mg/kg	0.0020	0.00028	1
Isopropylbenzene	ND		mg/kg	0.0020	0.00021	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0039	0.00038	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0039	0.00066	1
Naphthalene	ND		mg/kg	0.0079	0.0013	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780

Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-14	Date Collected:	06/25/21 11:40
Client ID:	PB43-15-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/03/21 18:14
Analyst:	AJK
Percent Solids:	84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00029	1
Benzene	ND		mg/kg	0.00071	0.00024	1
Toluene	ND		mg/kg	0.0014	0.00078	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	ND		mg/kg	0.0014	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00048	1
Naphthalene	ND		mg/kg	0.0057	0.00093	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-15
Client ID: PB43-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:50
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/06/21 09:55
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00020	1
Benzene	0.0038		mg/kg	0.00048	0.00016	1
Toluene	ND		mg/kg	0.00097	0.00053	1
Ethylbenzene	0.00022	J	mg/kg	0.00097	0.00014	1
Isopropylbenzene	0.00087	J	mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.00090	J	mg/kg	0.0019	0.00032	1
Naphthalene	ND		mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 06/29/21 18:00
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-16
Client ID: TB
Sample Location: PHILADELPHIA, PA

Date Collected: 06/21/21 00:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 19:49
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780

Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-17	Date Collected:	06/25/21 12:00
Client ID:	FB-210625	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	06/29/21 15:07
Analytical Date:	06/29/21 18:06		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-17
Client ID: FB-210625
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 12:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/06/21 20:12
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 06/29/21 16:13
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 06/29/21 15:07

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-17 Batch: WG1518183-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,12,14 Batch: WG1520501-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09 Batch: WG1520503-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2134780
Project Number: 200.00135.005.03 | **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/03/21 13:28
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03-04,09-11 Batch: WG1520503-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/05/21 14:13
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1520600-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 08:10
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,13,15 Batch: WG1520743-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/06/21 19:26
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-17 Batch: WG1521186-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-17 Batch: WG1518183-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,12,14 Batch: WG1520501-3 WG1520501-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03-04,09-11 Batch: WG1520503-3 WG1520503-4								
Methyl tert butyl ether	86		87		66-130	1		30
Benzene	84		81		70-130	4		30
Toluene	85		81		70-130	5		30
Ethylbenzene	87		83		70-130	5		30
Isopropylbenzene	90		85		70-130	6		30
1,3,5-Trimethylbenzene	88		84		70-130	5		30
1,2,4-Trimethylbenzene	86		82		70-130	5		30
Naphthalene	86		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09 Batch: WG1520503-8 WG1520503-9								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1520600-3 WG1520600-4								
Methyl tert butyl ether	98		98		66-130	0		30
Benzene	88		86		70-130	2		30
Toluene	91		89		70-130	2		30
Ethylbenzene	98		95		70-130	3		30
Isopropylbenzene	107		103		70-130	4		30
1,3,5-Trimethylbenzene	105		101		70-130	4		30
1,2,4-Trimethylbenzene	104		101		70-130	3		30
Naphthalene	104		107		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		107		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,13,15 Batch: WG1520743-3 WG1520743-4								
Methyl tert butyl ether	83		87		66-130	5		30
Benzene	85		85		70-130	0		30
Toluene	87		85		70-130	2		30
Ethylbenzene	90		89		70-130	1		30
Isopropylbenzene	94		92		70-130	2		30
1,3,5-Trimethylbenzene	91		90		70-130	1		30
1,2,4-Trimethylbenzene	89		88		70-130	1		30
Naphthalene	86		90		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2134780
Report Date: 07/08/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-17 Batch: WG1521186-3 WG1521186-4								
Methyl tert butyl ether	95		95		63-130	0		20
Benzene	99		94		70-130	5		20
Toluene	95		92		70-130	3		20
Ethylbenzene	96		93		70-130	3		20
Isopropylbenzene	96		92		70-130	4		20
1,3,5-Trimethylbenzene	94		92		64-130	2		20
1,2,4-Trimethylbenzene	93		93		70-130	0		20
Naphthalene	90		98		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		108		70-130
Toluene-d8	98		101		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	101		101		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-01
Client ID: PB43-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 08:30
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2134780

Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-02
Client ID: PB43-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 08:55
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-03
Client ID: PB43-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:05
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-04
Client ID: PB43-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 09:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-05
Date Collected: 06/25/21 09:35
Client ID: PB43-14-SS01
Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-06	Date Collected:	06/25/21 09:45
Client ID:	PB83-08-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-07	Date Collected:	06/25/21 10:05
Client ID:	PB83-09-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-08
Client ID: PB83-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-09
Client ID: PB83-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 10:35
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2134780
Project Number: 200.00135.005.03　　**Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-10　　Date Collected: 06/25/21 10:50
Client ID: PB83-02-SS01　　Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-11
Client ID: PB83-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:00
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2134780
Project Number: 200.00135.005.03 **Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-12
Client ID: PB83-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 06/25/21 11:10
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2134780
Project Number: 200.00135.005.03
Report Date: 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-13
Client ID: PB83-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 06/25/21 11:20
Date Received: 06/25/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2134780
Project Number:	200.00135.005.03	**Report Date:**	07/08/21

SAMPLE RESULTS

Lab ID:	L2134780-14	Date Collected:	06/25/21 11:40
Client ID:	PB43-15-SS01	Date Received:	06/25/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2134780
Project Number: 200.00135.005.03　　**Report Date:** 07/08/21

SAMPLE RESULTS

Lab ID: L2134780-15　　Date Collected: 06/25/21 11:50
Client ID: PB43-16-SS01　　Date Received: 06/25/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	06/26/21 09:57	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1517300-1 QC Sample: L2134746-01 Client ID: DUP Sample						
Solids, Total	79.4	80.4	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-01B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-01D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-02B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-03B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:30	PA-8260HLW(14)
L2134780-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-04B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-04D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-05B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-05D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2134780-06B	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2134780
Report Date: 07/08/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-06C	Vial water preserved	A	NA		3.2	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-06D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2134780-07A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-07B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-07D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-08A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-08B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-08D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-09A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-09B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-09D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-10A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-10B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-10D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-11A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-11B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-11D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-12A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-12B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-12D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-13A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-13B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2134780-13C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-13D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-14A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-14B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-14D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-15A	Vial MeOH preserved	B	NA		2.6	Y	Absent		PA-8260HLW(14)
L2134780-15B	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15C	Vial water preserved	B	NA		2.6	Y	Absent	26-JUN-21 09:32	PA-8260HLW(14)
L2134780-15D	Plastic 120ml unpreserved	B	NA		2.6	Y	Absent		TS(7)
L2134780-16A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-16C	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-16D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2134780-17D	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)
L2134780-17E	Vial Na2S2O3 preserved	A	NA		3.2	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
34780-01	PB43-04-SS01	6/25	0830	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-02	PB43-09-SS01		0855			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-03	PB43-12-SS01		0905			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB43-13-SS01		0920			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB43-14-SS01		0935			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB83-08-SS01		0945			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB83-09-SS01		1005			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB83-10-SS01		1020			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB83-01-SS01		1035			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	High PID (3000)	
-10	PB83-02-SS01		1050			☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/25 1445	[signature]	AAL 6-25 1445
[signature] AAL	6-25 1800	[signature]	AAL 6/25/21 1800
AAL	6/25/21	[signature] AAL	6/25/21 2300
[signature] AAL	6/26/21 0300	[signature]	6/26/21 03:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-HJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

ALPHA ANALYTICAL

PAGE 2 OF 2

Date Rec'd in Lab: 6/26/21

ALPHA Job #: L2134780

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Program	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

Analysis columns: (1) PADEP Shortlist 1-5 (see attached); (2) PADEP Shortlist 1 & 2 (see attached); (3) PADEP Shortlist 4 (see attached); (4) PADEP Shortlist 3-5 (see attached); (5) PADEP Shortlist 5 (see attached); (6) PADEP Shortlist 6 (see attached); (7) pH; (8) Benzene; (9) Cumene; (10) Tetraethylene Glycol; (11) VOC portion of PADEP Shortlist (4); (12) blank

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Sample Specific Comments	TOTAL # BOTTLES
34780-11	PB83-03-5501	6/25	1100	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-12	PB83-07-5501		1110	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-13	PB83-12-5501		1120	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-14	PB83-15-5501		1140	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-15	PB43-16-5501		1150	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-16	TB			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-17	FB-210625		1206	W	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	6/25 1415	[signature]	6-25 1445
[signature]	6/25 1800	[signature] AAL	6/25/21 1800
[signature] AAL	6/25/21	[signature] AAL	6/25/21 2330
[signature] AAL	6/26/21 0300	[signature]	6/26/21 03:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene (Method 8260), 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene (Method 8270), fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

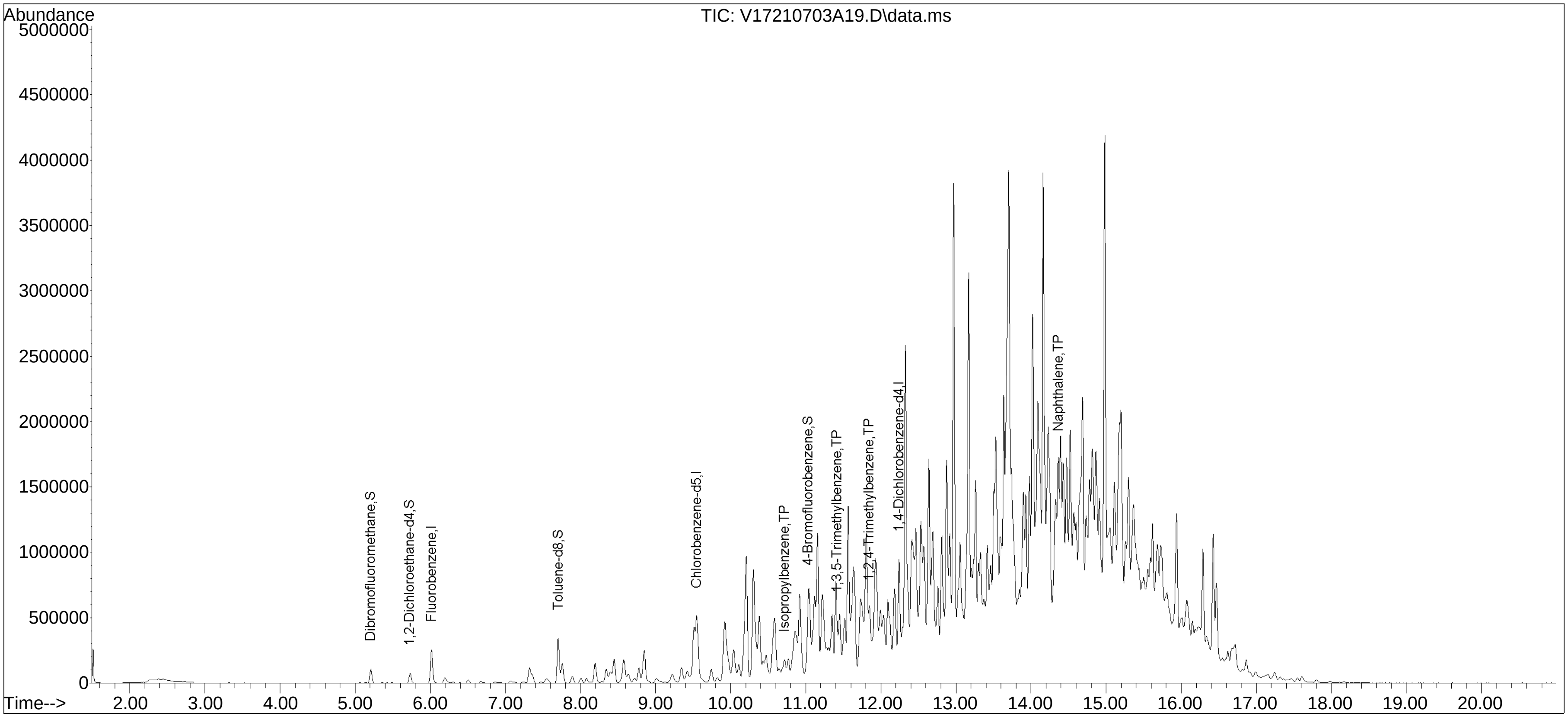
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A19.D
Acq On : 03 Jul 2021 07:32 pm
Operator : VOA117:AJK
Sample : L2134780-03,31H,6.51,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jul 04 14:12:18 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

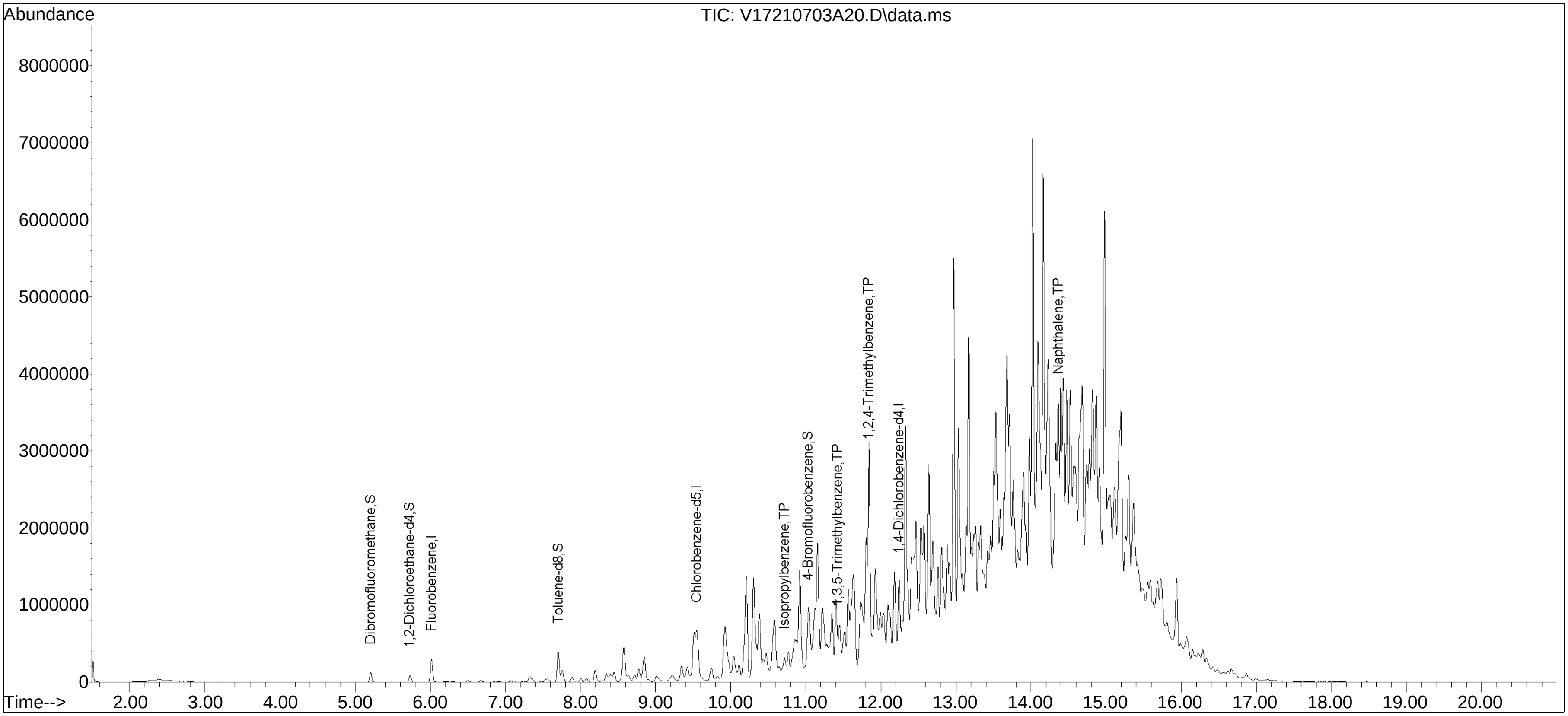


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A20.D
Acq On : 03 Jul 2021 07:58 pm
Operator : VOA117:AJK
Sample : L2134780-04,31H,6.18,5,0.100,,A
Misc : WG1520503,ICAL18099
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 04 14:13:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•

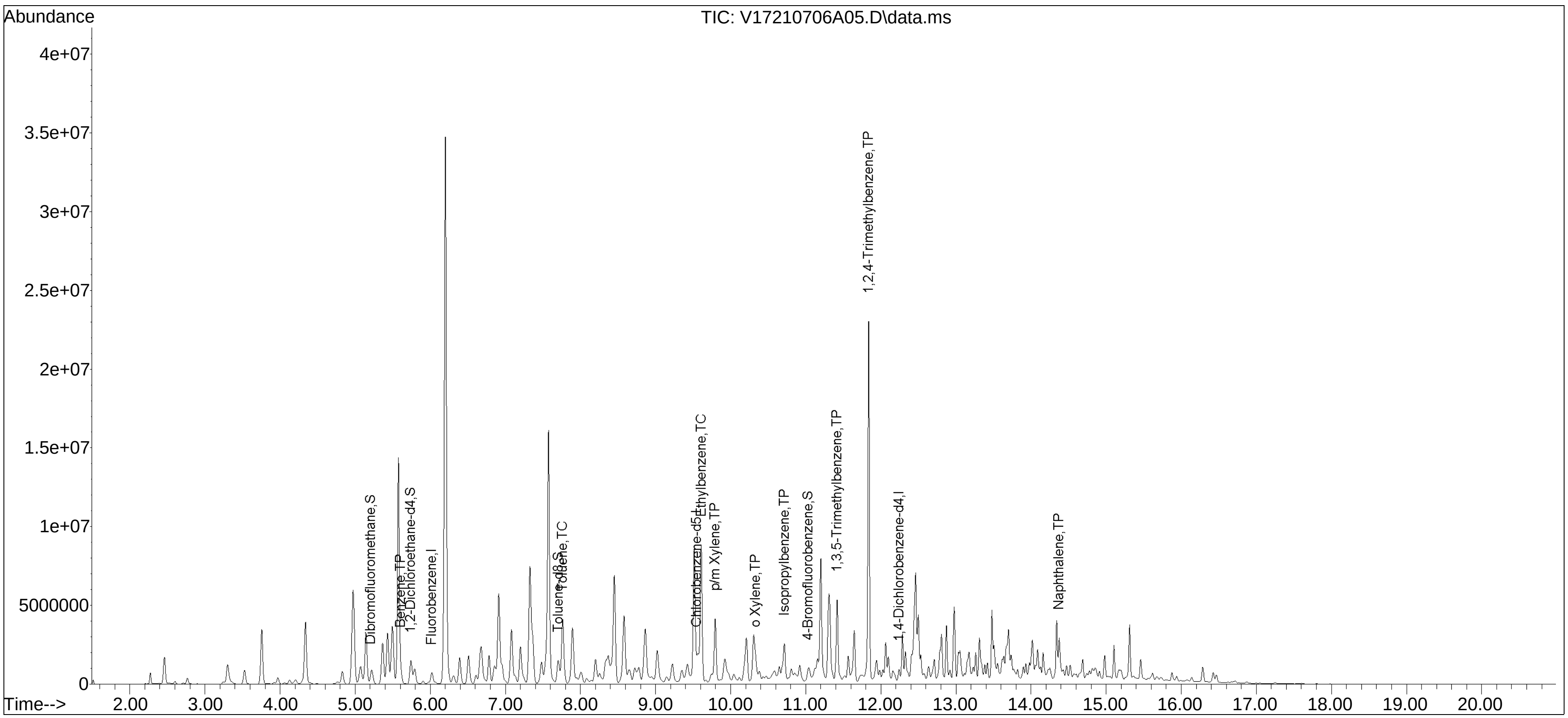


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210706A\
Data File : V17210706A05.D
Acq On : 06 Jul 2021 08:36 am
Operator : VOA117:MV
Sample : L2134780-09D2,31H,5.48,5,0.050,,A
Misc : WG1520503,ICAL18099
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Jul 06 09:43:08 2021
Quant Method : I:\VOLATILES\VOA117\2021\210706A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list06A\V17210706A01.D•

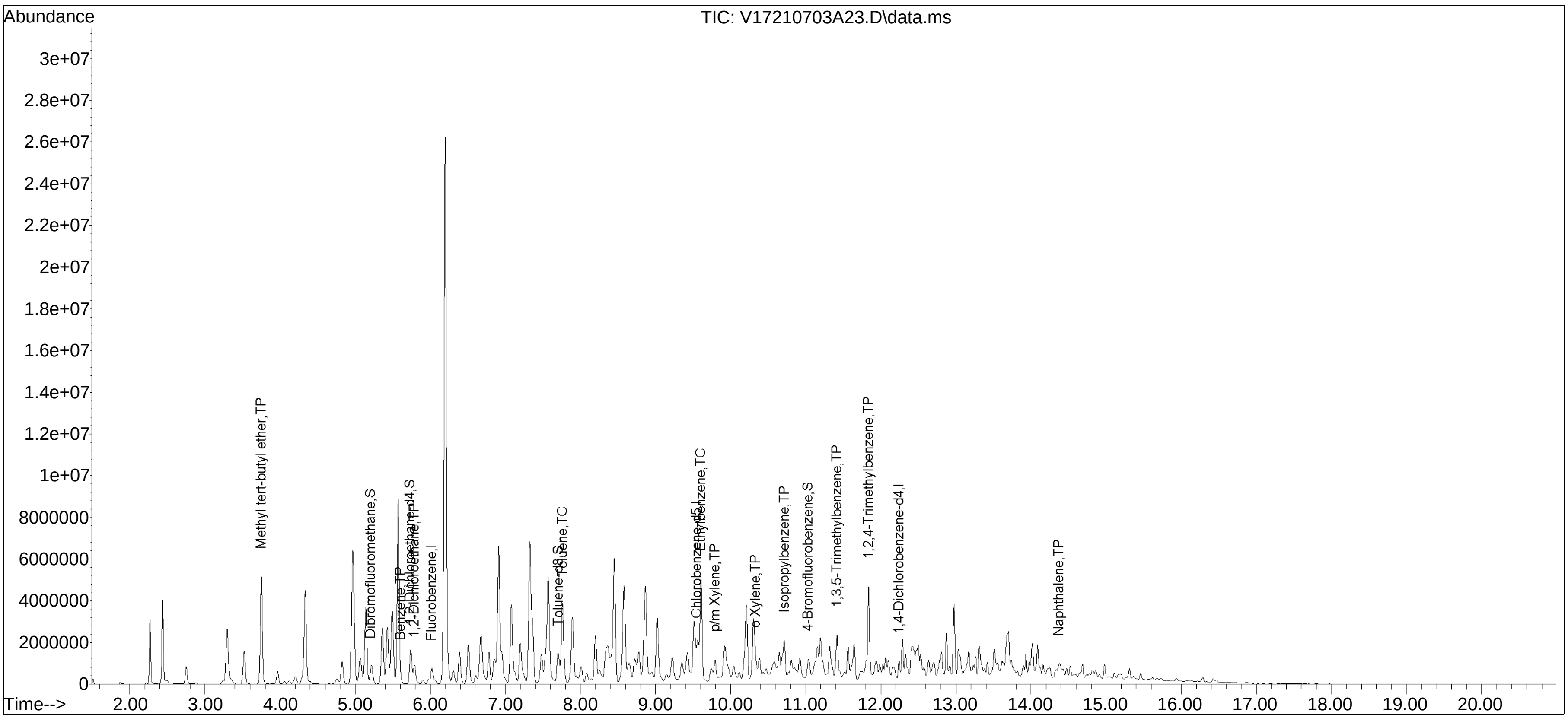


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A23.D
Acq On    : 03 Jul 2021  09:16 pm
Operator  : VOA117:AJK
Sample    : L2134780-10,31H,6.05,5,0.100,,A
Misc      : WG1520503,ICAL18099
ALS Vial  : 23   Sample Multiplier: 1

Quant Time: Jul 04 14:30:43 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•
```



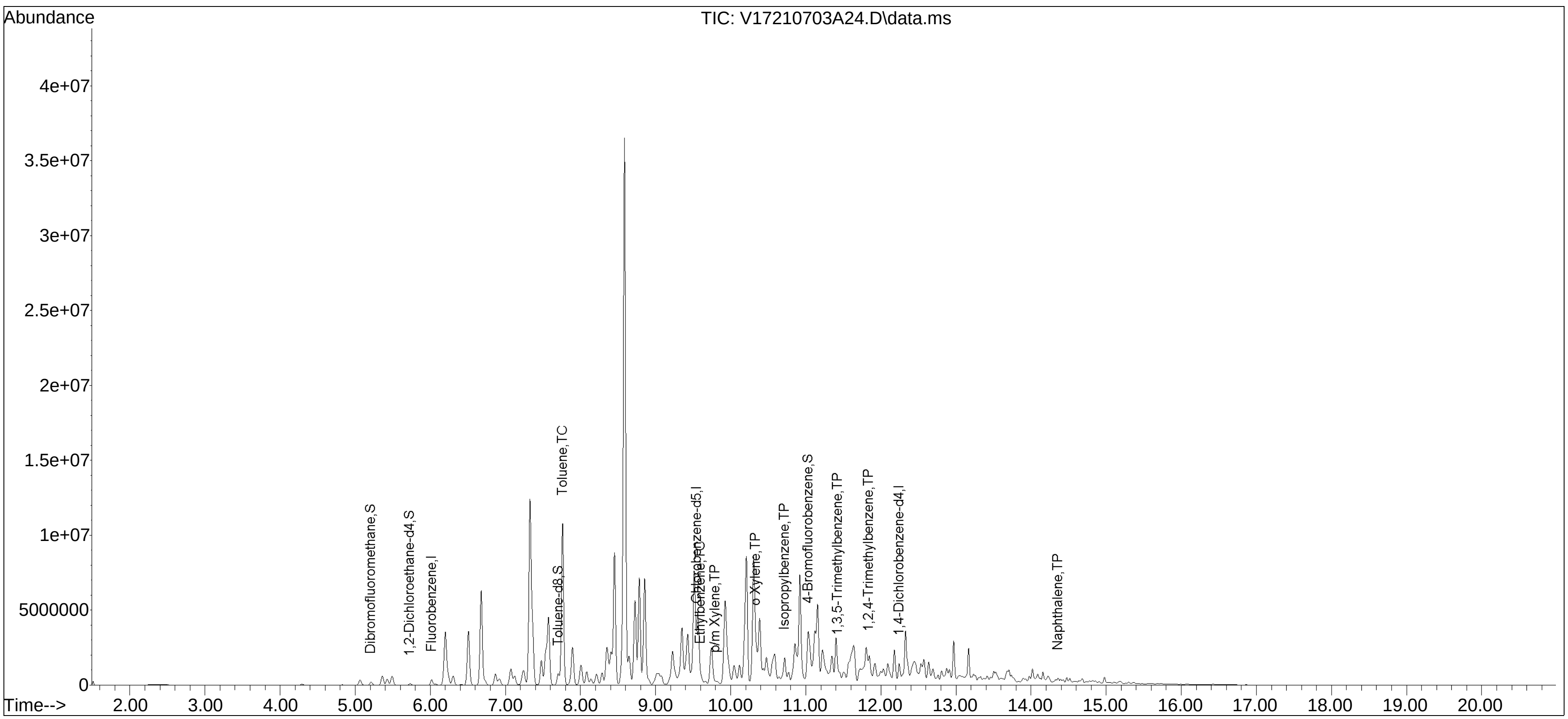
Serial_No:07082113:45

Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210703A\
Data File : V17210703A24.D
Acq On    : 03 Jul 2021  09:42 pm
Operator  : VOA117:AJK
Sample    : L2134780-11,31H,5.90,5,0.100,,A
Misc      : WG1520503,ICAL18099
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Jul 04 14:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210703A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list03A\V17210703A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2137252
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2137252-01	PB85-01-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:40	07/12/21
L2137252-02	PB85-02-SS01	SOIL	PHILADELPHIA, PA	07/12/21 08:50	07/12/21
L2137252-03	PB85-06-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:10	07/12/21
L2137252-04	PB85-07-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:20	07/12/21
L2137252-05	PB85-08-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:40	07/12/21
L2137252-06	PB85-03-SS01	SOIL	PHILADELPHIA, PA	07/12/21 09:55	07/12/21
L2137252-07	PB85-04-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:10	07/12/21
L2137252-08	PB85-05-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:20	07/12/21
L2137252-09	PB85-10-SS01	SOIL	PHILADELPHIA, PA	07/12/21 10:40	07/12/21
L2137252-10	PB85-16-SS01	SOIL	PHILADELPHIA, PA	07/12/21 11:00	07/12/21
L2137252-11	PB85-13-SS01	SOIL	PHILADELPHIA, PA	07/12/21 12:30	07/12/21
L2137252-12	PB85-14-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:00	07/12/21
L2137252-13	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/12/21 13:50	07/12/21
L2137252-14	FB-210712	WATER	PHILADELPHIA, PA	07/12/21 14:30	07/12/21
L2137252-15	TB	WATER	PHILADELPHIA, PA	07/12/21 00:00	07/12/21

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2137252-13: The container for Total Solids was received empty; the analysis could not be performed. At the client's request the sample was canceled.

L2137252-14 and -15: Sample containers 504/8011 analysis were received for the samples, but were not listed on the chain of custody. The analysis was not performed.

Volatile Organics

L2137252-03 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (64%) and dibromofluoromethane (66%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2137252-03, -05, -06, and -07: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2137252-04, -09, and -10: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2137252-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (211%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2137252-05 (Low): The surrogate recoveries were outside the acceptance criteria for toluene-d8 (57%) and 4-bromofluorobenzene (576%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol. The results of both analyses are

Case Narrative (continued)

reported.

L2137252-06 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (318%) and the surrogate recoveries for toluene-d8 (48%) and 4-bromofluorobenzene (1880%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported.

L2137252-07 (Low): The internal standard (IS) response(s) for chlorobenzene-d5 (282%) and the surrogate recovery for toluene-d8 (40%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2137252-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (427%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2137252-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (267%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2137252-11 (Low): The internal standard (IS) response(s) for fluorobenzene (201%), chlorobenzene-d5 (291%) and the surrogate recovery for 4-bromofluorobenzene (394%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2137252-12 (Low): The internal standard (IS) response(s) for fluorobenzene (341%), chlorobenzene-d5

Case Narrative (continued)

(471%) and the surrogate recovery for 1,2-dichloroethane-d4 (184%), toluene-d8 (844%), 4-bromofluorobenzene (1796%) and dibromofluoromethane (135%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.
L2137252-15: The pH of the sample was greater than two; however, the sample was analyzed within the method required holding time.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 07/19/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
Client ID: PB85-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 08:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 09:29
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0031	0.00031	1
Benzene	0.018		mg/kg	0.00077	0.00026	1
Toluene	ND		mg/kg	0.0015	0.00084	1
Ethylbenzene	0.00061	J	mg/kg	0.0015	0.00022	1
Isopropylbenzene	0.0016		mg/kg	0.0015	0.00017	1
1,3,5-Trimethylbenzene	0.00046	J	mg/kg	0.0031	0.00030	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0031	0.00051	1
Naphthalene	ND		mg/kg	0.0062	0.0010	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-02	Date Collected:	07/12/21 08:50
Client ID:	PB85-02-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:38
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	ND		mg/kg	0.00041	0.00014	1
Toluene	ND		mg/kg	0.00082	0.00044	1
Ethylbenzene	ND		mg/kg	0.00082	0.00012	1
Isopropylbenzene	ND		mg/kg	0.00082	0.00008	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0016	0.00027	1
Naphthalene	ND		mg/kg	0.0033	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03
Client ID: PB85-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 18:04
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
Toluene	2.4	E	mg/kg	0.0011	0.00059	1
Ethylbenzene	0.68	E	mg/kg	0.0011	0.00015	1
Isopropylbenzene	0.067		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.35	E	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.74	E	mg/kg	0.0022	0.00036	1
Naphthalene	0.033		mg/kg	0.0044	0.00071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	**64**	Q	70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-03 D	Date Collected:	07/12/21 09:10
Client ID:	PB85-06-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 08:12
Analyst: MV
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	4
Benzene	3.1		mg/kg	0.15	0.050	4
Toluene	34.		mg/kg	0.30	0.16	4
Ethylbenzene	2.6		mg/kg	0.30	0.042	4
Isopropylbenzene	0.12	J	mg/kg	0.30	0.033	4
1,3,5-Trimethylbenzene	0.32	J	mg/kg	0.60	0.058	4
1,2,4-Trimethylbenzene	1.2		mg/kg	0.60	0.10	4
Naphthalene	ND		mg/kg	1.2	0.19	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-04
Client ID: PB85-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:20
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 20:40
Analyst: JC
Percent Solids: 75%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.014	J	mg/kg	0.035	0.012	1
Toluene	0.080		mg/kg	0.069	0.038	1
Ethylbenzene	ND		mg/kg	0.069	0.0098	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.022	J	mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.086	J	mg/kg	0.14	0.023	1
Naphthalene	0.34		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	**211**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
Client ID: PB85-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 21:06
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.028	J	mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	0.60		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-05	Date Collected:	07/12/21 09:40
Client ID:	PB85-08-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 09:55
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00023	1
Benzene	ND		mg/kg	0.00056	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00061	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.017		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00034	J	mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1
Naphthalene	0.028		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	**57**	Q	70-130
4-Bromofluorobenzene	**576**	Q	70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-06
Client ID: PB85-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:55
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 21:32
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.063	0.034	1
Ethylbenzene	ND		mg/kg	0.063	0.0089	1
Isopropylbenzene	0.59		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	1.6		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-06	Date Collected:	07/12/21 09:55
Client ID:	PB85-03-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 11:39
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.00038	J	mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	0.34		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0023	0.00038	1
Naphthalene	0.012		mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	**48**	Q	70-130
4-Bromofluorobenzene	**1880**	Q	70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-07	Date Collected:	07/12/21 10:10
Client ID:	PB85-04-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 21:58
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.062	0.034	1
Ethylbenzene	ND		mg/kg	0.062	0.0087	1
Isopropylbenzene	0.073		mg/kg	0.062	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.021	1
Naphthalene	0.30		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-07	Date Collected:	07/12/21 10:10
Client ID:	PB85-04-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 10:21
Analyst: MV
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	ND		mg/kg	0.00095	0.00051	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
Isopropylbenzene	0.13		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.0013	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0095		mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	**40**	Q	70-130
4-Bromofluorobenzene	**702**	Q	70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-08
Client ID: PB85-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:20
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 10:47
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
Toluene	ND		mg/kg	0.00091	0.00049	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
Isopropylbenzene	0.00024	J	mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1
Naphthalene	0.0024	J	mg/kg	0.0036	0.00059	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
Client ID: PB85-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 22:24
Analyst: JC
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.038	J	mg/kg	0.040	0.013	1
Toluene	0.059	J	mg/kg	0.080	0.043	1
Ethylbenzene	ND		mg/kg	0.080	0.011	1
Isopropylbenzene	1.8		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.11	J	mg/kg	0.16	0.027	1
Naphthalene	0.33		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	74		70-130
4-Bromofluorobenzene	**427**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-10
Client ID: PB85-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 11:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 23:16
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	ND		mg/kg	0.066	0.036	1
Ethylbenzene	ND		mg/kg	0.066	0.0094	1
Isopropylbenzene	1.5		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1
Naphthalene	0.38		mg/kg	0.26	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	**267**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252

Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-11	Date Collected:	07/12/21 12:30
Client ID:	PB85-13-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/13/21 23:42
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.019	J	mg/kg	0.17	0.017	1
Benzene	0.10		mg/kg	0.043	0.014	1
Toluene	ND		mg/kg	0.086	0.047	1
Ethylbenzene	0.14		mg/kg	0.086	0.012	1
Isopropylbenzene	0.21		mg/kg	0.086	0.0094	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.17	0.017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.17	0.029	1
Naphthalene	0.21	J	mg/kg	0.34	0.056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-11	Date Collected:	07/12/21 12:30
Client ID:	PB85-13-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/14/21 11:13
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0059		mg/kg	0.0024	0.00024	1
Benzene	0.060		mg/kg	0.00059	0.00020	1
Toluene	0.018		mg/kg	0.0012	0.00064	1
Ethylbenzene	0.12		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.36	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0096		mg/kg	0.0024	0.00039	1
Naphthalene	0.11		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	88		70-130
4-Bromofluorobenzene	**394**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-12	Date Collected:	07/12/21 13:00
Client ID:	PB85-14-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/14/21 00:09
Analyst:	JC
Percent Solids:	85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.014	J	mg/kg	0.10	0.010	1
Benzene	0.074		mg/kg	0.026	0.0087	1
Toluene	ND		mg/kg	0.052	0.028	1
Ethylbenzene	0.15		mg/kg	0.052	0.0074	1
Isopropylbenzene	0.71		mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1
Naphthalene	0.41		mg/kg	0.21	0.034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-12	Date Collected:	07/12/21 13:00
Client ID:	PB85-14-SS01	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/14/21 12:32
Analyst:	KJD
Percent Solids:	85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0044		mg/kg	0.0023	0.00023	1
Benzene	0.062		mg/kg	0.00058	0.00019	1
Toluene	0.018		mg/kg	0.0012	0.00063	1
Ethylbenzene	0.23		mg/kg	0.0012	0.00016	1
Isopropylbenzene	0.84	E	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0056		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.023		mg/kg	0.0023	0.00039	1
Naphthalene	0.024		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**184**	Q	70-130
Toluene-d8	**844**	Q	70-130
4-Bromofluorobenzene	**1800**	Q	70-130
Dibromofluoromethane	**135**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-14
Client ID: FB-210712
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 14:30
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/15/21 12:35
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

SAMPLE RESULTS

Lab ID:	L2137252-15	Date Collected:	07/12/21 00:00
Client ID:	TB	Date Received:	07/12/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	07/16/21 11:09
Analyst:	TMS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:12
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02-03 Batch: WG1523623-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/13/21 17:12
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-07,09-12 Batch: WG1523625-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1524092-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/14/21 06:54
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05-08,11-12 Batch: WG1524093-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/15/21 09:06
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14 Batch: WG1524413-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2137252
Project Number:	200.00135.005.03	**Report Date:**	07/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/16/21 10:43
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1524763-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02-03 Batch: WG1523623-3 WG1523623-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	103		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-07,09-12 Batch: WG1523625-3 WG1523625-4								
Methyl tert butyl ether	92		89		66-130	3		30
Benzene	96		93		70-130	3		30
Toluene	91		88		70-130	3		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	97		95		70-130	2		30
1,3,5-Trimethylbenzene	92		90		70-130	2		30
1,2,4-Trimethylbenzene	92		92		70-130	0		30
Naphthalene	93		91		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	90		93		70-130
Dibromofluoromethane	102		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2137252

Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1524092-3 WG1524092-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05-08,11-12 Batch: WG1524093-3 WG1524093-4								
Methyl tert butyl ether	88		93		66-130	6		30
Benzene	93		90		70-130	3		30
Toluene	90		85		70-130	6		30
Ethylbenzene	93		89		70-130	4		30
Isopropylbenzene	95		91		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	91		88		70-130	3		30
Naphthalene	91		98		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		95		70-130
Toluene-d8	97		94		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14 Batch: WG1524413-3 WG1524413-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	100		100		70-130	0		20
Toluene	99		100		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	96		99		64-130	3		20
1,2,4-Trimethylbenzene	97		99		70-130	2		20
Naphthalene	78		83		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	114		112		70-130
Toluene-d8	106		106		70-130
4-Bromofluorobenzene	108		110		70-130
Dibromofluoromethane	108		108		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2137252
Report Date: 07/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1524763-3 WG1524763-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	94		94		70-130	0		20
Toluene	96		93		70-130	3		20
Ethylbenzene	94		91		70-130	3		20
Isopropylbenzene	93		92		70-130	1		20
1,3,5-Trimethylbenzene	92		90		64-130	2		20
1,2,4-Trimethylbenzene	92		89		70-130	3		20
Naphthalene	83		83		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		108		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	109		114		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-01
Date Collected: 07/12/21 08:40
Client ID: PB85-01-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-02
Date Collected: 07/12/21 08:50
Client ID: PB85-02-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-03
Client ID: PB85-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.9		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-04
Client ID: PB85-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 09:20
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.7		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-05
Client ID: PB85-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 09:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-06
Date Collected: 07/12/21 09:55
Client ID: PB85-03-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.8		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-07
Client ID: PB85-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 10:10
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-08 | Date Collected: 07/12/21 10:20
Client ID: PB85-05-SS01 | Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	07/13/21 08:32	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2137252
Project Number: 200.00135.005.03 | **Report Date:** 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-09
Client ID: PB85-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 10:40
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.8		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-10
Client ID: PB85-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/12/21 11:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-11
Date Collected: 07/12/21 12:30
Client ID: PB85-13-SS01
Date Received: 07/12/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2137252
Project Number: 200.00135.005.03
Report Date: 07/19/21

SAMPLE RESULTS

Lab ID: L2137252-12
Client ID: PB85-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/12/21 13:00
Date Received: 07/12/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	07/13/21 08:53	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-08 QC Batch ID: WG1523177-1 QC Sample: L2137330-04 Client ID: DUP Sample						
Solids, Total	80.6	83.0	%	3		20
General Chemistry - Westborough Lab Associated sample(s): 09-12 QC Batch ID: WG1523195-1 QC Sample: L2137210-01 Client ID: DUP Sample						
Solids, Total	88.1	88.4	%	0		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-01A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-01B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-01D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-02A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-02B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-02D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-03A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-03B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-03D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-04A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-04B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-04D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-05A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-05B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-05D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-06A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-06B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2137252
Report Date: 07/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-06C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-06D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-07A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-07B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-07D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-08A	Vial MeOH preserved	B	NA		3.4	Y	Absent		PA-8260HLW(14)
L2137252-08B	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08C	Vial water preserved	B	NA		3.4	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-08D	Plastic 2oz unpreserved for TS	B	NA		3.4	Y	Absent		TS(7)
L2137252-09A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-09B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-09D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-10A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2137252-10B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260HLW(14)
L2137252-10D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-11A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-11B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-11D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-12A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2137252-12B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	PA-8260H(14),PA-8260HLW(14)
L2137252-12D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2137252-13A	Vial MeOH preserved	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2137252-13B	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2137252-13C	Vial water preserved	A	NA		3.1	Y	Absent	13-JUL-21 08:09	HOLD-8260HLW(14)
L2137252-13D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		ARCHIVE()
L2137252-14A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14C	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2137252-14D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-14E	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14)
L2137252-15A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(7)
L2137252-15C	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)
L2137252-15D	Vial Na2S2O3 preserved	A	NA		3.1	Y	Absent		HOLD-504/8011(14),PA-8260(7)

Container Comments

L2137252-13D	Container received empty

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2137252
Project Number: 200.00135.005.03 **Report Date:** 07/19/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 7/13/21

ALPHA Job #: L2137252

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
37252-01	PB85-01-SS01	7/12	0840	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
02	PB85-02-SS01		0850		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
03	PB85-06-SS01		0910		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
04	PB85-07-SS01		0920		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
05	PB85-08-SS01		0940		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
06	PB85-03-SS01		0955		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
07	PB85-04-SS01		1010		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
08	PB85-05-SS01		1020		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
09	PB85-10-SS01		1040		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
10	PB85-16-SS01		1100		TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/12/21 15:43	[signature]	7/12/21 1600
[signature]	7/12/21 2030	[signature] AAL	7/12/21 22:00
[signature] AAL	7/13/21 02:30	Mohammad	7/13/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 7/13/21

ALPHA Job #: L2137252

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
37252-11	PB85-13-SS01	7/12	1230	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
12	PB85-14-SS01	↓	1300	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
13	DB85-12-SS01	↓	1350	S	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
14	FB-210712	↓	1430	W	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
15	TB	↓			↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/12 18:00	[signature] AAL	7/12 18:00
[signature] AAL	7/12 22:03	[signature] AAL	7/12/21 22:00
[signature] AAL	7/13/21 02:30	[signature]	7/13/21 02:30

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

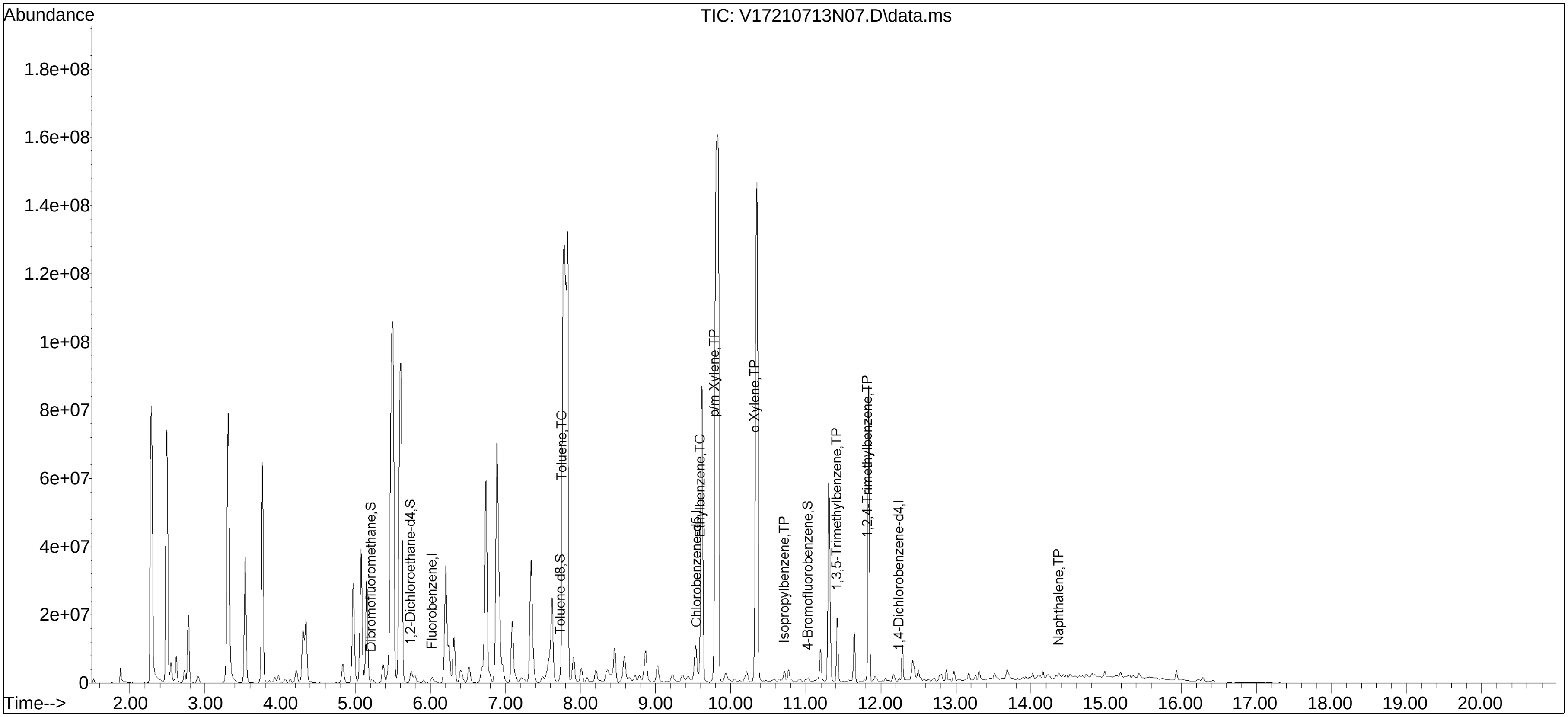
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N07.D
Acq On : 13 Jul 2021 06:04 pm
Operator : VOA117:JC
Sample : L2137252-03,31,6.13,5,,B
Misc : WG1523623,ICAL18099
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 14 07:08:28 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

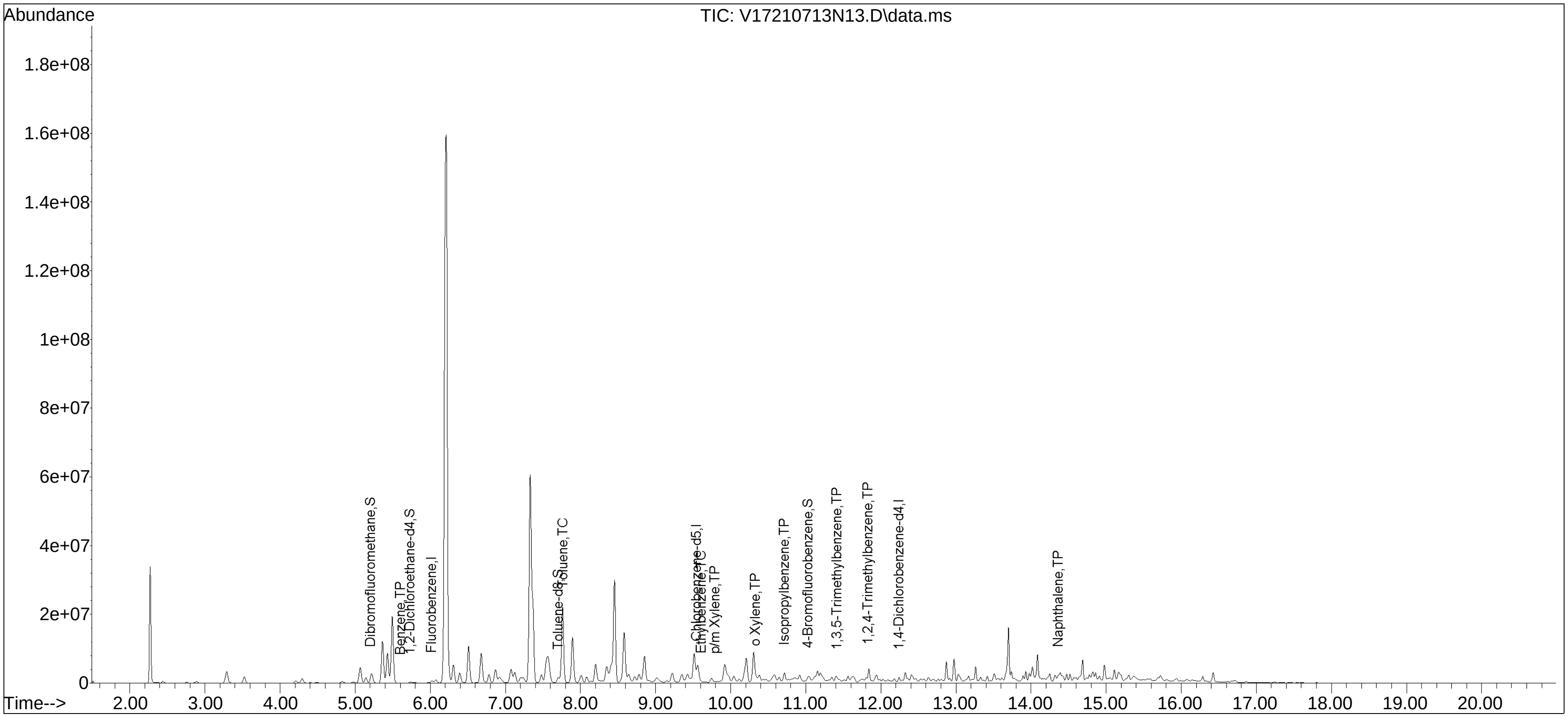


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N13.D
Acq On : 13 Jul 2021 08:40 pm
Operator : VOA117:JC
Sample : L2137252-04,31H,6.37,5,0.100,,A
Misc : WG1523625,ICAL18099
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Jul 14 07:12:48 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

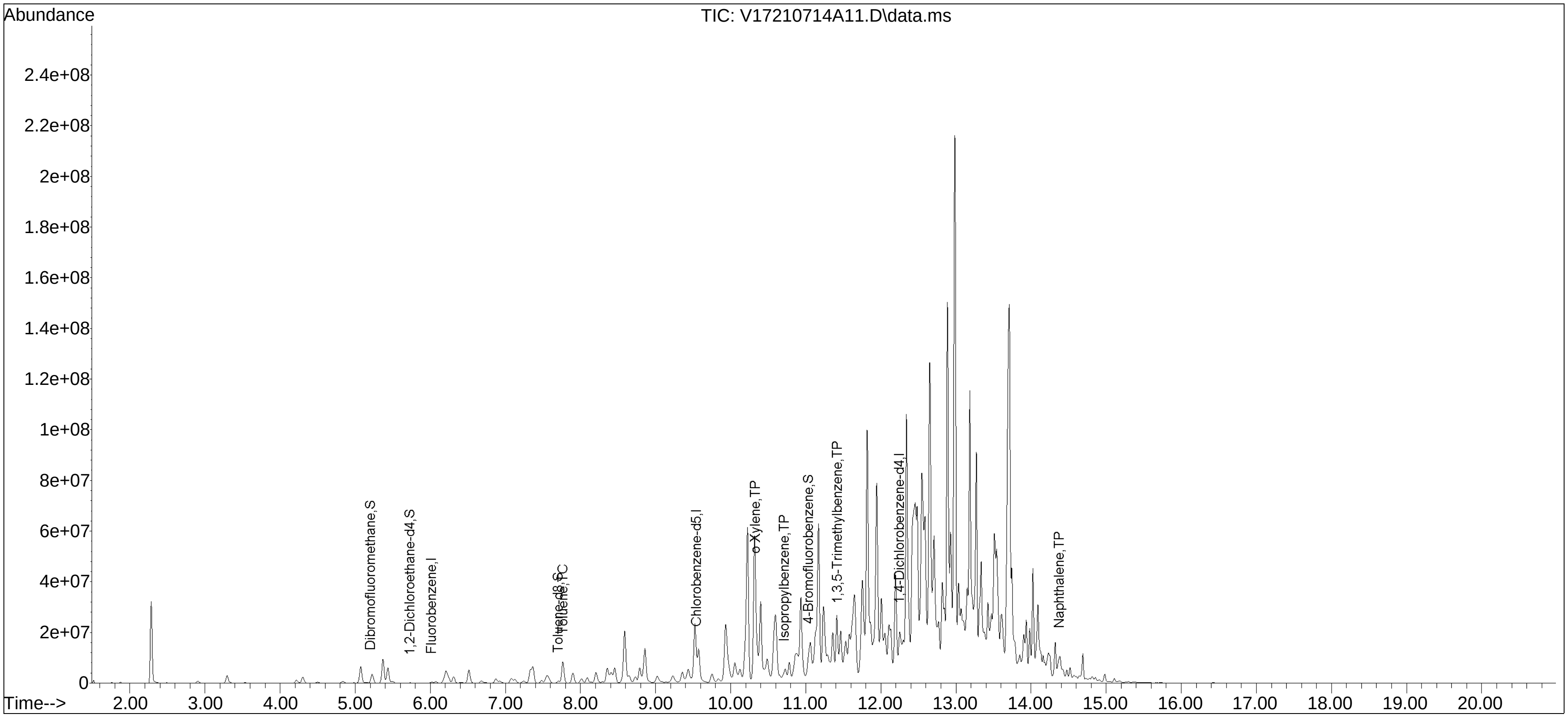


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A11.D
Acq On : 14 Jul 2021 09:55 am
Operator : VOA117:MV
Sample : L2137252-05,31,5.47,5,,B
Misc : WG1524093,ICAL18099
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Jul 15 09:33:00 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•

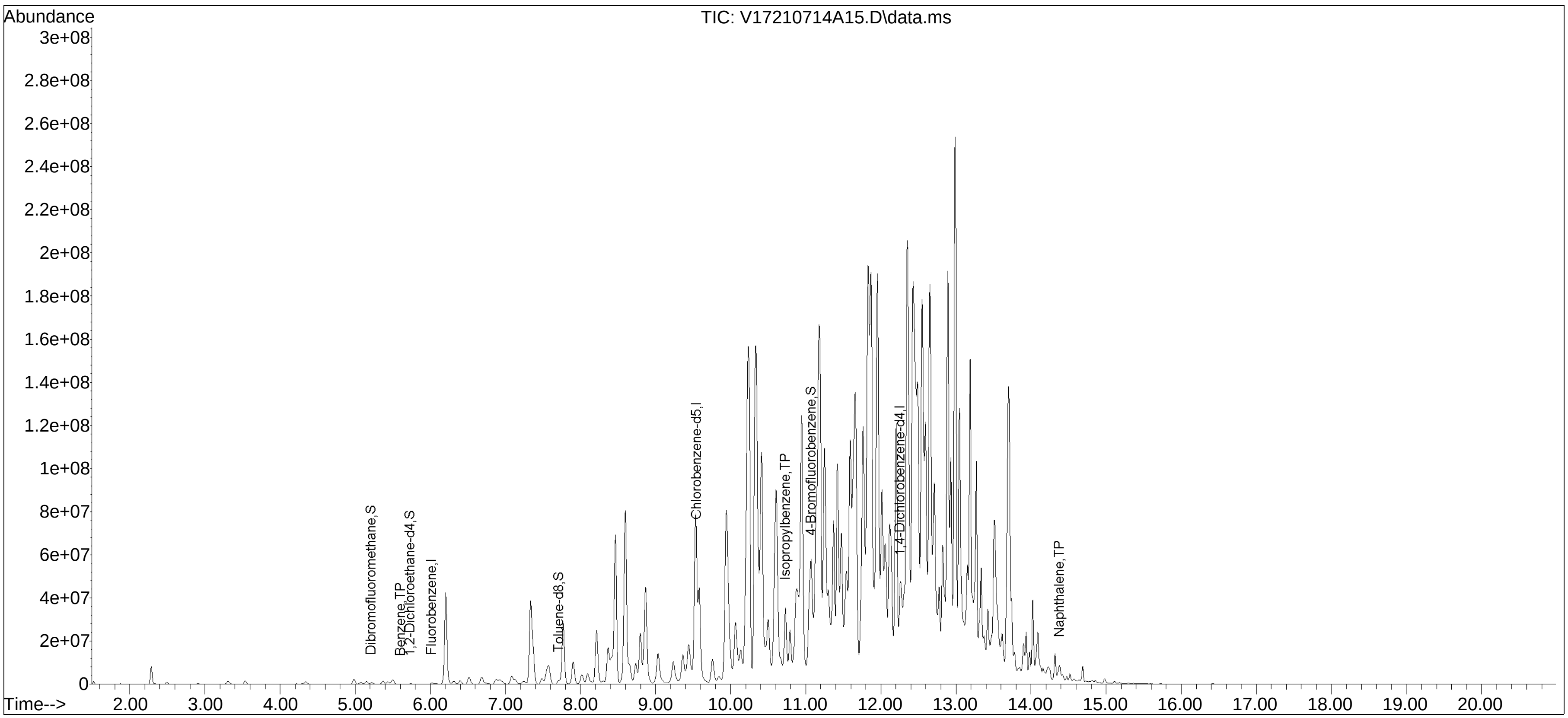


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A15.D
Acq On    : 14 Jul 2021  11:39 am
Operator  : VOA117:KJD
Sample    : L2137252-06,31,5.46,5,,C
Misc      : WG1524093,ICAL18099
ALS Vial  : 15   Sample Multiplier: 1

Quant Time: Jul 14 20:31:23 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```

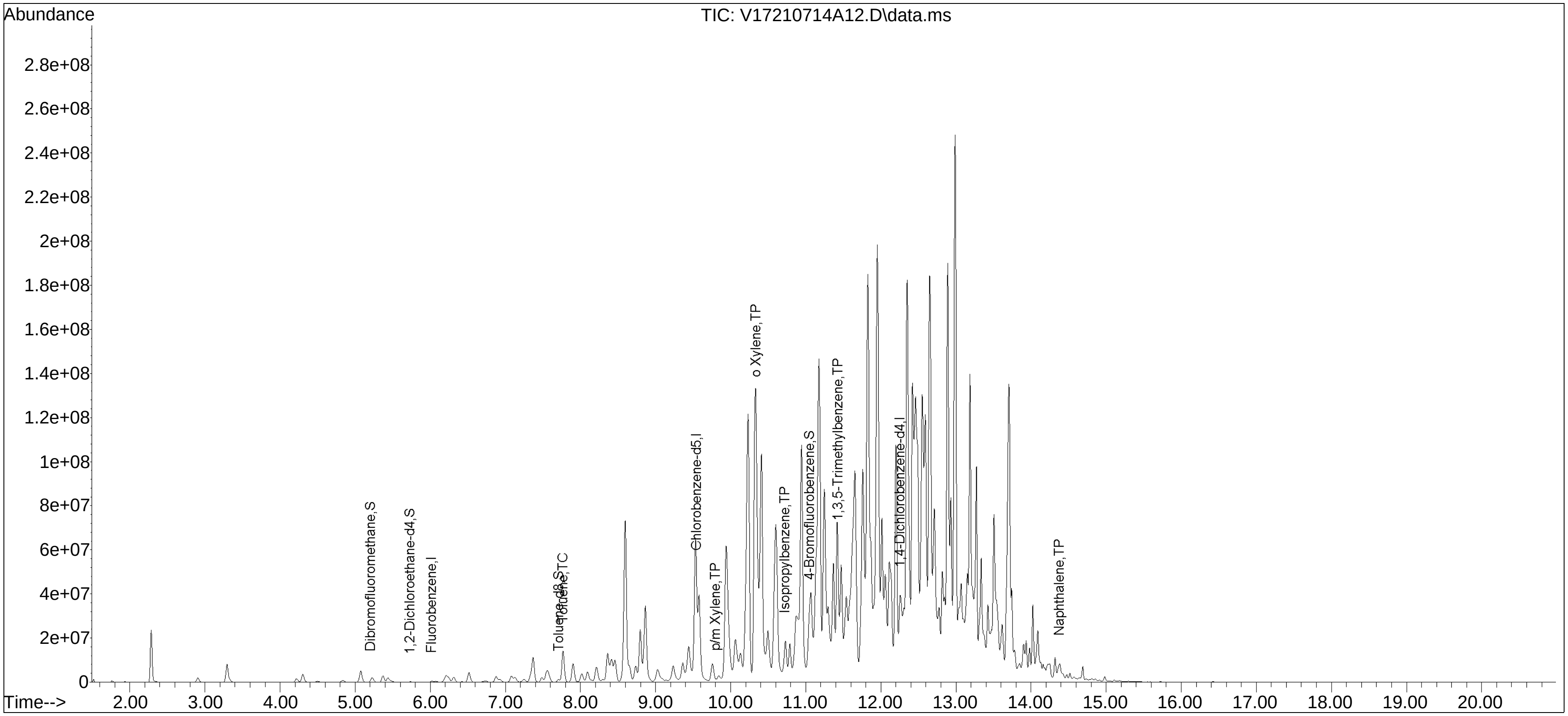


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A12.D
Acq On    : 14 Jul 2021  10:21 am
Operator  : VOA117:MV
Sample    : L2137252-07,31,6.58,5,,C
Misc      : WG1524093,ICAL18099
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Jul 15 10:04:32 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```

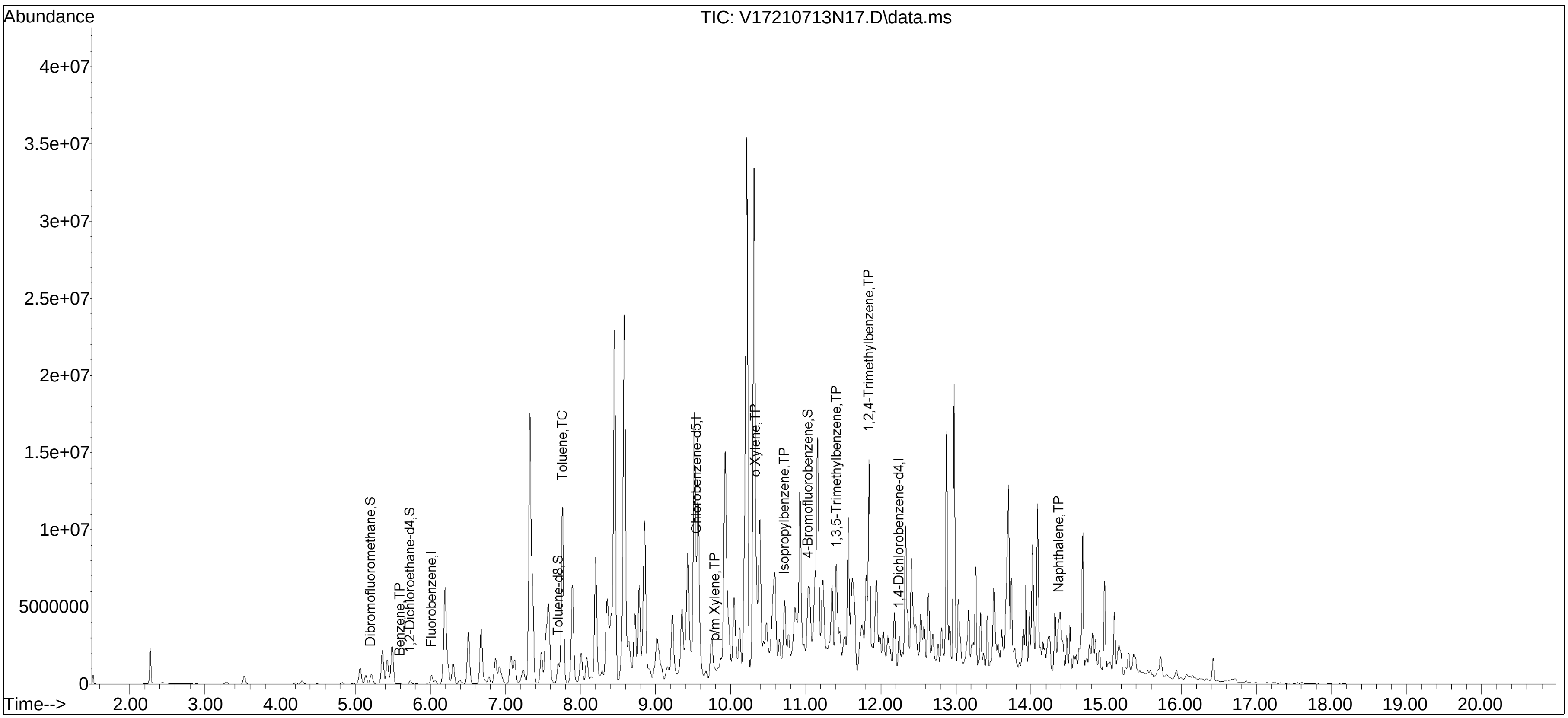


Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N17.D
Acq On    : 13 Jul 2021  10:24 pm
Operator  : VOA117:JC
Sample    : L2137252-09,31H,5.47,5,0.100,,A
Misc      : WG1523625,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jul 14 07:15:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•
```

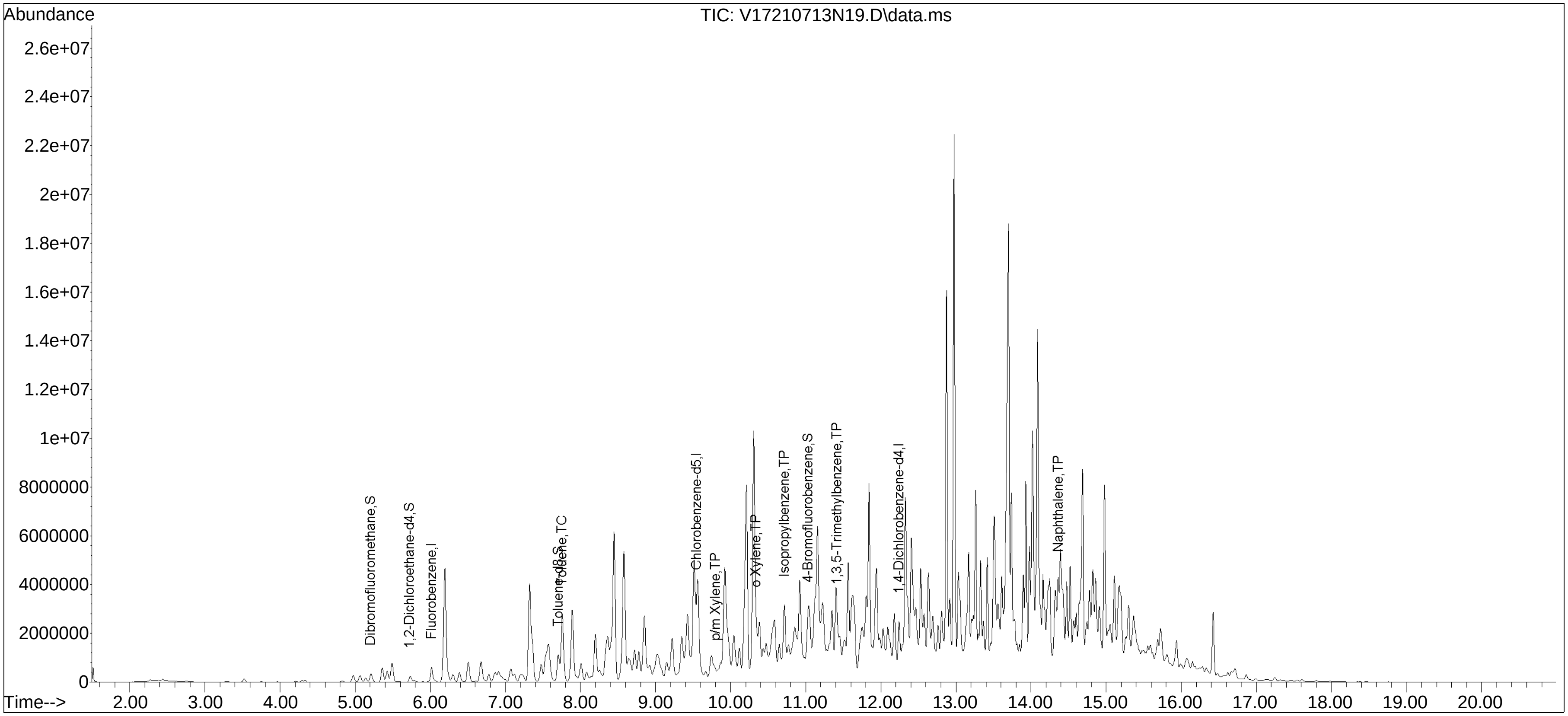


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210713N\
Data File : V17210713N19.D
Acq On   : 13 Jul 2021 11:16 pm
Operator : VOA117:JC
Sample   : L2137252-10,31H,5.36,5,0.100,,A
Misc   : WG1523625,ICAL18099
ALS Vial : 19   Sample Multiplier: 1

Quant Time: Jul 14 07:16:47 2021
Quant Method : I:\VOLATILES\VOA117\2021\210713N\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list13N\V17210713N01.D•

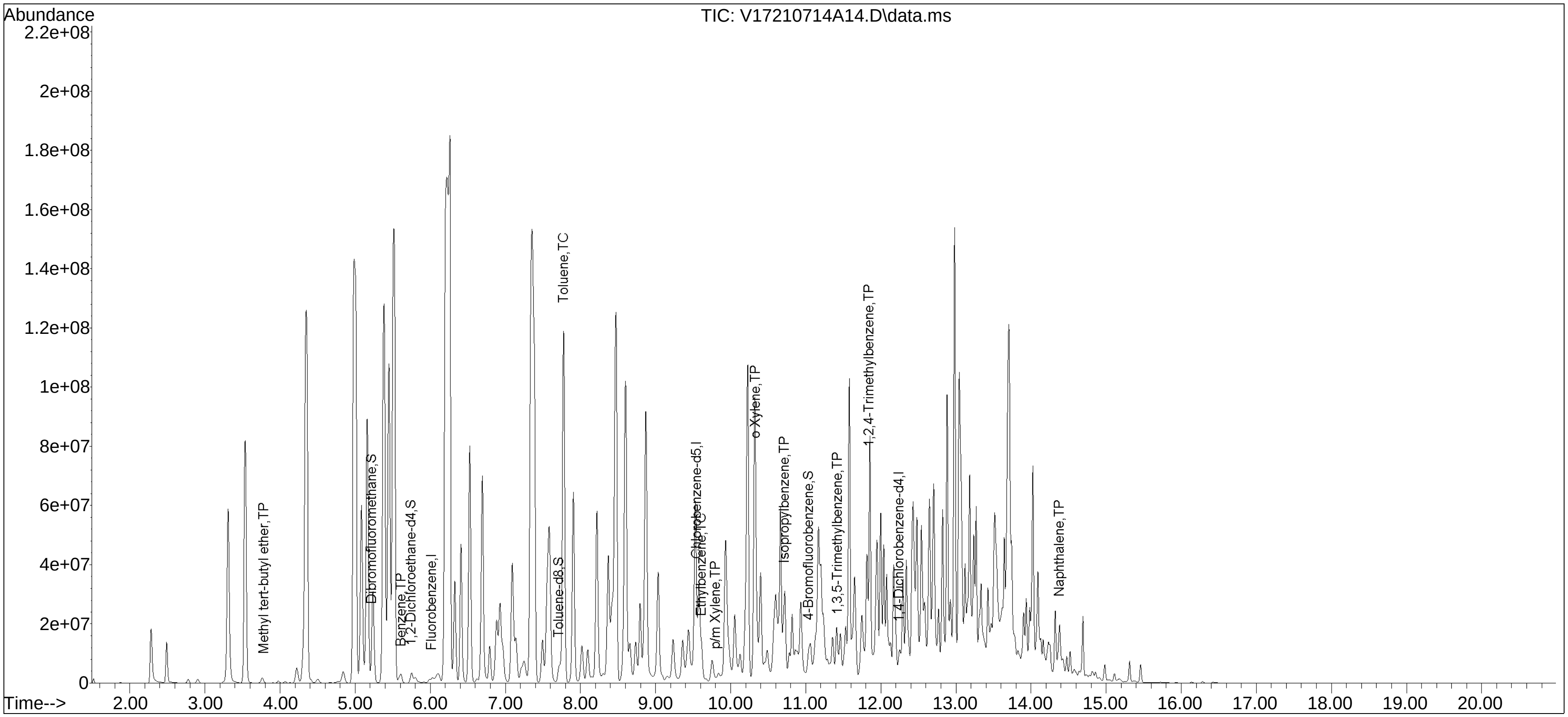


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A14.D
Acq On    : 14 Jul 2021  11:13 am
Operator  : VOA117:KJD
Sample    : L2137252-11,31,5.30,5,,B
Misc      : WG1524093,ICAL18099
ALS Vial  : 14   Sample Multiplier: 1

Quant Time: Jul 14 20:29:38 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```

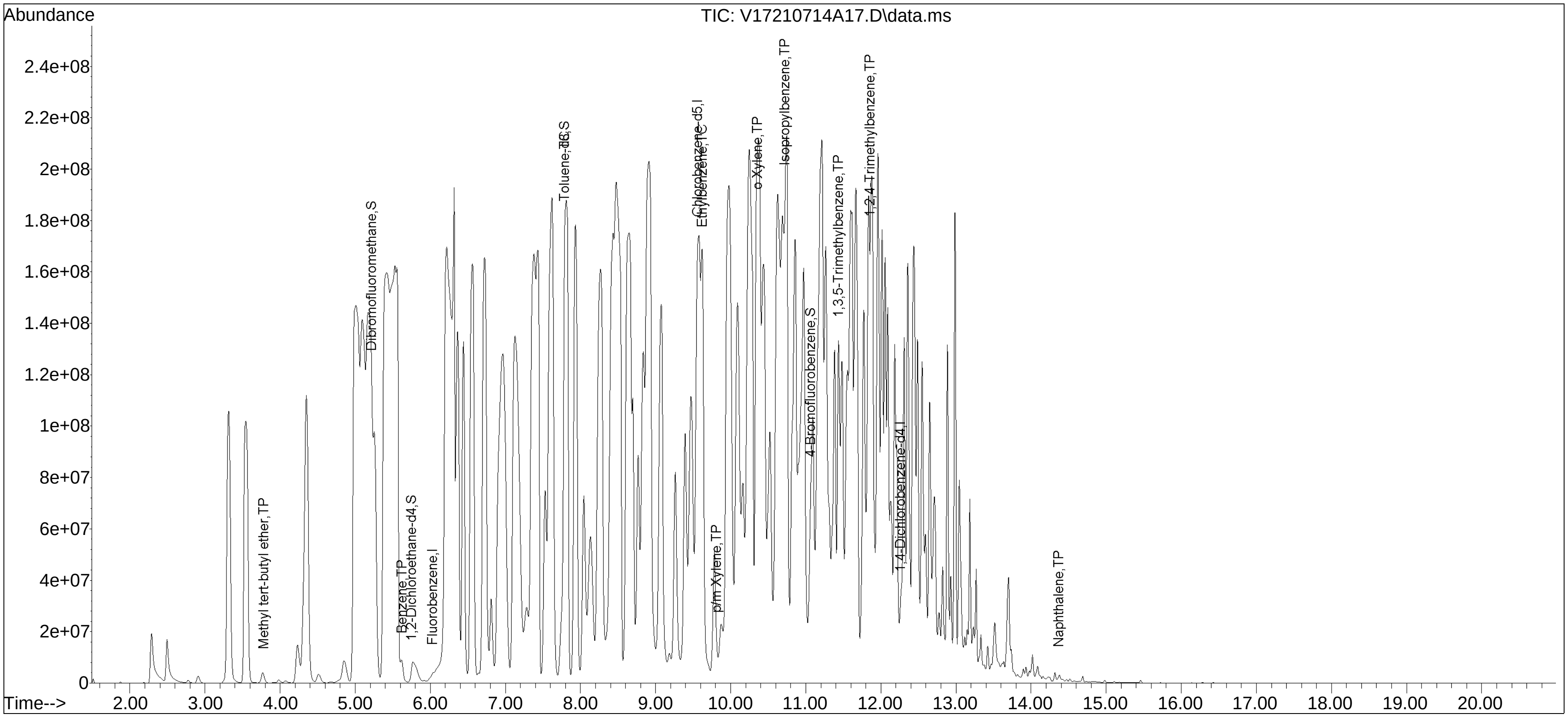


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2021\210714A\
Data File : V17210714A17.D
Acq On    : 14 Jul 2021  12:32 pm
Operator  : VOA117:KJD
Sample    : L2137252-12,31,5.07,5,,B
Misc      : WG1524093,ICAL18099
ALS Vial  : 17   Sample Multiplier: 1

Quant Time: Jul 14 20:41:17 2021
Quant Method : I:\VOLATILES\VOA117\2021\210714A\V117_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list14A\V17210714A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2138177
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/10/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-01	PB121-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:35	07/15/21
L2138177-02	PB121-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:45	07/15/21
L2138177-03	PB121-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 08:55	07/15/21
L2138177-04	PB121-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:05	07/15/21
L2138177-05	PB121-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:10	07/15/21
L2138177-06	PB121-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:20	07/15/21
L2138177-07	PB121-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:35	07/15/21
L2138177-08	PB121-14-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:45	07/15/21
L2138177-09	PB121-15-SS01	SOIL	PHILADELPHIA, PA	07/15/21 09:55	07/15/21
L2138177-10	PB121-16-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:10	07/15/21
L2138177-11	PB39-01-SS01	SOIL	PHILADELPHIA, PA	07/15/21 10:55	07/15/21
L2138177-12	PB39-02-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:05	07/15/21
L2138177-13	PB39-03-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:20	07/15/21
L2138177-14	PB39-04-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:30	07/15/21
L2138177-15	PB39-05-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:35	07/15/21
L2138177-16	PB39-06-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:45	07/15/21
L2138177-17	PB39-07-SS01	SOIL	PHILADELPHIA, PA	07/15/21 11:55	07/15/21
L2138177-18	PB85-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 12:05	07/15/21
L2138177-19	PB39-08-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:15	07/15/21
L2138177-20	PB39-09-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:25	07/15/21
L2138177-21	PB39-10-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:35	07/15/21
L2138177-22	PB39-11-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:40	07/15/21
L2138177-23	PB39-12-SS01	SOIL	PHILADELPHIA, PA	07/15/21 13:45	07/15/21
L2138177-24	PB39-13-SS01	SOIL	PHILADELPHIA, PA	07/15/21 14:00	07/15/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138177-25	FB-210715-1	WATER	PHILADELPHIA, PA	07/15/21 12:00	07/15/21
L2138177-26	FB-210715-2	WATER	PHILADELPHIA, PA	07/15/21 14:30	07/15/21
L2138177-27	TB-210715	WATER	PHILADELPHIA, PA	07/15/21 00:00	07/15/21
L2138177-28	DUP-13	SOIL	PHILADELPHIA, PA	07/15/21 00:00	07/15/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

August 10, 2021: This final report includes the results of all requested analyses.

July 22, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

L2138177-27: Headspace was noted in the Trip Blank containers submitted for Volatile Organics. A sample container submitted for Microextractables was utilized for the Volatile Organics analysis.

Volatile Organics

L2138177-07: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (386%) on the Low Level analysis; however, re-analysis was not performed due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.

L2138177-08: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2138177-09, -16, -18, -19, and -20: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

Surrogate recoveries for the following samples are outside the acceptance criteria; however, the samples were

Case Narrative (continued)

not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2138177-09: 4-bromofluorobenzene (139%)

L2138177-15: 4-bromofluorobenzene (135%)

L2138177-16: 4-bromofluorobenzene (156%)

L2138177-18: toluene-d8 (144%) and 4-bromofluorobenzene (544%)

L2138177-19: 4-bromofluorobenzene (140%)

L2138177-20: 4-bromofluorobenzene (195%)

L2138177-28: 4-bromofluorobenzene (140%)

L2138177-10: The internal standard (IS) response for fluorobenzene (48%) and the surrogate recovery for 4-bromofluorobenzene (725%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. A high-level analysis was performed, and those results are also reported.

L2138177-24: The internal standard (IS) response for fluorobenzene (215%) and the surrogate recoveries for dibromofluoromethane (46%) and 4-bromofluorobenzene (152%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 08/10/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Client ID: PB121-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 13:30
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00049		mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.0013		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00042	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Client ID: PB121-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 13:55
Analyst: AJK
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	0.00078		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-03	Date Collected:	07/15/21 08:55
Client ID:	PB121-08-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 14:20
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	6.3		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	ND		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	0.011	J	mg/kg	0.058	0.0082	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.058	0.017	1
Xylenes, Total	ND		mg/kg	0.058	0.017	1
Isopropylbenzene	ND		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
Client ID: PB121-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:36
Analyst: MV
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	7.4		mg/kg	0.028	0.0092	1
1,2-Dichloroethane	ND		mg/kg	0.055	0.014	1
Toluene	1.4		mg/kg	0.055	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.043	J	mg/kg	0.055	0.0078	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.026	J	mg/kg	0.055	0.016	1
Xylenes, Total	0.13	J	mg/kg	0.055	0.016	1
Isopropylbenzene	ND		mg/kg	0.055	0.0060	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.021	J	mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
Client ID: PB121-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:10
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.026		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00094	0.00027	1
Xylenes, Total	ND		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.012		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-06 D2	Date Collected:	07/15/21 09:20
Client ID:	PB121-12-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 08:41
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	320		mg/kg	1.4	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06 D
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:35
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.44	0.045	4
Benzene	260	E	mg/kg	0.11	0.037	4
1,2-Dichloroethane	ND		mg/kg	0.22	0.057	4
Toluene	0.77		mg/kg	0.22	0.12	4
1,2-Dibromoethane	ND		mg/kg	0.11	0.065	4
Ethylbenzene	3.2		mg/kg	0.22	0.031	4
p/m-Xylene	4.5		mg/kg	0.44	0.12	4
o-Xylene	1.2		mg/kg	0.22	0.065	4
Xylenes, Total	5.7		mg/kg	0.22	0.065	4
Isopropylbenzene	1.0		mg/kg	0.22	0.024	4
1,3,5-Trimethylbenzene	0.79		mg/kg	0.44	0.043	4
1,2,4-Trimethylbenzene	1.3		mg/kg	0.44	0.074	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-07	Date Collected:	07/15/21 09:35
Client ID:	PB121-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:01
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.021	J	mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	ND		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	ND		mg/kg	0.057	0.0081	1
p/m-Xylene	ND		mg/kg	0.11	0.032	1
o-Xylene	ND		mg/kg	0.057	0.017	1
Xylenes, Total	ND		mg/kg	0.057	0.017	1
Isopropylbenzene	0.46		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-07	Date Collected:	07/15/21 09:35
Client ID:	PB121-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/21/21 12:01
Analyst:	KJD
Percent Solids:	83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.013		mg/kg	0.00043	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00086	0.00022	1
Toluene	ND		mg/kg	0.00086	0.00047	1
1,2-Dibromoethane	ND		mg/kg	0.00043	0.00025	1
Ethylbenzene	0.00048	J	mg/kg	0.00086	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00048	1
o-Xylene	0.00026	J	mg/kg	0.00086	0.00025	1
Xylenes, Total	0.00026	J	mg/kg	0.00086	0.00025	1
Isopropylbenzene	0.11		mg/kg	0.00086	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00017	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**386**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 16:25
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0043		mg/kg	0.0018	0.00019	1
Benzene	1.5	E	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.22		mg/kg	0.00093	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.0031		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.0045		mg/kg	0.0018	0.00052	1
o-Xylene	0.0028		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.0073		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.00067	J	mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00074	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:06
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	3.3		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	0.28		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	ND		mg/kg	0.061	0.018	1
Xylenes, Total	ND		mg/kg	0.061	0.018	1
Isopropylbenzene	ND		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
Client ID: PB121-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:26
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	ND		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	ND		mg/kg	0.056	0.0079	1
p/m-Xylene	ND		mg/kg	0.11	0.031	1
o-Xylene	ND		mg/kg	0.056	0.016	1
Xylenes, Total	ND		mg/kg	0.056	0.016	1
Isopropylbenzene	0.18		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-10	Date Collected:	07/15/21 10:10
Client ID:	PB121-16-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/20/21 17:16
Analyst:	AJK
Percent Solids:	87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.010	J	mg/kg	0.026	0.0087	1
1,2-Dichloroethane	ND		mg/kg	0.052	0.014	1
Toluene	ND		mg/kg	0.052	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	ND		mg/kg	0.052	0.0074	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.052	0.015	1
Xylenes, Total	ND		mg/kg	0.052	0.015	1
Isopropylbenzene	0.013	J	mg/kg	0.052	0.0057	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 10:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:31
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	0.00020	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	0.057		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	86		70-130
4-Bromofluorobenzene	**725**	Q	70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
Client ID: PB39-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 10:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 17:41
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	0.0012		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	ND		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
p/m-Xylene	ND		mg/kg	0.0028	0.00077	1
o-Xylene	ND		mg/kg	0.0014	0.00040	1
Xylenes, Total	ND		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.00022	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00046	1
Naphthalene	ND		mg/kg	0.0055	0.00090	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-12
Client ID: PB39-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 18:06
Analyst: AJK
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00018	J	mg/kg	0.00049	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00029	1
Ethylbenzene	0.00039	J	mg/kg	0.00099	0.00014	1
p/m-Xylene	0.0025		mg/kg	0.0020	0.00055	1
o-Xylene	0.00069	J	mg/kg	0.00099	0.00029	1
Xylenes, Total	0.0032	J	mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.011		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	0.00038	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0030		mg/kg	0.0020	0.00033	1
Naphthalene	0.0067		mg/kg	0.0040	0.00064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-13
Client ID: PB39-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 18:31
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00033	1
Benzene	ND		mg/kg	0.00082	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00042	1
Toluene	ND		mg/kg	0.0016	0.00089	1
1,2-Dibromoethane	ND		mg/kg	0.00082	0.00048	1
Ethylbenzene	ND		mg/kg	0.0016	0.00023	1
p/m-Xylene	ND		mg/kg	0.0033	0.00092	1
o-Xylene	ND		mg/kg	0.0016	0.00048	1
Xylenes, Total	ND		mg/kg	0.0016	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0033	0.00055	1
Naphthalene	ND		mg/kg	0.0066	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-14	Date Collected:	07/15/21 11:30
Client ID:	PB39-04-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 07:51
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.11	0.011	1
Benzene	0.65		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.16		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	5.3		mg/kg	0.056	0.0079	1
p/m-Xylene	19.		mg/kg	0.11	0.031	1
o-Xylene	0.38		mg/kg	0.056	0.016	1
Xylenes, Total	19.		mg/kg	0.056	0.016	1
Isopropylbenzene	0.33		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	2.7		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.11	0.019	1
Naphthalene	5.4		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
Client ID: PB39-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 11:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 09:56
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0037		mg/kg	0.0034	0.00034	1
Benzene	0.015		mg/kg	0.00084	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0077		mg/kg	0.0017	0.00092	1
1,2-Dibromoethane	ND		mg/kg	0.00084	0.00049	1
Ethylbenzene	0.0051		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.016		mg/kg	0.0034	0.00094	1
o-Xylene	0.0036		mg/kg	0.0017	0.00049	1
Xylenes, Total	0.020		mg/kg	0.0017	0.00049	1
Isopropylbenzene	0.070		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.0024	J	mg/kg	0.0034	0.00032	1
1,2,4-Trimethylbenzene	0.0041		mg/kg	0.0034	0.00056	1
Naphthalene	0.0011	J	mg/kg	0.0068	0.0011	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**135**	Q	70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-16	Date Collected:	07/15/21 11:45
Client ID:	PB39-06-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 19:46
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	0.92		mg/kg	0.050	0.016	1
1,2-Dichloroethane	ND		mg/kg	0.099	0.025	1
Toluene	0.37		mg/kg	0.099	0.054	1
1,2-Dibromoethane	ND		mg/kg	0.050	0.029	1
Ethylbenzene	0.26		mg/kg	0.099	0.014	1
p/m-Xylene	1.1		mg/kg	0.20	0.056	1
o-Xylene	0.20		mg/kg	0.099	0.029	1
Xylenes, Total	1.3		mg/kg	0.099	0.029	1
Isopropylbenzene	0.72		mg/kg	0.099	0.011	1
1,3,5-Trimethylbenzene	0.10	J	mg/kg	0.20	0.019	1
1,2,4-Trimethylbenzene	0.34		mg/kg	0.20	0.033	1
Naphthalene	0.26	J	mg/kg	0.40	0.064	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-17
Client ID: PB39-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 11:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 20:11
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0047		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-18	Date Collected:	07/15/21 12:05
Client ID:	PB85-11-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 12:51
Analyst: KJD
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.027	0.0090	1
Toluene	0.083		mg/kg	0.054	0.029	1
Ethylbenzene	0.026	J	mg/kg	0.054	0.0076	1
Isopropylbenzene	8.6		mg/kg	0.054	0.0059	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.11	0.018	1
Naphthalene	0.12	J	mg/kg	0.22	0.035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	**144**	Q	70-130
4-Bromofluorobenzene	**544**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-19
Client ID: PB39-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:15
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 13:16
Analyst: KJD
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.015	J	mg/kg	0.12	0.012	1
Benzene	0.72		mg/kg	0.030	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.20		mg/kg	0.060	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	1.2		mg/kg	0.060	0.0085	1
p/m-Xylene	0.43		mg/kg	0.12	0.034	1
o-Xylene	0.12		mg/kg	0.060	0.018	1
Xylenes, Total	0.55		mg/kg	0.060	0.018	1
Isopropylbenzene	16.		mg/kg	0.060	0.0066	1
1,3,5-Trimethylbenzene	1.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.1		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.24	0.039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	75		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20
Client ID: PB39-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:25
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 13:41
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.024	1
Benzene	1.4		mg/kg	0.061	0.020	1
1,2-Dichloroethane	ND		mg/kg	0.12	0.031	1
Toluene	0.68		mg/kg	0.12	0.066	1
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	1
Ethylbenzene	0.33		mg/kg	0.12	0.017	1
p/m-Xylene	1.2		mg/kg	0.24	0.068	1
o-Xylene	0.22		mg/kg	0.12	0.035	1
Xylenes, Total	1.4		mg/kg	0.12	0.035	1
Isopropylbenzene	7.6		mg/kg	0.12	0.013	1
1,3,5-Trimethylbenzene	0.14	J	mg/kg	0.24	0.023	1
1,2,4-Trimethylbenzene	0.50		mg/kg	0.24	0.040	1
Naphthalene	0.97		mg/kg	0.49	0.079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**195**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
Client ID: PB39-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 10:21
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0019	J	mg/kg	0.0025	0.00026	1
Benzene	0.00028	J	mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00037	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00071	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0051	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-22
Client ID: PB39-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:40
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 10:46
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00081	J	mg/kg	0.0029	0.00029	1
Benzene	0.0020		mg/kg	0.00073	0.00024	1
1,2-Dichloroethane	ND		mg/kg	0.0015	0.00038	1
Toluene	ND		mg/kg	0.0015	0.00079	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.0010	J	mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0010	J	mg/kg	0.0029	0.00082	1
o-Xylene	0.0010	J	mg/kg	0.0015	0.00042	1
Xylenes, Total	0.0020	J	mg/kg	0.0015	0.00042	1
Isopropylbenzene	0.0011	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0029	0.00049	1
Naphthalene	0.016		mg/kg	0.0058	0.00095	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-23 D2	Date Collected:	07/15/21 13:45
Client ID:	PB39-12-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 14:31
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	350		mg/kg	3.1	1.7	50
p/m-Xylene	670		mg/kg	6.3	1.8	50
Xylenes, Total	920		mg/kg	1.6	0.46	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23 D
Client ID: PB39-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 15:41
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.37	J	mg/kg	3.1	0.31	25
Benzene	73.		mg/kg	0.78	0.26	25
1,2-Dichloroethane	ND		mg/kg	1.6	0.40	25
Toluene	470	E	mg/kg	1.6	0.85	25
1,2-Dibromoethane	ND		mg/kg	0.78	0.46	25
Ethylbenzene	180		mg/kg	1.6	0.22	25
p/m-Xylene	1000	E	mg/kg	3.1	0.88	25
o-Xylene	250		mg/kg	1.6	0.46	25
Isopropylbenzene	11.		mg/kg	1.6	0.17	25
1,3,5-Trimethylbenzene	98.		mg/kg	3.1	0.30	25
1,2,4-Trimethylbenzene	390		mg/kg	3.1	0.52	25
Naphthalene	40.		mg/kg	6.3	1.0	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
Client ID: PB39-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 14:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/20/21 16:07
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0035		mg/kg	0.0023	0.00023	1
Benzene	0.069		mg/kg	0.00057	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00030	1
Toluene	0.034		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00034	1
Ethylbenzene	0.026		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.067		mg/kg	0.0023	0.00064	1
o-Xylene	0.012		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.079		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.55	E	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0073		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.020		mg/kg	0.0023	0.00038	1
Naphthalene	0.041		mg/kg	0.0046	0.00075	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	**152**	Q	70-130
Dibromofluoromethane	**46**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-24	Date Collected:	07/15/21 14:00
Client ID:	PB39-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 14:06
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.16		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.063	0.016	1
Toluene	0.046	J	mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.018	1
Ethylbenzene	0.12		mg/kg	0.063	0.0089	1
p/m-Xylene	0.14		mg/kg	0.13	0.035	1
o-Xylene	0.030	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.17	J	mg/kg	0.063	0.018	1
Isopropylbenzene	0.60		mg/kg	0.063	0.0069	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.087	J	mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
Client ID: FB-210715-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/19/21 13:39
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-25
Client ID: FB-210715-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 18:13
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
Client ID: FB-210715-2
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/19/21 13:45
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-26
Client ID: FB-210715-2
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:30
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 18:40
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-27
Client ID: TB-210715
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/19/21 13:52
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-27	Date Collected:	07/15/21 00:00
Client ID:	TB-210715	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/18/21 19:06
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
Client ID: DUP-13
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 11:11
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	ND		mg/kg	0.00042	0.00014	1
1,2-Dichloroethane	ND		mg/kg	0.00084	0.00022	1
Toluene	ND		mg/kg	0.00084	0.00046	1
1,2-Dibromoethane	ND		mg/kg	0.00042	0.00025	1
Ethylbenzene	ND		mg/kg	0.00084	0.00012	1
p/m-Xylene	ND		mg/kg	0.0017	0.00047	1
o-Xylene	ND		mg/kg	0.00084	0.00024	1
Xylenes, Total	ND		mg/kg	0.00084	0.00024	1
Isopropylbenzene	0.0056		mg/kg	0.00084	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/19/21 11:35
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/19/21 09:50

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 25-27 Batch: WG1525272-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/18/21 14:49
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25-27 Batch: WG1525570-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,06,10,16 Batch: WG1525959-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:24
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 23 Batch: WG1526039-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/20/21 11:15
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 24 Batch: WG1526040-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 06:11
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10,15,21-22,28 Batch: WG1526316-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 25-27 Batch: WG1525272-2									
1,2-Dibromoethane	105		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25-27 Batch: WG1525570-3 WG1525570-4								
Methyl tert butyl ether	92		93		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		99		70-130	1		20
1,2-Dibromoethane	87		86		70-130	1		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	95		90		64-130	5		20
1,2,4-Trimethylbenzene	96		94		70-130	2		20
Naphthalene	91		91		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	99		97		70-130
Dibromofluoromethane	107		107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,06,10,16 Batch: WG1525959-3 WG1525959-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,06-09,14,18-20,23-24 Batch: WG1525959-8 WG1525959-9								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,05,08,11-13,17 Batch: WG1525962-3 WG1525962-4								
Methyl tert butyl ether	83		85		66-130	2		30
Benzene	86		87		70-130	1		30
1,2-Dichloroethane	75		77		70-130	3		30
Toluene	86		86		70-130	0		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	89		90		70-130	1		30
p/m-Xylene	92		92		70-130	0		30
o-Xylene	92		94		70-130	2		30
Isopropylbenzene	87		86		70-130	1		30
1,3,5-Trimethylbenzene	88		86		70-130	2		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30
Naphthalene	84		85		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 23 Batch: WG1526039-3 WG1526039-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 24 Batch: WG1526040-3 WG1526040-4								
Methyl tert butyl ether	90		91		66-130	1		30
Benzene	95		92		70-130	3		30
1,2-Dichloroethane	98		98		70-130	0		30
Toluene	90		87		70-130	3		30
1,2-Dibromoethane	97		98		70-130	1		30
Ethylbenzene	92		90		70-130	2		30
p/m-Xylene	92		91		70-130	1		30
o-Xylene	91		89		70-130	2		30
Isopropylbenzene	94		90		70-130	4		30
1,3,5-Trimethylbenzene	91		88		70-130	3		30
1,2,4-Trimethylbenzene	89		87		70-130	2		30
Naphthalene	87		90		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		97		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	93		92		70-130
Dibromofluoromethane	100		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10,15,21-22,28 Batch: WG1526316-3 WG1526316-4								
Methyl tert butyl ether	94		98		66-130	4		30
Benzene	100		101		70-130	1		30
1,2-Dichloroethane	84		88		70-130	5		30
Toluene	99		99		70-130	0		30
1,2-Dibromoethane	95		100		70-130	5		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	108		108		70-130	0		30
Isopropylbenzene	101		99		70-130	2		30
1,3,5-Trimethylbenzene	100		100		70-130	0		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	92		97		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	92		90		70-130
Dibromofluoromethane	98		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Client ID: PB121-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 15:51
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	120	32.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	150	23.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	120	23.	1
Pyrene	ND		ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	57		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-02	Date Collected:	07/15/21 08:45
Client ID:	PB121-04-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 12:00		
Analyst:	CMM		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	180	21.	1
Benzo(a)anthracene	ND		ug/kg	100	20.	1
Benzo(a)pyrene	ND		ug/kg	140	43.	1
Benzo(b)fluoranthene	ND		ug/kg	100	30.	1
Chrysene	ND		ug/kg	100	18.	1
Anthracene	ND		ug/kg	100	34.	1
Benzo(ghi)perylene	ND		ug/kg	140	21.	1
Fluorene	ND		ug/kg	180	17.	1
Phenanthrene	ND		ug/kg	100	21.	1
Pyrene	ND		ug/kg	100	17.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-03
Client ID: PB121-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 08:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 12:24
Analyst: CMM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	83	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	43	J	ug/kg	120	33.	1
Chrysene	120		ug/kg	120	21.	1
Anthracene	60	J	ug/kg	120	39.	1
Benzo(ghi)perylene	28	J	ug/kg	160	23.	1
Fluorene	90	J	ug/kg	200	19.	1
Phenanthrene	110	J	ug/kg	120	24.	1
Pyrene	120		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
Client ID: PB121-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 12:49
Analyst: CMM
Percent Solids: 87%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	46		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
Client ID: PB121-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 16:15
Analyst: CMM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	ND		ug/kg	120	20.	1
Anthracene	ND		ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	41		30-120
4-Terphenyl-d14	33		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-06	Date Collected:	07/15/21 09:20
Client ID:	PB121-12-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 16:38		
Analyst:	CMM		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	38	J	ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	22.	1
Benzo(a)pyrene	ND		ug/kg	150	47.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	19.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	60		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	46		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-07	Date Collected:	07/15/21 09:35
Client ID:	PB121-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 13:29		
Analyst:	CMM		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	240		ug/kg	200	20.	1
Phenanthrene	140		ug/kg	120	24.	1
Pyrene	22	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	44		30-120
4-Terphenyl-d14	44		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 13:13
Analyst: CMM
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	24.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	45		30-120
4-Terphenyl-d14	40		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09
Client ID: PB121-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/20/21 13:52
Analyst: CMM
Percent Solids: 82%

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	24.	1
Benzo(a)anthracene	ND		ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	19.	1
Phenanthrene	67	J	ug/kg	120	24.	1
Pyrene	20	J	ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-10	Date Collected:	07/15/21 10:10
Client ID:	PB121-16-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	07/19/21 23:52
Analytical Date:	07/20/21 14:16		
Analyst:	CMM		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	23.	1
Benzo(a)anthracene	ND		ug/kg	110	21.	1
Benzo(a)pyrene	ND		ug/kg	150	46.	1
Benzo(b)fluoranthene	ND		ug/kg	110	32.	1
Chrysene	ND		ug/kg	110	20.	1
Anthracene	ND		ug/kg	110	37.	1
Benzo(ghi)perylene	ND		ug/kg	150	22.	1
Fluorene	ND		ug/kg	190	18.	1
Phenanthrene	ND		ug/kg	110	23.	1
Pyrene	ND		ug/kg	110	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	50		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-25	Date Collected:	07/15/21 12:00
Client ID:	FB-210715-1	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	07/19/21 20:55
Analytical Date:	07/22/21 15:57		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	89		15-120
4-Terphenyl-d14	99		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-26	Date Collected:	07/15/21 14:30
Client ID:	FB-210715-2	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	07/19/21 20:55
Analytical Date:	07/22/21 16:15		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	85		15-120
4-Terphenyl-d14	95		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-28
Client ID: DUP-13
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 00:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 07/21/21 11:43
Analyst: WR
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 07/20/21 13:13

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	190	24.	1
Benzo(a)anthracene	58	J	ug/kg	120	22.	1
Benzo(a)pyrene	ND		ug/kg	160	48.	1
Benzo(b)fluoranthene	ND		ug/kg	120	33.	1
Chrysene	52	J	ug/kg	120	20.	1
Anthracene	48	J	ug/kg	120	38.	1
Benzo(ghi)perylene	ND		ug/kg	160	23.	1
Fluorene	86	J	ug/kg	190	19.	1
Phenanthrene	240		ug/kg	120	24.	1
Pyrene	83	J	ug/kg	120	19.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 07/22/21 17:29
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 07/19/21 20:55

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 25-26 Batch: WG1525554-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	94		21-120
Phenol-d6	76		10-120
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	99		15-120
2,4,6-Tribromophenol	**124**	Q	10-120
4-Terphenyl-d14	108		41-149

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 07/20/21 11:07
Analyst: WR

Extraction Method: EPA 3546
Extraction Date: 07/19/21 23:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,28 Batch: WG1525581-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	40.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	45		25-120
Phenol-d6	49		10-120
Nitrobenzene-d5	49		23-120
2-Fluorobiphenyl	44		30-120
2,4,6-Tribromophenol	45		10-136
4-Terphenyl-d14	46		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177

Project Number: 200.00135.005.03 **Report Date:** 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 25-26 Batch: WG1525554-2 WG1525554-3								
Naphthalene	109		90		40-140	19		40
Fluorene	113		94		40-140	18		40
Phenanthrene	122		103		40-140	17		40
Anthracene	128		106		40-140	19		40
Pyrene	**131**	Q	109		26-127	18		40
Benzo(a)anthracene	131		111		40-140	17		40
Chrysene	125		106		40-140	16		40
Benzo(b)fluoranthene	139		111		40-140	22		40
Benzo(a)pyrene	**142**	Q	119		40-140	18		40
Benzo(ghi)perylene	**147**	Q	125		40-140	16		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	81		65		21-120
Phenol-d6	71		57		10-120
Nitrobenzene-d5	**127**	Q	104		23-120
2-Fluorobiphenyl	**123**	Q	105		15-120
2,4,6-Tribromophenol	118		98		10-120
4-Terphenyl-d14	144		120		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,28 Batch: WG1525581-2 WG1525581-3								
Naphthalene	47		49		40-140	4		50
Benzo(a)anthracene	46		48		40-140	4		50
Benzo(a)pyrene	52		54		40-140	4		50
Benzo(b)fluoranthene	51		53		40-140	4		50
Chrysene	46		50		40-140	8		50
Anthracene	48		51		40-140	6		50
Benzo(ghi)perylene	48		50		40-140	4		50
Fluorene	48		50		40-140	4		50
Phenanthrene	45		48		40-140	6		50
Pyrene	49		52		35-142	6		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	50		52		25-120
Phenol-d6	53		57		10-120
Nitrobenzene-d5	54		57		23-120
2-Fluorobiphenyl	49		51		30-120
2,4,6-Tribromophenol	51		53		10-136
4-Terphenyl-d14	50		52		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-01
Date Collected: 07/15/21 08:35
Client ID: PB121-03-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.4		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-02
Date Collected: 07/15/21 08:45
Client ID: PB121-04-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-03	Date Collected:	07/15/21 08:55
Client ID:	PB121-08-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-04
Client ID: PB121-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.5		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-05
Date Collected: 07/15/21 09:10
Client ID: PB121-10-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-06
Client ID: PB121-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-07	Date Collected:	07/15/21 09:35
Client ID:	PB121-13-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-08
Client ID: PB121-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 09:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-09 | Date Collected: 07/15/21 09:55

Client ID: PB121-15-SS01 | Date Received: 07/15/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-10
Client ID: PB121-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 10:10
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-11
Client ID: PB39-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 10:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-12
Client ID: PB39-02-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 11:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.1		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-13
Client ID: PB39-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:20
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-14
Date Collected: 07/15/21 11:30
Client ID: PB39-04-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-15
Date Collected: 07/15/21 11:35
Client ID: PB39-05-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-16
Client ID: PB39-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 11:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-17
Client ID: PB39-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 11:55
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-18
Client ID: PB85-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 12:05
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177

Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-19	Date Collected:	07/15/21 13:15
Client ID:	PB39-08-SS01	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-20
Client ID: PB39-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 13:25
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	07/16/21 12:08	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138177
Project Number: 200.00135.005.03 | **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-21
Client ID: PB39-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:35
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.3		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138177
Project Number: 200.00135.005.03
Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-22
Date Collected: 07/15/21 13:40
Client ID: PB39-11-SS01
Date Received: 07/15/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138177
Project Number: 200.00135.005.03 **Report Date:** 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-23
Client ID: PB39-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/15/21 13:45
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138177

Report Date: 08/10/21

SAMPLE RESULTS

Lab ID: L2138177-24
Client ID: PB39-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/15/21 14:00
Date Received: 07/15/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.5		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

SAMPLE RESULTS

Lab ID:	L2138177-28	Date Collected:	07/15/21 00:00
Client ID:	DUP-13	Date Received:	07/15/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.7		%	0.100	NA	1	-	07/16/21 12:34	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-20 QC Batch ID: WG1524628-1 QC Sample: L2138177-01 Client ID: PB121-03-SS01						
Solids, Total	84.4	84.3	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 21-24,28 QC Batch ID: WG1524629-1 QC Sample: L2138164-01 Client ID: DUP Sample						
Solids, Total	85.6	86.1	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent
C	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2138177-01A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-01B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-01D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-01E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-01F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-02A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-02B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-02D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-02E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-02F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-03A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-03B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-03D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-03E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-03F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-04A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-04B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-04C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-04D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-04E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-04F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-05A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-05B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-05D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-05E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-05F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-06A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260HLW(14)
L2138177-06B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-06D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-06E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-06F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-07A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-07B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-07D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-07E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-07F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-08A	Vial MeOH preserved	B	NA		2.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-08B	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08C	Vial water preserved	B	NA		2.8	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.8	Y	Absent		SUB-TOTAL LEAD()
L2138177-08E	Plastic 120ml unpreserved	B	NA		2.8	Y	Absent		TS(7)
L2138177-08F	Glass 120ml/4oz unpreserved	B	NA		2.8	Y	Absent		8270TCL-PAH(14)
L2138177-09A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138177
Report Date: 08/10/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-09B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-09D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-09E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-09F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-10A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-10B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-10D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-10E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-10F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)
L2138177-11A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-11B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-11D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-11E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-12A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-12B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-12D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-12E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-13A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-13B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-13D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-13E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-14A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-14B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-14C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-14D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-14E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-15A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-15B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-15D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-15E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-16A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-16B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-16D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-16E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-17A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-17B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-17D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-17E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-18A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-18B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-18E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-19A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)
L2138177-19B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-19D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-19E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-20A	Vial MeOH preserved	C	NA		2.5	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-20B	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20C	Vial water preserved	C	NA		2.5	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-20D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2138177-20E	Plastic 120ml unpreserved	C	NA		2.5	Y	Absent		TS(7)
L2138177-21A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-21B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-21D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-21E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-22A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-22B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-22D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-22E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-23A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-23B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-23D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-23E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-24A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2138177-24B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260H(14),PA-8260HLW(14)
L2138177-24D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-24E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-25A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-25D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138177-25E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-25F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-25G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-25H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-26A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26C	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(14)
L2138177-26D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26E	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14)
L2138177-26F	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-26G	Amber 250ml unpreserved	A	7	7	4.7	Y	Absent		PA-8270SIM-LVI(7)
L2138177-26H	Plastic 250ml HNO3 preserved	A	<2	<2	4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-27A	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27B	Vial HCl preserved	A	NA		4.7	Y	Absent		PA-8260(7)
L2138177-27C	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-27D	Vial Na2S2O3 preserved	A	NA		4.7	Y	Absent		8011(14),PA-8260(7)
L2138177-28A	Vial MeOH preserved	A	NA		4.7	Y	Absent		PA-8260HLW(14)
L2138177-28B	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28C	Vial water preserved	A	NA		4.7	Y	Absent	16-JUL-21 10:20	PA-8260HLW(14)
L2138177-28D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		4.7	Y	Absent		SUB-TOTAL LEAD()
L2138177-28E	Plastic 120ml unpreserved	A	NA		4.7	Y	Absent		TS(7)
L2138177-28F	Glass 120ml/4oz unpreserved	A	NA		4.7	Y	Absent		8270TCL-PAH(14)

*Values in parentheses indicate holding time in days

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138177
Project Number:	200.00135.005.03	**Report Date:**	08/10/21

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 3

ALPHA ANALYTICAL

Date Rec'd in Lab: 7/16/21

ALPHA Job #: L2138177

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38177-01	PB121-03-5501	7/15	0835	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-02	PB121-04-5501		0845			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-03	PB121-08-5501		0855			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB121-09-5501		0905			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB121-10-5501		0910			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB121-12-5501		0920			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB121-13-5501		0935			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB121-14-5501		0945			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB121-15-5501		0955			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB121-16-5501		1010			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/15 1500	[signature]	7/15/21 1500
[signature]	7/15/21 1830	[signature] AAL	7/15 1830
[signature] AAL	7/15 2220	[signature]	7/16 0320
		[signature]	7/16/21 03:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HS) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/16/21

ALPHA Job #: L2138177

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38177-11	PB39-01-SS01	7/15	1055	S	TS	~~☒~~	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB39-02-SS01		1105			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB39-03-SS01		1120			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB39-04-SS01		1130			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	PB39-05-SS01		1135			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	PB39-06-SS01		1145			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-17	PB39-07-SS01		1155			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-18	PB85-11-SS01		1205			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-19	PB39-08-SS01		1315			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-20	PB39-09-SS01		1325			☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 7/15	7/15 600	[signature] AAL	7/15/21 1500
[signature] AAL	7/15/21 1830	[signature]	7/15/21
[signature]	7/16 0300	[signature]	7/16/21 03:15

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

PAGE 3 OF

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Date Rec'd in Lab: 7/16/21

ALPHA Job #: L2138177

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
38177 -21	PB39-10-SS01	7/15	1335	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-22	PB39-11-SS01	7/15	1340	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-23	PB39-12-SS01	7/15	1345	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-24	PB39-13-SS01	7/15	1400	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-25	FB-210715-1	7/15	1200	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-26	FB-210715-2	7/15	1430	W	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-27	TB-210715	7/15		W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
-28	DUP-13	7/15		S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/15 1500	[signature] AAL	7/15/21 1500
AAL	7/15/21	[signature]	7/15 2030
[signature]	7/15 2030	[signature]	7/16 0300
	7/16 0300	[signature]	7/16/21 03:15

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FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

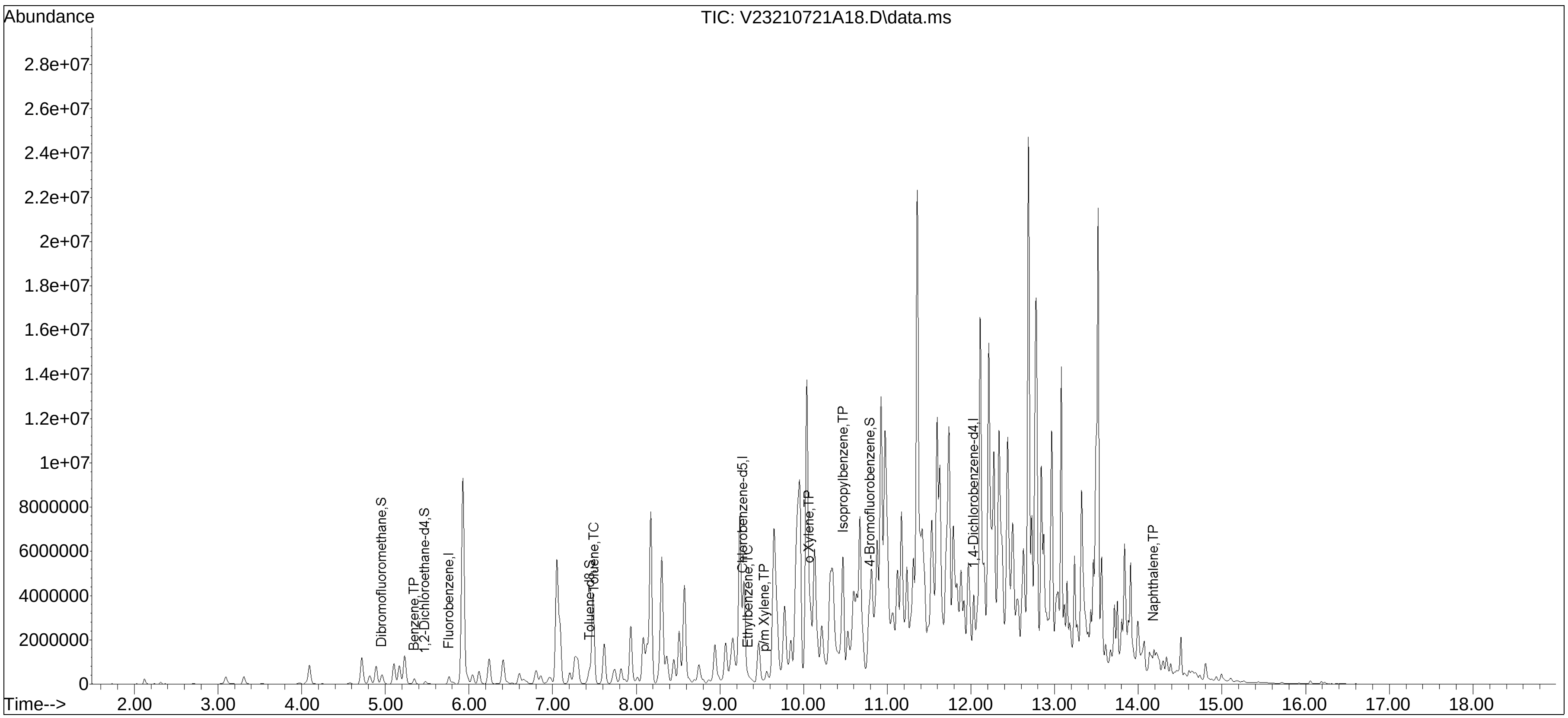
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A18.D
Acq On : 21 Jul 2021 12:01 pm
Operator : VOA123:KJD
Sample : L2138177-07,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 18 Sample Multiplier: 1

Quant Time: Jul 21 18:28:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



Quantitation Report (QT Reviewed)

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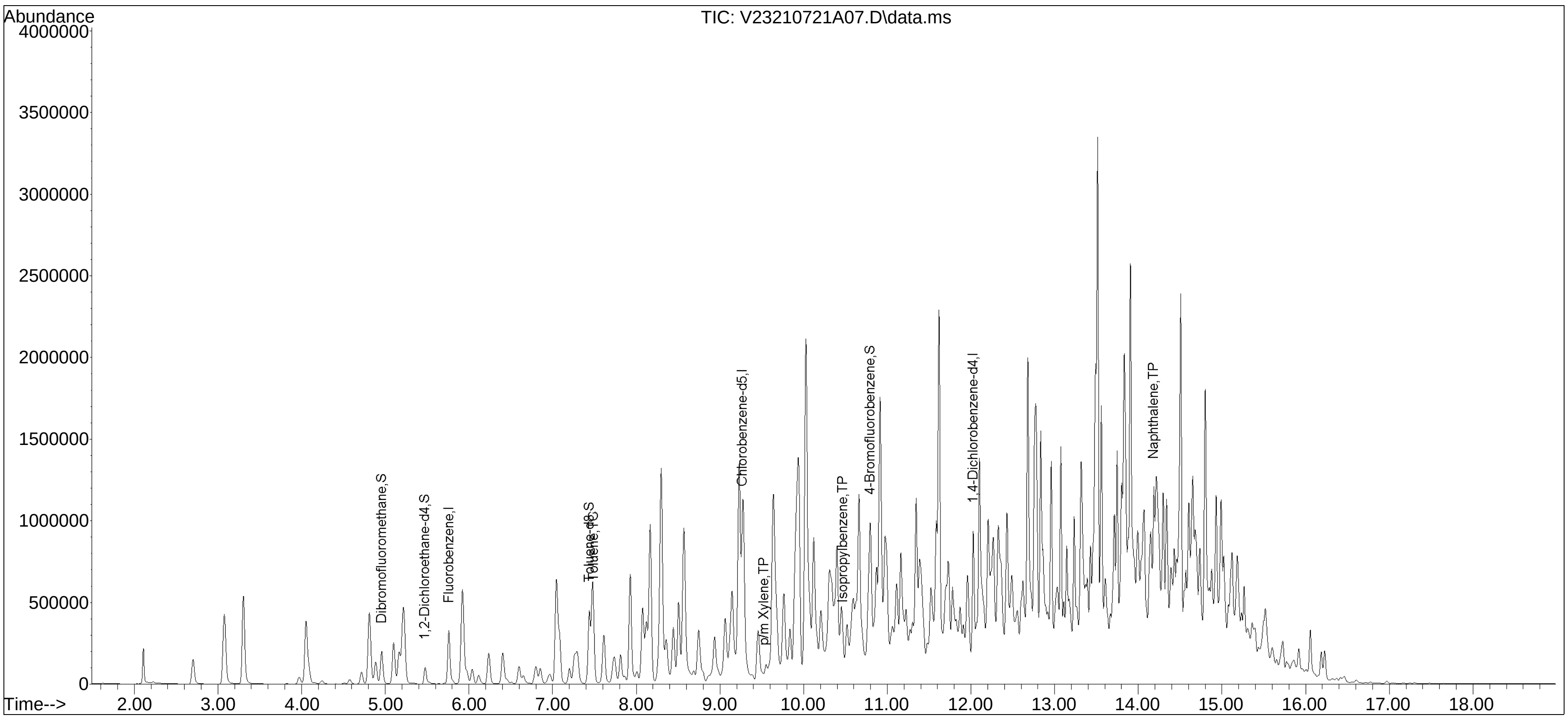
Data File : V23210721A07.D
Acq On : 21 Jul 2021 07:26 am
Operator : VOA123:MV
Sample : L2138177-09,31H,6.72,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Jul 21 08:15:17 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•

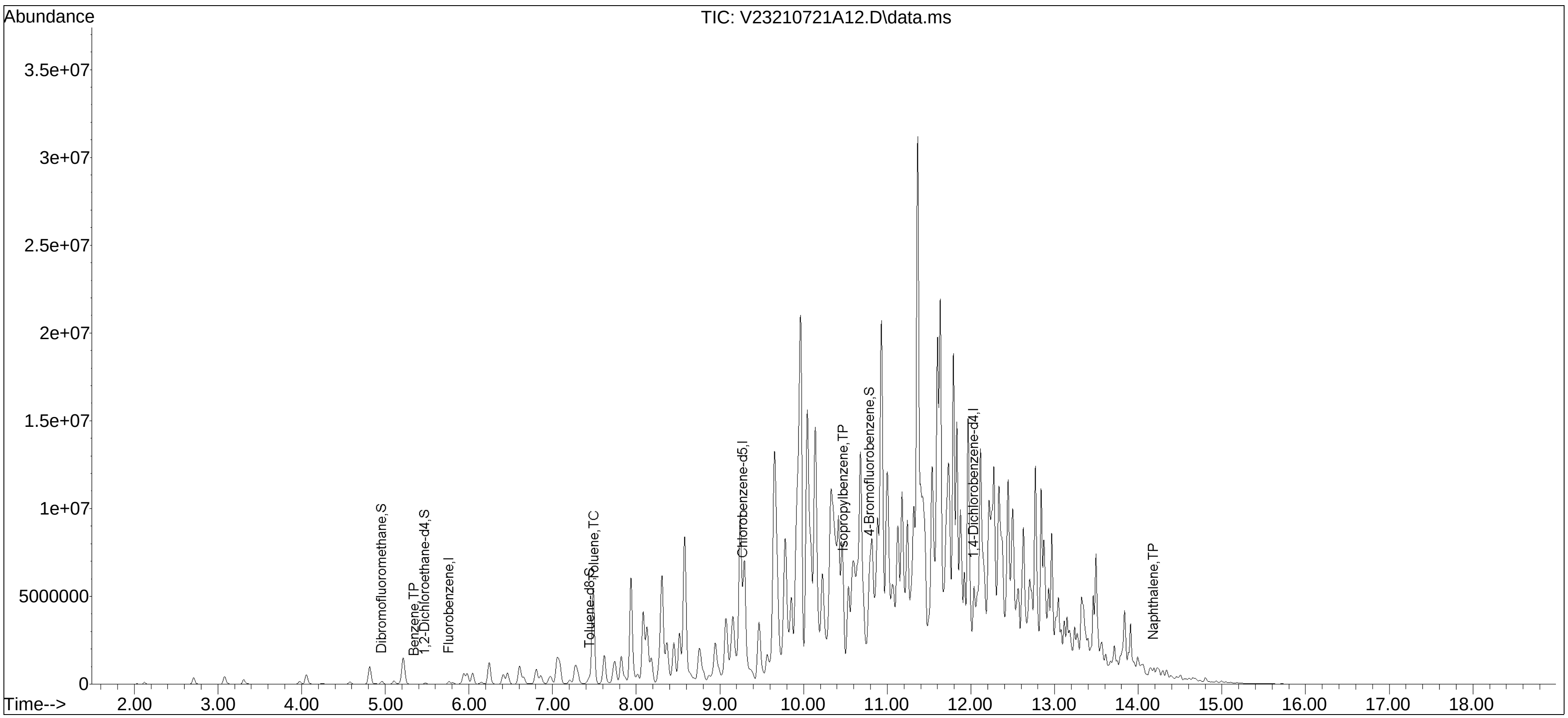


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A12.D
Acq On : 21 Jul 2021 09:31 am
Operator : VOA123:JC
Sample : L2138177-10,31,6.31,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Jul 21 11:31:26 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A13.D
Acq On    : 21 Jul 2021  09:56 am
Operator  : VOA123:JC
Sample    : L2138177-15,31,3.63,5,,B
Misc      : WG1526316,ICAL18108
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Jul 21 11:35:05 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•
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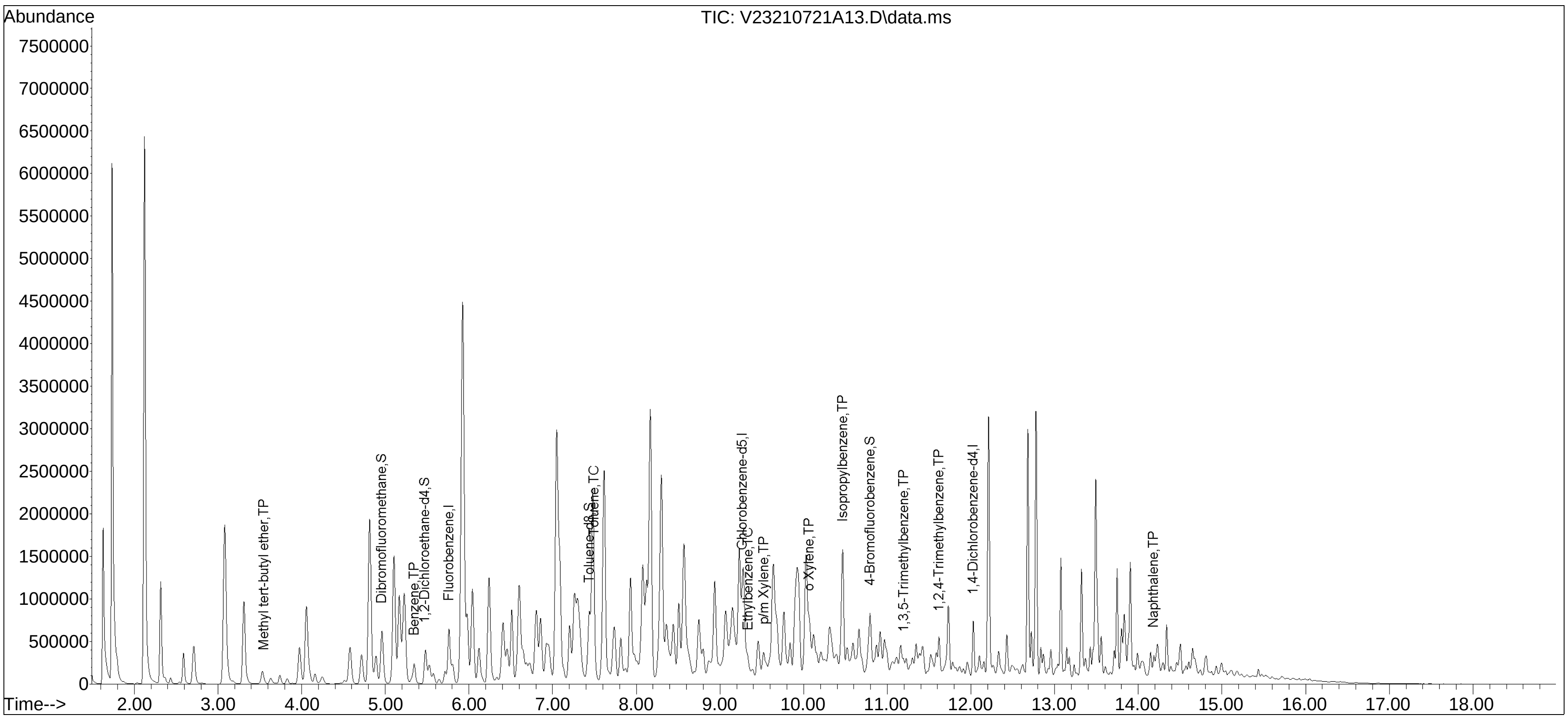
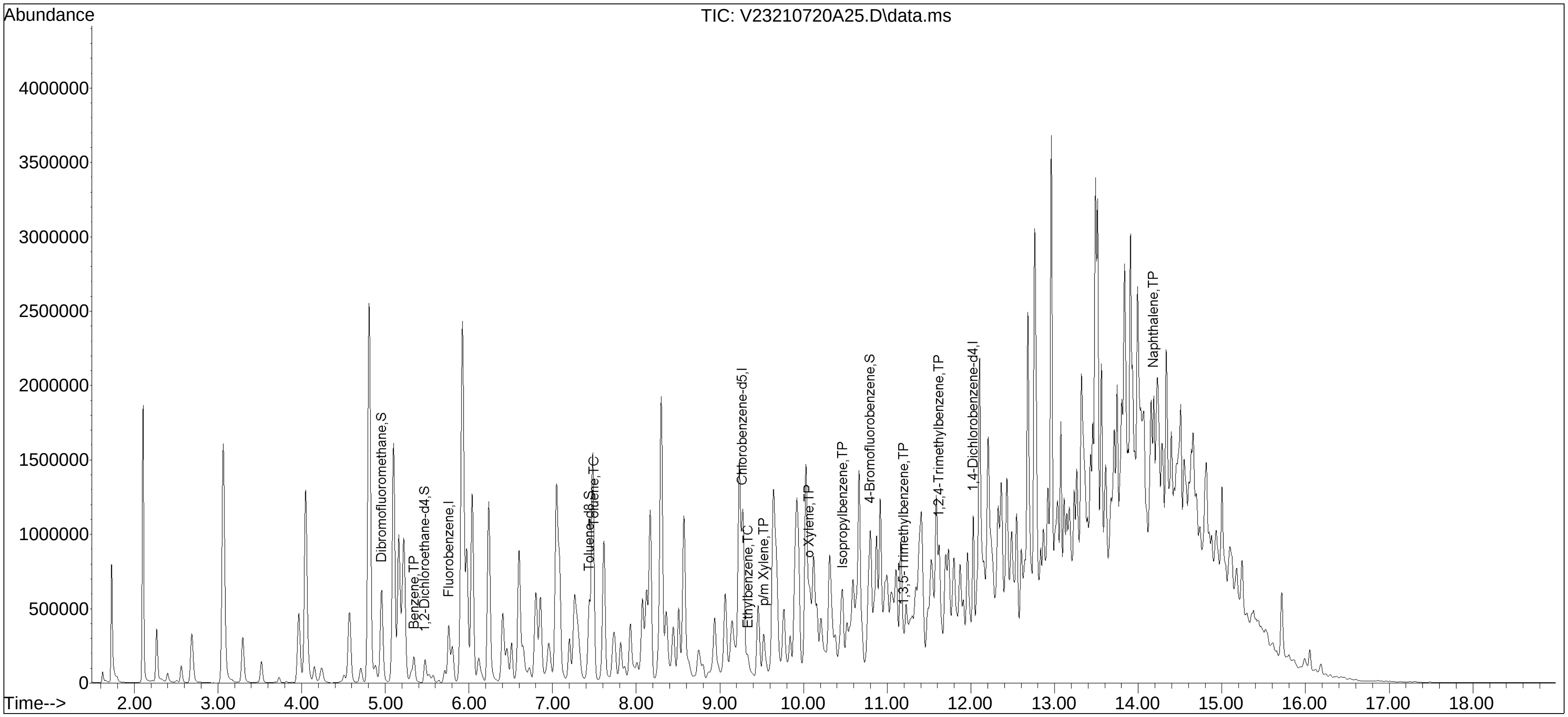


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210720A\
Data File : V23210720A25.D
Acq On : 20 Jul 2021 07:46 pm
Operator : VOA123:AJK
Sample : L2138177-16,31H,3.41,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Jul 20 20:35:55 2021
Quant Method : I:\VOLATILES\VOA123\2021\210720A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V23210720A01.D•



Quantitation Report (QT Reviewed)

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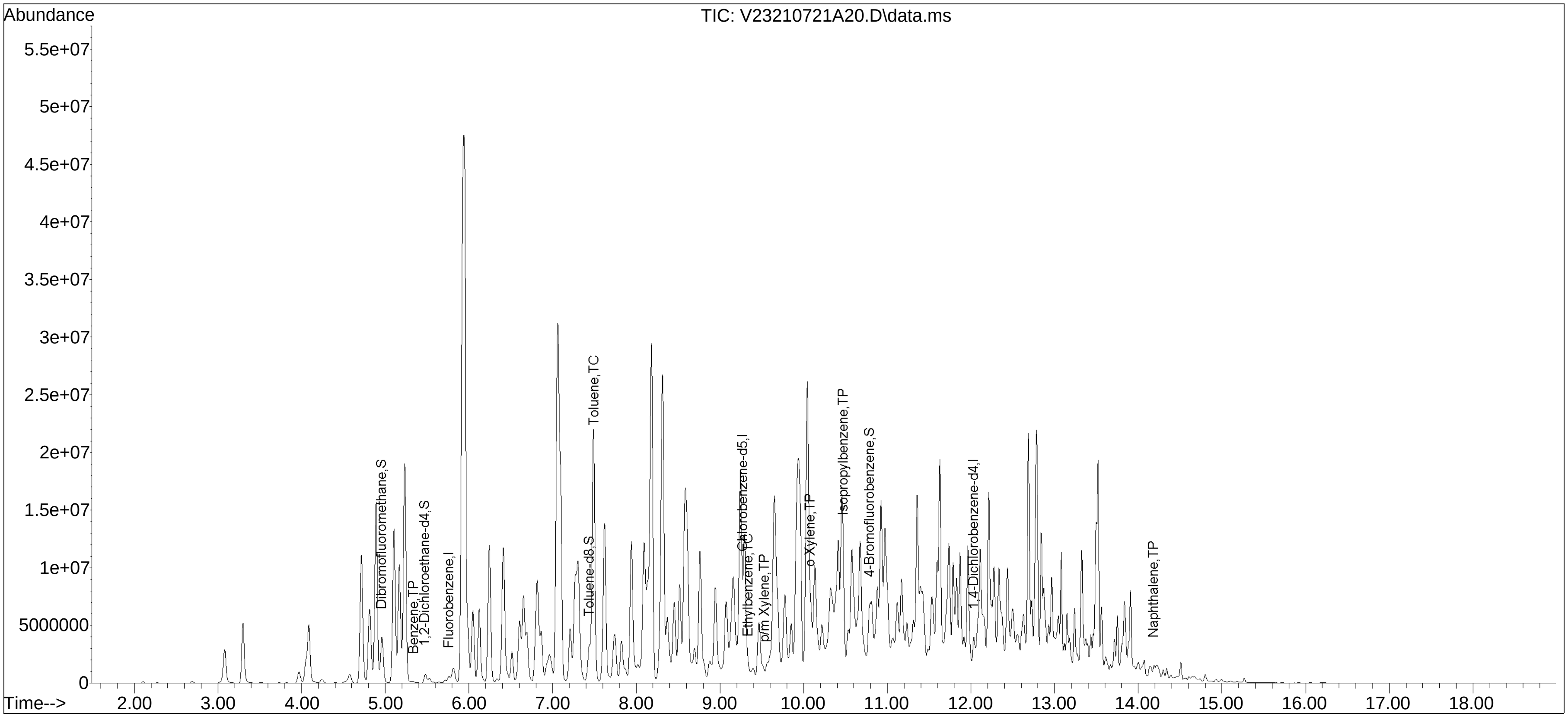
Operator : VOA123:KJD
Sample : L2138177-18,31H,6.68,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 20 Sample Multiplier: 1

Quant Time: Jul 21 18:29:36 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



Quantitation Report (QT Reviewed)

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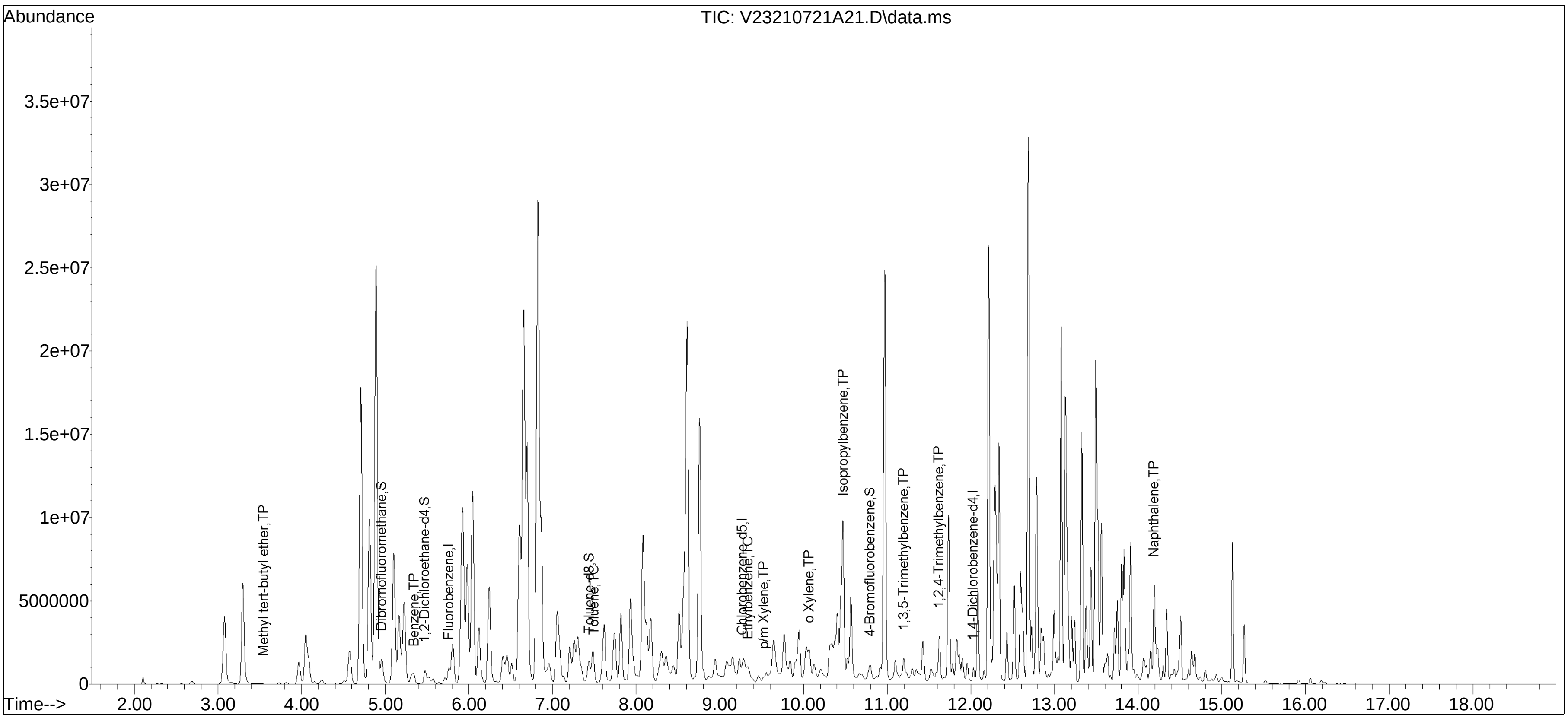
Data File : V23210721A21.D
Acq On : 21 Jul 2021 01:16 pm
Operator : VOA123:KJD
Sample : L2138177-19,31H,5.56,5,0.100,,A
Misc : WG1525959,ICAL18108
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 21 18:32:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A22.D
Acq On    : 21 Jul 2021  01:41 pm
Operator  : VOA123:KJD
Sample    : L2138177-20,31H,2.80,5,0.100,,A
Misc      : WG1525959,ICAL18108
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Jul 21 18:33:39 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•
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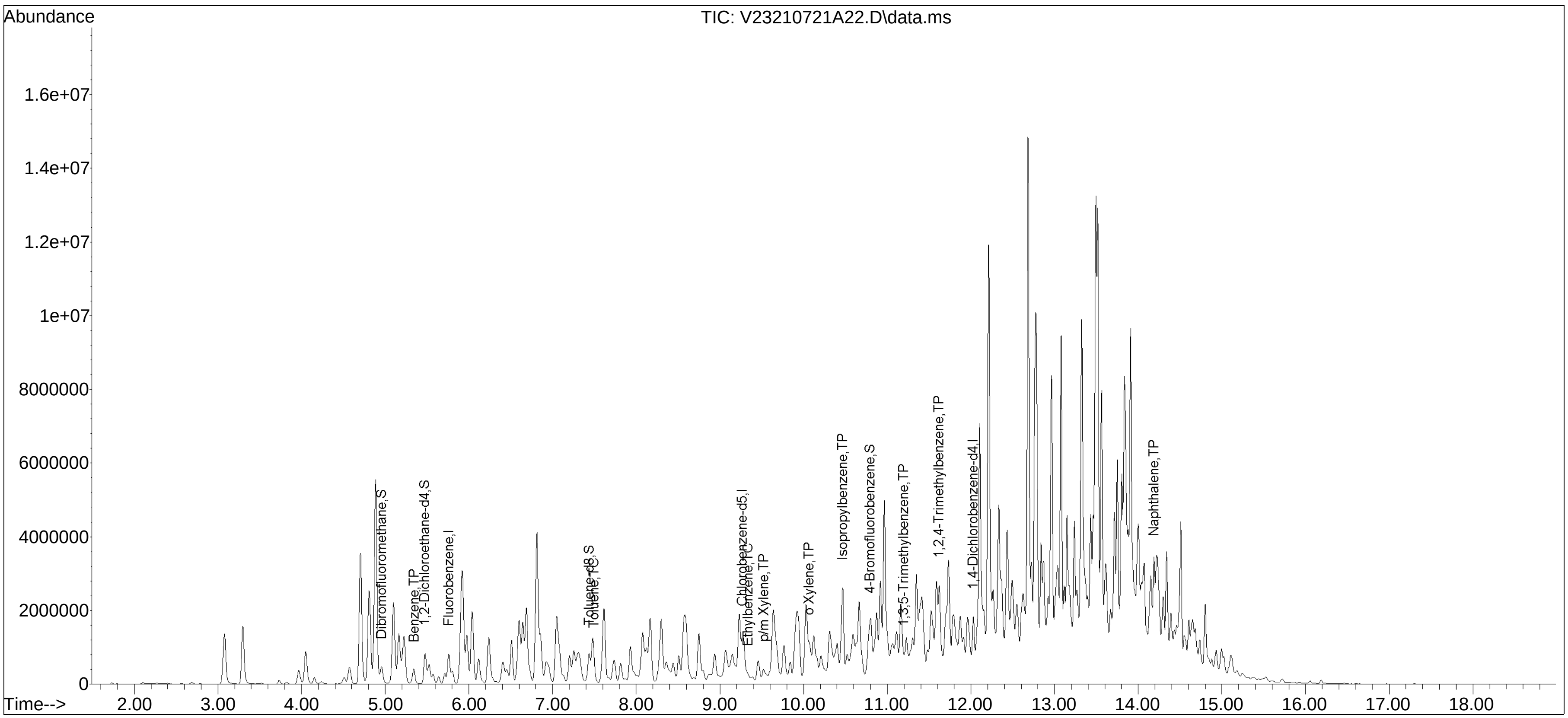
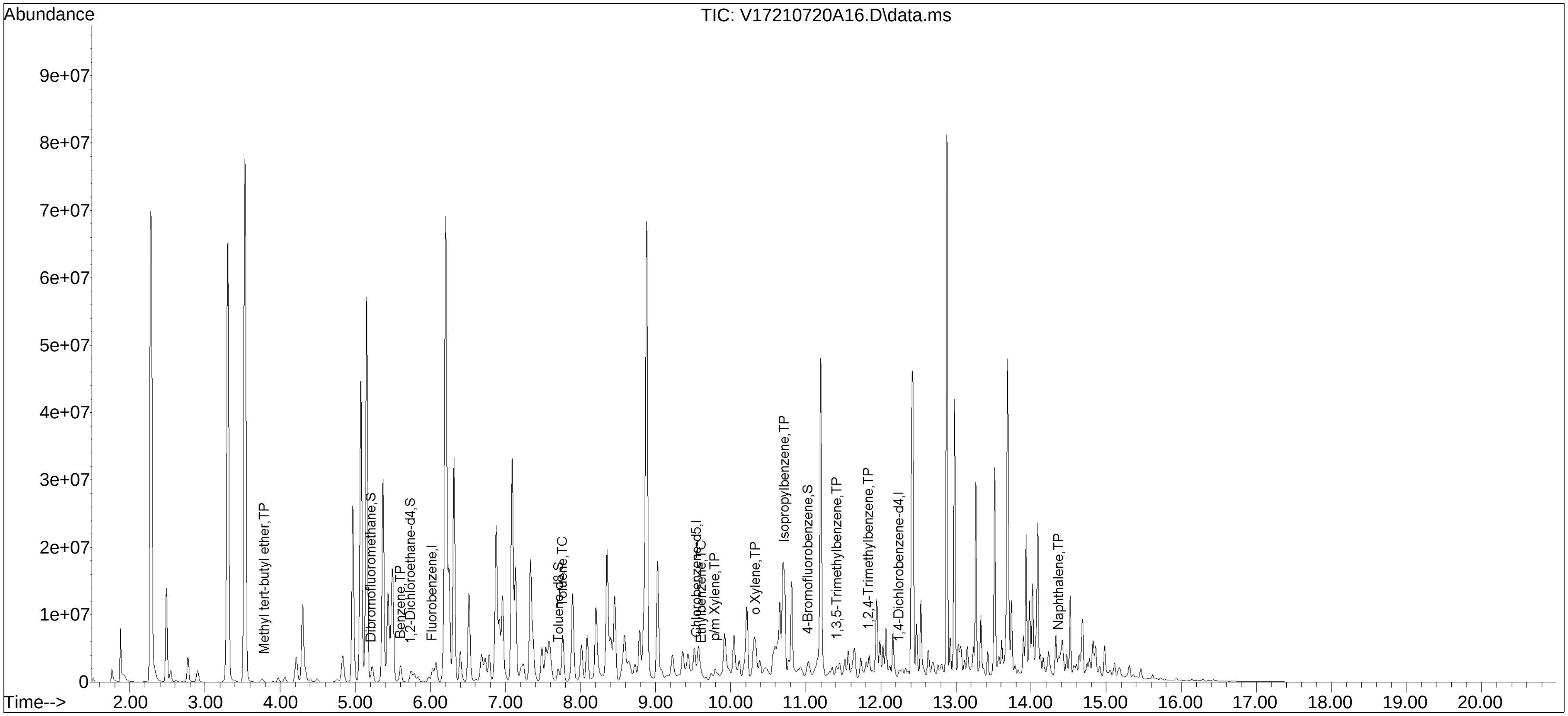


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\210720A\
Data File : V17210720A16.D
Acq On : 20 Jul 2021 04:07 pm
Operator : VOA117:AJK
Sample : L2138177-24,31,5.47,5,,B
Misc : WG1526040,ICAL18099
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 20 17:58:09 2021
Quant Method : I:\VOLATILES\VOA117\2021\210720A\V117_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Mon Jun 28 11:54:28 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list20A\V17210720A01.D•

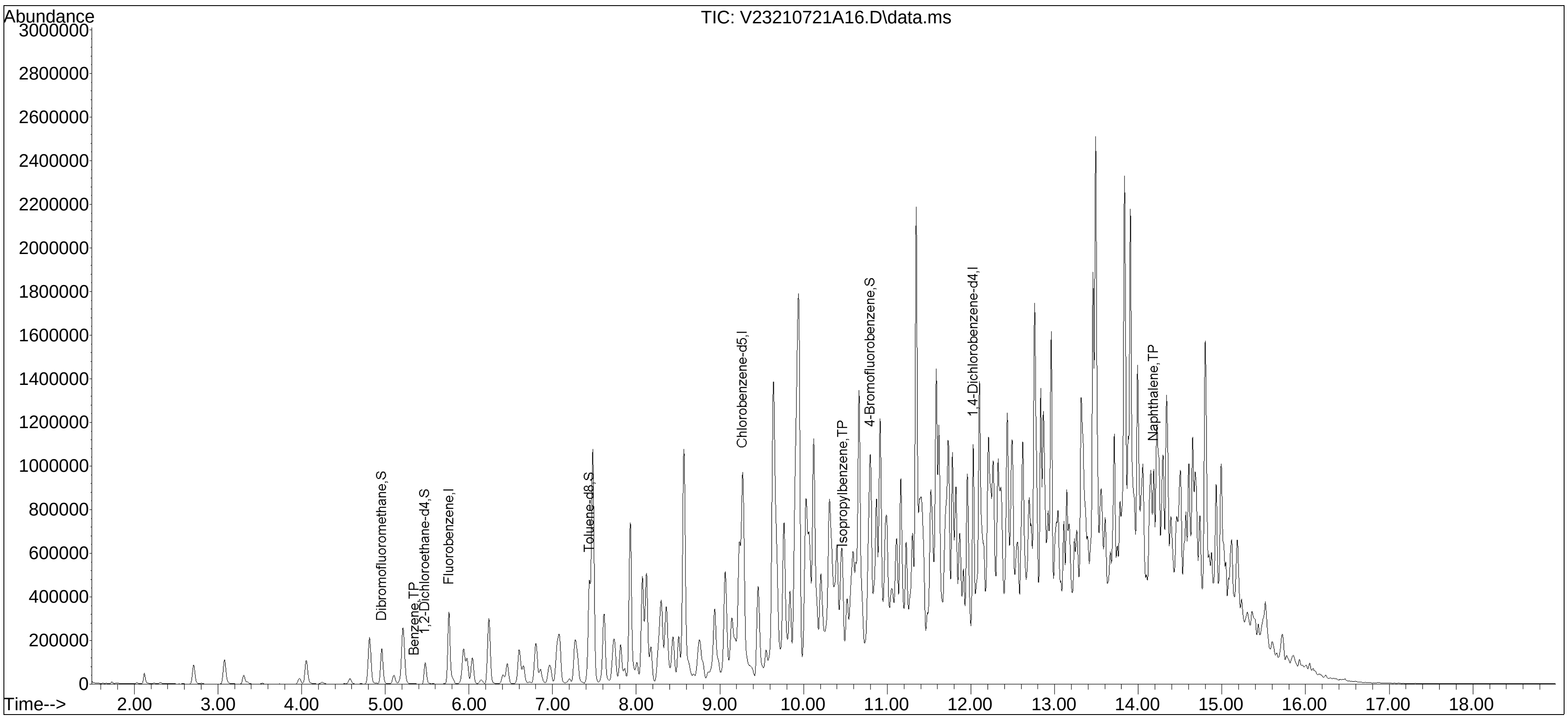


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210721A\
Data File : V23210721A16.D
Acq On : 21 Jul 2021 11:11 am
Operator : VOA123:JC
Sample : L2138177-28,31,7.02,5,,B
Misc : WG1526316,ICAL18108
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Jul 21 12:15:12 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list21A\V23210721A01.D•



SGS

Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138177

SGS Job Number: JD28643

Sampling Date: 07/15/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walkup Drive
Westborough, MA 01581
nyakes@alphalab.com; subreports@alphalab.com

ATTN: Nadine Yakes

Total number of pages in report: **72**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

Sections: 1 2 3 4 5 6

Table of Contents

-1-

SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28643

Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JD28643-1	07/15/21	08:35	07/20/21	SO	Soil	PB121-03-SS01
JD28643-2	07/15/21	08:45	07/20/21	SO	Soil	PB121-04-SS01
JD28643-3	07/15/21	08:55	07/20/21	SO	Soil	PB121-08-SS01
JD28643-4	07/15/21	09:05	07/20/21	SO	Soil	PB121-09-SS01
JD28643-5	07/15/21	09:10	07/20/21	SO	Soil	PB121-10-SS01
JD28643-6	07/15/21	09:20	07/20/21	SO	Soil	PB121-12-SS01
JD28643-7	07/15/21	09:35	07/20/21	SO	Soil	PB121-13-SS01
JD28643-8	07/15/21	09:45	07/20/21	SO	Soil	PB121-14-SS01
JD28643-9	07/15/21	09:55	07/20/21	SO	Soil	PB121-15-SS01
JD28643-10	07/15/21	10:10	07/20/21	SO	Soil	PB121-16-SS01
JD28643-11	07/15/21	10:55	07/20/21	SO	Soil	PB39-01-SS01
JD28643-12	07/15/21	11:05	07/20/21	SO	Soil	PB39-02-SS01
JD28643-13	07/15/21	11:20	07/20/21	SO	Soil	PB39-03-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary

(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28643

Alpha Analytical, PA
Project No: L2138177

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD28643-14	07/15/21	11:30		07/20/21	SO	Soil	PB39-04-SS01
JD28643-15	07/15/21	11:35		07/20/21	SO	Soil	PB39-05-SS01
JD28643-16	07/15/21	11:45		07/20/21	SO	Soil	PB39-06-SS01
JD28643-17	07/15/21	11:55		07/20/21	SO	Soil	PB39-07-SS01
JD28643-18	07/15/21	13:15		07/20/21	SO	Soil	PB39-08-SS01
JD28643-19	07/15/21	13:25		07/20/21	SO	Soil	PB39-09-SS01
JD28643-20	07/15/21	13:35		07/20/21	SO	Soil	PB39-10-SS01
JD28643-21	07/15/21	13:40		07/20/21	SO	Soil	PB39-11-SS01
JD28643-22	07/15/21	13:45		07/20/21	SO	Soil	PB39-12-SS01
JD28643-23	07/15/21	14:00		07/20/21	SO	Soil	PB39-13-SS01
JD28643-24	07/15/21	12:00		07/20/21	AQ	Field Blank Soil	FB-210715-1
JD28643-25	07/15/21	14:30		07/20/21	AQ	Field Blank Soil	FB-210715-2
JD28643-26	07/15/21	00:00		07/20/21	SO	Soil	DUP-13

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Alpha Analytical Laboratories, Inc.	**Job No**	JD28643
Site:	Alpha Analytical, PA	**Report Date**	7/28/2021 12:48:22 P

On 07/20/2021, 24 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 3.8 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28643 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP27687

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix: SO **Batch ID:** MP27576

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

Matrix: SO **Batch ID:** MP27578

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28643-11SDL, JD28643-11MSD were used as the QC samples for metals.
- Matrix Spike Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- Matrix Spike Duplicate Recovery(s) for Lead are outside control limits. Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
- RPD(s) for MSD for Lead are outside control limits for sample MP27578-S2. High rpd due to possible sample nonhomogeneity.
- JD28643-1 for Lead: Elevated detection limit due to dilution required for high interfering element.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-1	**PB121-03-SS01**					
Lead [a]		125	12		mg/kg	SW846 6010D
JD28643-2	**PB121-04-SS01**					
Lead		12.5	2.1		mg/kg	SW846 6010D
JD28643-3	**PB121-08-SS01**					
Lead		8.3	2.4		mg/kg	SW846 6010D
JD28643-4	**PB121-09-SS01**					
Lead		10.8	1.4		mg/kg	SW846 6010D
JD28643-5	**PB121-10-SS01**					
Lead		684	2.4		mg/kg	SW846 6010D
JD28643-6	**PB121-12-SS01**					
Lead		11.5	2.5		mg/kg	SW846 6010D
JD28643-7	**PB121-13-SS01**					
Lead		7.8	2.3		mg/kg	SW846 6010D
JD28643-8	**PB121-14-SS01**					
Lead		10.9	2.6		mg/kg	SW846 6010D
JD28643-9	**PB121-15-SS01**					
Lead		8.8	2.3		mg/kg	SW846 6010D
JD28643-10	**PB121-16-SS01**					
Lead		6.7	2.3		mg/kg	SW846 6010D
JD28643-11	**PB39-01-SS01**					
Lead		153	2.3		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-12	**PB39-02-SS01**					
Lead		26.1	2.3		mg/kg	SW846 6010D
JD28643-13	**PB39-03-SS01**					
Lead		19.4	2.4		mg/kg	SW846 6010D
JD28643-14	**PB39-04-SS01**					
Lead		137	2.6		mg/kg	SW846 6010D
JD28643-15	**PB39-05-SS01**					
Lead		268	1.5		mg/kg	SW846 6010D
JD28643-16	**PB39-06-SS01**					
Lead		72.5	2.4		mg/kg	SW846 6010D
JD28643-17	**PB39-07-SS01**					
Lead		59.4	1.4		mg/kg	SW846 6010D
JD28643-18	**PB39-08-SS01**					
Lead		28.8	2.3		mg/kg	SW846 6010D
JD28643-19	**PB39-09-SS01**					
Lead		130	1.5		mg/kg	SW846 6010D
JD28643-20	**PB39-10-SS01**					
Lead		419	2.6		mg/kg	SW846 6010D
JD28643-21	**PB39-11-SS01**					
Lead		32.5	2.3		mg/kg	SW846 6010D
JD28643-22	**PB39-12-SS01**					
Lead		31.5	2.5		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28643
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/15/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28643-23	**PB39-13-SS01**					
Lead		84.8	1.5		mg/kg	SW846 6010D
JD28643-24	**FB-210715-1**					
No hits reported in this sample.						
JD28643-25	**FB-210715-2**					
No hits reported in this sample.						
JD28643-26	**DUP-13**					
Lead		13.3	2.4		mg/kg	SW846 6010D

(a) Elevated detection limit due to dilution required for high interfering element.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-03-SS01		
Lab Sample ID:	JD28643-1	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead [a]	125	12	mg/kg	5	07/22/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27578

(a) Elevated detection limit due to dilution required for high interfering element.

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-04-SS01			
Lab Sample ID:	JD28643-2		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	92.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	12.5	2.1	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-08-SS01		
Lab Sample ID:	JD28643-3	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.3	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-09-SS01		
Lab Sample ID:	JD28643-4	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.5
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10.8	1.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-10-SS01		
Lab Sample ID:	JD28643-5	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	684	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-12-SS01		
Lab Sample ID:	JD28643-6	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	85.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	11.5	2.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-13-SS01		
Lab Sample ID:	JD28643-7	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	7.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-14-SS01		
Lab Sample ID:	JD28643-8	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	10.9	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-15-SS01			
Lab Sample ID:	JD28643-9		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	82.1
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB121-16-SS01		
Lab Sample ID:	JD28643-10	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	6.7	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-01-SS01			
Lab Sample ID:	JD28643-11		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	83.7
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	153	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-02-SS01		
Lab Sample ID:	JD28643-12	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	87.1
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	26.1	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-03-SS01		
Lab Sample ID:	JD28643-13	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method	Prep Method
Lead	19.4	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-04-SS01			
Lab Sample ID:	JD28643-14		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	81.6
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	137	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-05-SS01			
Lab Sample ID:	JD28643-15		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	81.6
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	268	1.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-06-SS01		
Lab Sample ID:	JD28643-16	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	72.5	2.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-07-SS01		
Lab Sample ID:	JD28643-17	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	59.4	1.4	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-08-SS01		
Lab Sample ID:	JD28643-18	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	28.8	2.3	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-09-SS01		
Lab Sample ID:	JD28643-19	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	130	1.5	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-10-SS01			
Lab Sample ID:	JD28643-20		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	81.2
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	419	2.6	mg/kg	1	07/22/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27578

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-11-SS01			
Lab Sample ID:	JD28643-21		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	86.3
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	32.5	2.3	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-12-SS01		
Lab Sample ID:	JD28643-22	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	84.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	31.5	2.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB39-13-SS01		
Lab Sample ID:	JD28643-23	**Date Sampled:**	07/15/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.0
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	84.8	1.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210715-1		
Lab Sample ID:	JD28643-24	**Date Sampled:**	07/15/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210715-2		
Lab Sample ID:	JD28643-25	**Date Sampled:**	07/15/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-13			
Lab Sample ID:	JD28643-26		**Date Sampled:**	07/15/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	79.5
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.3	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SO
FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD 28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB121-03-SS01	07-15-21 08:35	SOIL	Total Lead	
2	PB121-04-SS01	07-15-21 08:45	SOIL	Total Lead	
3	PB121-08-SS01	07-15-21 08:55	SOIL	Total Lead	
4	PB121-09-SS01	07-15-21 09:05	SOIL	Total Lead	
5	PB121-10-SS01	07-15-21 09:10	SOIL	Total Lead	
6	PB121-12-SS01	07-15-21 09:20	SOIL	Total Lead	
7	PB121-13-SS01	07-15-21 09:35	SOIL	Total Lead	
8	PB121-14-SS01	07-15-21 09:45	SOIL	Total Lead	
9	PB121-15-SS01	07-15-21 09:55	SOIL	Total Lead	

D17 T2

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21	Paul Mazzella 7/19	16:30
Paul Mazzella 7/19	7/19/21 20:05		7/19/21 20:05
	7/19/21 22:35	Don D AAL	7/20/21 830
Don D AAL	7/20/21 1035	James Yu	7/20/21 1035

Form No: AL_subcoc

IR-5 5.8°C
IP

JD28643: Chain of Custody
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ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB121-16-SS01	07-15-21 10:10	SOIL	Total Lead	
11	PB39-01-SS01	07-15-21 10:55	SOIL	Total Lead	
12	PB39-02-SS01	07-15-21 11:05	SOIL	Total Lead	
13	PB39-03-SS01	07-15-21 11:20	SOIL	Total Lead	
14	PB39-04-SS01	07-15-21 11:30	SOIL	Total Lead	
15	PB39-05-SS01	07-15-21 11:35	SOIL	Total Lead	
16	PB39-06-SS01	07-15-21 11:45	SOIL	Total Lead	
17	PB39-07-SS01	07-15-21 11:55	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
[illegible] AAL 7/19	7/19/21 20:05	Paul Mazzella 7/19	16:30
Paul Mazzella	7/19/21 22:35	Don Datt	7/19/21 20:05
Don Datt	7/20/21 1035	[illegible]	7/20/21 830
			7/20/21 10:35

Form No: AL-subcoc

INITIAL ASSESSMENT TS-2B

LABEL VERIFICATION

IR-5 3.8°C IP

JD28643: Chain of Custody
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5.1

5

ALPHA ANALYTICAL	Subcontract Chain of Custody SGS- North America 2235 US-130 Dayton, NJ 08810	JD28643 Alpha Job Number L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
18	PB39-08-SS01	07-15-21 13:15	SOIL	Total Lead	
19	PB39-09-SS01	07-15-21 13:25	SOIL	Total Lead	
20	PB39-10-SS01	07-15-21 13:35	SOIL	Total Lead	
21	PB39-11-SS01	07-15-21 13:40	SOIL	Total Lead	
22	PB39-12-SS01	07-15-21 13:45	SOIL	Total Lead	
23	PB39-13-SS01	07-15-21 14:00	SOIL	Total Lead	
24	FB-210715-1	07-15-21 12:00	WATER	Total Lead	
25	FB-210715-2	07-15-21 14:30	WATER	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21	7/19	1600
Paul Mazzella 7/19	7/19/21 20:05	Paul Mazzella	7/19/21 20:05
Don D	7/20/21 23:35	Don D	7/20/21 830
Don D	7/20/21 1035	Joshua Yuda	7/20/21 10:35

Form No: AL_subcoc

IR-5 3.8°C JD

JD28643: Chain of Custody
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ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28643

Alpha Job Number
L2138177

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138177

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
26	DUP-13	07-15-21 00:00	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21		7/19
	7/19/21 20:05	Paul Mazzella	7/19/21 20:05
Paul Mazzella	7/19/21 22:35	Don Dr	7/20/21 2:36
Don Dr	7/20/21 10:35		7/20/21 10:35

Form No: AL_subcoc

IR-5 3.8°C IP

JD28643: Chain of Custody
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5

SGS Sample Receipt Summary

Job Number: JD28643 **Client:** ALPHA ANALYTICAL **Project:** L2138177

Date / Time Received: 7/20/2021 10:35:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.8);

Cooler Security

	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature

	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation

	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation

	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition

	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions

	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

JD28643: Chain of Custody
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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Lead	17.8	258	246	97.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Tungsten					
Vanadium					
Zinc					
Zirconium					

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	Spikelot MS MPSPK2	% Rec	QC Limits

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits

Associated samples MP27576: JD28643-21, JD28643-22, JD28643-23, JD28643-26

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	153	459	241	126.8N(a	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	153	324	239	71.6N(a)	34.5 (b)	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	JD28643-11 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium						

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike recovery indicates possible matrix interference and/or sample nonhomogeneity.
(b) High rpd due to possible sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	211	200	105.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/22/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	1320	1430	8.8	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

Page 1

6.2.4

6

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27578
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/22/21

Metal	JD28643-11 Original	SDL 1:5	%DIF	QC Limits
Zirconium				

Associated samples MP27578: JD28643-1, JD28643-2, JD28643-3, JD28643-4, JD28643-5, JD28643-6, JD28643-7, JD28643-8, JD28643-9, JD28643-10, JD28643-11, JD28643-12, JD28643-13, JD28643-14, JD28643-15, JD28643-16, JD28643-17, JD28643-18, JD28643-19, JD28643-20

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	60	.3	6.9		
Zirconium	10	.5	4.1		

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	0.0	1950	2000	97.5	1.0	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr					
Zirconium						

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28643
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28643-24, JD28643-25

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2138358
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	07/29/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2138358-01	PB38-01-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:05	07/17/21
L2138358-02	PB38-02-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:15	07/17/21
L2138358-03	PB38-03-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:30	07/17/21
L2138358-04	PB38-04-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:35	07/17/21
L2138358-05	PB38-05-SS01	SOIL	PHILADELPHIA, PA	07/16/21 09:45	07/17/21
L2138358-06	PB38-06-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:05	07/17/21
L2138358-07	PB38-07-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:35	07/17/21
L2138358-08	PB38-08-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:45	07/17/21
L2138358-09	PB38-09-SS01	SOIL	PHILADELPHIA, PA	07/16/21 10:55	07/17/21
L2138358-10	PB38-10-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:05	07/17/21
L2138358-11	PB38-11-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:35	07/17/21
L2138358-12	PB38-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:45	07/17/21
L2138358-13	PB38-13-SS01	SOIL	PHILADELPHIA, PA	07/16/21 11:55	07/17/21
L2138358-14	PB38-14-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:05	07/17/21
L2138358-15	PB85-12-SS01	SOIL	PHILADELPHIA, PA	07/16/21 12:10	07/17/21
L2138358-16	FB-210716-1	WATER	PHILADELPHIA, PA	07/16/21 11:00	07/17/21
L2138358-17	FB-210716-2	WATER	PHILADELPHIA, PA	07/16/21 13:00	07/17/21
L2138358-18	TB-210716	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-19	DUP-14	SOIL	PHILADELPHIA, PA	07/16/21 00:00	07/17/21
L2138358-22	PB85-11-SS01	WATER	PHILADELPHIA, PA	07/16/21 00:00	07/17/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

July 29, 2021: This final report includes the results of all requested analyses

July 23, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2138358-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard. The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-12D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (189%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2138358-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2138358-14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 07/29/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-01	Date Collected:	07/16/21 09:05
Client ID:	PB38-01-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 11:51
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0024		mg/kg	0.0024	0.00025	1
Benzene	0.10		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.015		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.0050		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.038		mg/kg	0.0024	0.00069	1
o-Xylene	0.0049		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.043		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.028		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0062		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0061		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-02	Date Collected:	07/16/21 09:15
Client ID:	PB38-02-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	07/22/21 10:11
Analyst:	JC
Percent Solids:	80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0024		mg/kg	0.0020	0.00021	1
Benzene	0.00076		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00080	J	mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0047		mg/kg	0.0020	0.00057	1
o-Xylene	0.0026		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0073		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0038		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00088	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03
Client ID: PB38-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 09:30
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 22:00
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.022	1
Benzene	7.2		mg/kg	0.054	0.018	1
1,2-Dichloroethane	ND		mg/kg	0.11	0.028	1
Toluene	3.3		mg/kg	0.11	0.058	1
1,2-Dibromoethane	ND		mg/kg	0.054	0.031	1
Ethylbenzene	1.8		mg/kg	0.11	0.015	1
p/m-Xylene	4.9		mg/kg	0.21	0.060	1
o-Xylene	2.0		mg/kg	0.11	0.031	1
Xylenes, Total	6.9		mg/kg	0.11	0.031	1
Isopropylbenzene	0.50		mg/kg	0.11	0.012	1
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.21	0.021	1
1,2,4-Trimethylbenzene	0.97		mg/kg	0.21	0.036	1
Naphthalene	2.0		mg/kg	0.43	0.070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	85		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-04	Date Collected:	07/16/21 09:35
Client ID:	PB38-04-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 08:56
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	10.		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.059	0.015	1
Toluene	1.2		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	15.		mg/kg	0.059	0.0083	1
p/m-Xylene	16.		mg/kg	0.12	0.033	1
o-Xylene	5.9		mg/kg	0.059	0.017	1
Xylenes, Total	22.		mg/kg	0.059	0.017	1
Isopropylbenzene	5.5		mg/kg	0.059	0.0064	1
1,3,5-Trimethylbenzene	4.3		mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	5.4		mg/kg	0.12	0.020	1
Naphthalene	10.		mg/kg	0.23	0.038	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	70		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-05	Date Collected:	07/16/21 09:45
Client ID:	PB38-05-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:50
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00054		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	0.0042		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00030	1
Ethylbenzene	0.0010		mg/kg	0.0010	0.00015	1
p/m-Xylene	0.035		mg/kg	0.0021	0.00058	1
o-Xylene	0.018		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.053		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.00035	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0090		mg/kg	0.0021	0.00035	1
Naphthalene	ND		mg/kg	0.0042	0.00068	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-06	Date Collected:	07/16/21 10:05
Client ID:	PB38-06-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 18:40
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.11		mg/kg	0.0022	0.00022	1
Benzene	0.038		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	0.0011		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.00074	J	mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0022		mg/kg	0.0022	0.00061	1
o-Xylene	0.0014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0036		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.00073	J	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0012	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0013	J	mg/kg	0.0022	0.00036	1
Naphthalene	0.00093	J	mg/kg	0.0043	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-07	Date Collected:	07/16/21 10:35
Client ID:	PB38-07-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 09:46
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00044	J	mg/kg	0.0019	0.00019	1
Benzene	0.00055		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00024	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.00043	J	mg/kg	0.00096	0.00013	1
p/m-Xylene	0.00075	J	mg/kg	0.0019	0.00054	1
o-Xylene	0.00045	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.0012	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00044	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0010	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D2
Client ID: PB38-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 10:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 08:06
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08 D
Client ID: PB38-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 22:51
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	5
Benzene	8.4		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	20.		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.088	5
Ethylbenzene	39.		mg/kg	0.30	0.042	5
p/m-Xylene	66.		mg/kg	0.60	0.17	5
o-Xylene	10.		mg/kg	0.30	0.087	5
Xylenes, Total	76.		mg/kg	0.30	0.087	5
Isopropylbenzene	8.0		mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	49.		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	140	E	mg/kg	0.60	0.10	5
Naphthalene	24.		mg/kg	1.2	0.19	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	89		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-09 Date Collected: 07/16/21 10:55
Client ID: PB38-09-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:05
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00073	J	mg/kg	0.0020	0.00021	1
Benzene	0.00020	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00058	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358

Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-10	Date Collected:	07/16/21 11:05
Client ID:	PB38-10-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:16
Analyst: MV
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.022	J	mg/kg	0.12	0.013	1
Benzene	1.1		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.064		mg/kg	0.063	0.016	1
Toluene	3.9		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.40		mg/kg	0.063	0.0089	1
p/m-Xylene	4.0		mg/kg	0.12	0.035	1
o-Xylene	0.95		mg/kg	0.063	0.018	1
Xylenes, Total	5.0		mg/kg	0.063	0.018	1
Isopropylbenzene	0.020	J	mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.12	0.021	1
Naphthalene	0.24	J	mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11
Client ID: PB38-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:35
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:30
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0020	J	mg/kg	0.0022	0.00022	1
Benzene	0.0014		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.020		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.0043		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.027		mg/kg	0.0022	0.00063	1
o-Xylene	0.014		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.041		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0030		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0026		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.0075		mg/kg	0.0022	0.00037	1
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12 D
Client ID: PB38-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:41
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.059	J	mg/kg	0.26	0.026	2
Benzene	0.040	J	mg/kg	0.064	0.021	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.033	2
Toluene	ND		mg/kg	0.13	0.070	2
1,2-Dibromoethane	ND		mg/kg	0.064	0.038	2
Ethylbenzene	0.032	J	mg/kg	0.13	0.018	2
p/m-Xylene	0.20	J	mg/kg	0.26	0.072	2
o-Xylene	0.079	J	mg/kg	0.13	0.037	2
Xylenes, Total	0.28	J	mg/kg	0.13	0.037	2
Isopropylbenzene	0.42		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.078	J	mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.18	J	mg/kg	0.26	0.043	2
Naphthalene	0.34	J	mg/kg	0.51	0.083	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**189**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13 D2
Client ID: PB38-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 12:41
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	98.		mg/kg	1.2	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13 D
Client ID: PB38-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:06
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	19.		mg/kg	0.12	0.042	4
1,2-Dichloroethane	0.078	J	mg/kg	0.25	0.065	4
Toluene	0.75		mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.074	4
Ethylbenzene	28.		mg/kg	0.25	0.035	4
p/m-Xylene	40.		mg/kg	0.50	0.14	4
o-Xylene	1.7		mg/kg	0.25	0.073	4
Xylenes, Total	42.		mg/kg	0.25	0.073	4
Isopropylbenzene	5.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	31.		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	96.	E	mg/kg	0.50	0.084	4
Naphthalene	12.		mg/kg	1.0	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	130		70-130
Dibromofluoromethane	78		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-14	Date Collected:	07/16/21 12:05
Client ID:	PB38-14-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:31
Analyst: MV
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.054		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.080	0.020	1
Toluene	0.082		mg/kg	0.080	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	0.050	J	mg/kg	0.080	0.011	1
p/m-Xylene	0.22		mg/kg	0.16	0.045	1
o-Xylene	0.086		mg/kg	0.080	0.023	1
Xylenes, Total	0.31		mg/kg	0.080	0.023	1
Isopropylbenzene	0.10		mg/kg	0.080	0.0087	1
1,3,5-Trimethylbenzene	0.046	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.16	0.027	1
Naphthalene	0.71		mg/kg	0.32	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-15	Date Collected:	07/16/21 12:10
Client ID:	PB85-12-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:55
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00042	J	mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00055	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.00033	J	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.00043	J	mg/kg	0.0020	0.00034	1
Naphthalene	ND		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-16
Client ID: FB-210716-1
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/20/21 13:38
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-16
Client ID: FB-210716-1
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/21/21 23:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-17
Client ID: FB-210716-2
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 13:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/20/21 13:45
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-17
Client ID: FB-210716-2
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 13:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:11
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	113		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-18	Date Collected:	07/16/21 00:00
Client ID:	TB-210716	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	07/20/21 10:45
Analytical Date:	07/20/21 13:51		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.011	0.005	1	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-18
Client ID: TB-210716
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 07/22/21 00:38
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-19
Client ID: DUP-14
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/22/21 11:01
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	ND		mg/kg	0.00062	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	ND		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00018	1
p/m-Xylene	ND		mg/kg	0.0025	0.00070	1
o-Xylene	ND		mg/kg	0.0012	0.00036	1
Xylenes, Total	ND		mg/kg	0.0012	0.00036	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1
Naphthalene	ND		mg/kg	0.0050	0.00081	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/20/21 11:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/20/21 10:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 16-18 Batch: WG1525736-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/22/21 05:31
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,08,13 Batch: WG1526522-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03,08,10,12-14 Batch: WG1526522-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 17:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05-06,09,11,15 Batch: WG1526523-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/21/21 19:46
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1526647-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	ND		ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/22/21 05:31
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-02,07,19 Batch: WG1526784-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138358

Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 16-18 Batch: WG1525736-2									
1,2-Dibromoethane	96		-		80-120	-		20	A

Lab Control Sample Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2138358

Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03,08,10,12-14 Batch: WG1526522-3 WG1526522-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,08,13 Batch: WG1526522-8 WG1526522-9								
Methyl tert butyl ether	84		86		66-130	2		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	76		77		70-130	1		30
Toluene	85		86		70-130	1		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	90		89		70-130	1		30
o-Xylene	91		92		70-130	1		30
Isopropylbenzene	85		85		70-130	0		30
1,3,5-Trimethylbenzene	84		84		70-130	0		30
1,2,4-Trimethylbenzene	85		84		70-130	1		30
Naphthalene	82		85		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138358
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05-06,09,11,15 Batch: WG1526523-3 WG1526523-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	74		75		70-130	1		30
Toluene	85		84		70-130	1		30
1,2-Dibromoethane	82		83		70-130	1		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	91		90		70-130	1		30
o-Xylene	92		91		70-130	1		30
Isopropylbenzene	86		85		70-130	1		30
1,3,5-Trimethylbenzene	86		85		70-130	1		30
1,2,4-Trimethylbenzene	88		86		70-130	2		30
Naphthalene	81		82		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	95		92		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1526647-3 WG1526647-4								
Methyl tert butyl ether	96		100		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	98		99		70-130	1		20
Toluene	96		100		70-130	4		20
1,2-Dibromoethane	86		90		70-130	5		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	97		100		70-130	3		20
1,3,5-Trimethylbenzene	90		92		64-130	2		20
1,2,4-Trimethylbenzene	97		94		70-130	3		20
Naphthalene	90		96		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	103		102		70-130
4-Bromofluorobenzene	97		97		70-130
Dibromofluoromethane	107		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-02,07,19 Batch: WG1526784-3 WG1526784-4								
Methyl tert butyl ether	84		86		66-130	2		30
Benzene	88		88		70-130	0		30
1,2-Dichloroethane	76		77		70-130	1		30
Toluene	85		86		70-130	1		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	88		88		70-130	0		30
p/m-Xylene	90		89		70-130	1		30
o-Xylene	91		92		70-130	1		30
Isopropylbenzene	85		85		70-130	0		30
1,3,5-Trimethylbenzene	84		84		70-130	0		30
1,2,4-Trimethylbenzene	85		84		70-130	1		30
Naphthalene	82		85		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		87		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		91		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-01
Client ID: PB38-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 09:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-02	Date Collected:	07/16/21 09:15
Client ID:	PB38-02-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.1		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-03
Client ID: PB38-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 09:30
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-04 Date Collected: 07/16/21 09:35
Client ID: PB38-04-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-05 Date Collected: 07/16/21 09:45
Client ID: PB38-05-SS01 Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-06
Client ID: PB38-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 10:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-07	Date Collected:	07/16/21 10:35
Client ID:	PB38-07-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.9		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-08
Client ID: PB38-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 10:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2138358
Project Number:	200.00135.005.03	**Report Date:**	07/29/21

SAMPLE RESULTS

Lab ID:	L2138358-09	Date Collected:	07/16/21 10:55
Client ID:	PB38-09-SS01	Date Received:	07/17/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.4		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2138358
Project Number: 200.00135.005.03 **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-10
Client ID: PB38-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:05
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-11
Date Collected: 07/16/21 11:35
Client ID: PB38-11-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-12
Client ID: PB38-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 11:45
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138358
Project Number: 200.00135.005.03 | **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-13
Client ID: PB38-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/16/21 11:55
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2138358
Project Number: 200.00135.005.03 | **Report Date:** 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-14 | Date Collected: 07/16/21 12:05
Client ID: PB38-14-SS01 | Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.2		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2138358
Project Number: 200.00135.005.03
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-15
Date Collected: 07/16/21 12:10
Client ID: PB85-12-SS01
Date Received: 07/17/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

SAMPLE RESULTS

Lab ID: L2138358-19
Client ID: DUP-14
Sample Location: PHILADELPHIA, PA

Date Collected: 07/16/21 00:00
Date Received: 07/17/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	07/20/21 07:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-15,19 QC Batch ID: WG1525654-1 QC Sample: L2138358-01 Client ID: PB38-01-SS01						
Solids, Total	81.3	80.9	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-01B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-02B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-03B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-03D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-04B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-04D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-05B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2138358
Report Date: 07/29/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-05C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-05D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-06B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-06D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-06E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-07B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-07D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-08A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-08B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-08D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-08E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-09A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-09B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-09D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()
L2138358-10A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2138358-10B	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10C	Vial water preserved	A	NA		2.3	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-10D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2138358-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		SUB-TOTAL LEAD()

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-11A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-11B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-11D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-11E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-12A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-12B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-12D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-13A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-13B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-13D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-14A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-14B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-14D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-15A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-15B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-15D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		TS(7)
L2138358-16A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-16D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2138358-16E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-16F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-17A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17C	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-17D	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17E	Vial Na2S2O3 preserved	B	NA		4.5	Y	Absent		8011(14)
L2138358-17F	Plastic 250ml HNO3 preserved	B	<2	<2	4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-18A	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18B	Vial HCl preserved	B	NA		4.5	Y	Absent		PA-8260(14)
L2138358-18C	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-18D	Vial Na2S2O3 preserved	NA	NA			Y	Absent		8011(14)
L2138358-19A	Vial MeOH preserved	B	NA		4.5	Y	Absent		PA-8260HLW(14)
L2138358-19B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	PA-8260HLW(14)
L2138358-19D	Plastic 120ml unpreserved	B	NA		4.5	Y	Absent		TS(7)
L2138358-19E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		4.5	Y	Absent		SUB-TOTAL LEAD()
L2138358-22A	Vial MeOH preserved	B	NA		4.5	Y	Absent		ARCHIVE()
L2138358-22B	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22C	Vial water preserved	B	NA		4.5	Y	Absent	17-JUL-21 13:32	ARCHIVE()
L2138358-22D	Plastic 2oz unpreserved for TS	B	NA		4.5	Y	Absent		ARCHIVE()

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF COUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 7/17/21

ALPHA Job #: L2138358

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
38358-01	PB38-01-SS01	7/16	0905	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
02	PB38-02-SS01		0915			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
03	PB38-03-SS01		0930			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
04	PB38-04-SS01		0935			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
05	PB38-05-SS01		0945			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
06	PB38-06-SS01		1005			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
07	PB38-07-SS01		1035			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
08	PB38-08-SS01		1045			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
09	PB38-09-SS01		1055			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
10	PB38-10-SS01		1105			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		

Container Type	G	G	G	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	7/16 1336	Tom O. AAL	7-16 1336
T. [illegible] AAL	7-16 1900	[illegible] AAL	7-16 1800
[illegible] AAL	7-16 2230	[illegible] AAL	7/16/21 2230
[illegible] AAL	7/17/21 0405	[illegible]	7/17/21 04:05

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ)
(rev. 5-JAN-12)

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 2 OF 2

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/17/21

ALPHA Job #: L2138358

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program
Criteria

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
38358-11	PB ~~3~~8-11 - SS01	7/16	1135	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
12	PB ~~3~~8-12 - SS01	↓	1145	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
13	PB ~~3~~8-13 - SS01		1155	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
14	PB38-14 - SS01		1205	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
15	PB85-12 - SS01		1210	S		☐	~~☑~~ TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
	PB85-11 - SS01		1220	S		☐	~~☑~~ TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
16	FB-210716-1		11:00	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
17	FB-210716-2		13:00	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
18	TB-210716			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
19	Dup-14	↓	-	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/16 1336	Tom Clu AAL	7-16 1330
Tom Clu AAL	7-16 1500	[signature] AAL	7-16-1500
[signature] AAL	7-16 2200	[signature] AAL	7/16/21 2230
[signature] AAL	7/17/21 0405	[signature]	7/17/21 0405

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

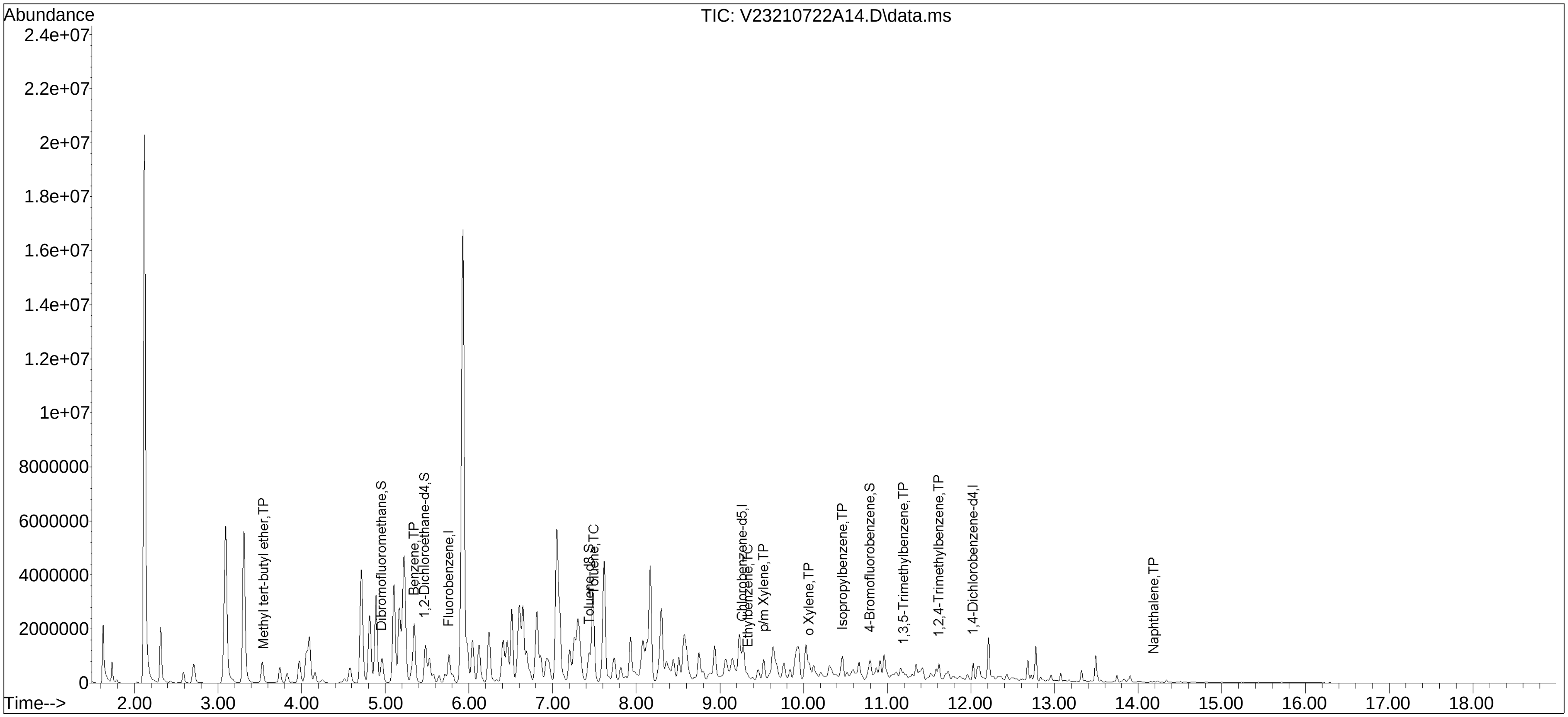
FORM NO: 01-01(I)(I) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\210722A\
Data File : V23210722A14.D
Acq On   : 22 Jul 2021 11:51 am
Operator : VOA123:JC
Sample   : l2138358-01,31,5.02,5,,b
Misc   : WG1526784,ICAL18108
ALS Vial : 14   Sample Multiplier: 1

Quant Time: Jul 22 12:59:24 2021
Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•



Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210722A\
Data File : V23210722A07.D
Acq On    : 22 Jul 2021  08:56 am
Operator  : VOA123:JC
Sample    : l2138358-04,31h,6.18,5,0.100,,a
Misc      : WG1526522,ICAL18108
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Jul 22 11:55:33 2021
Quant Method : I:\VOLATILES\VOA123\2021\210722A\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list22A\V23210722A01.D•
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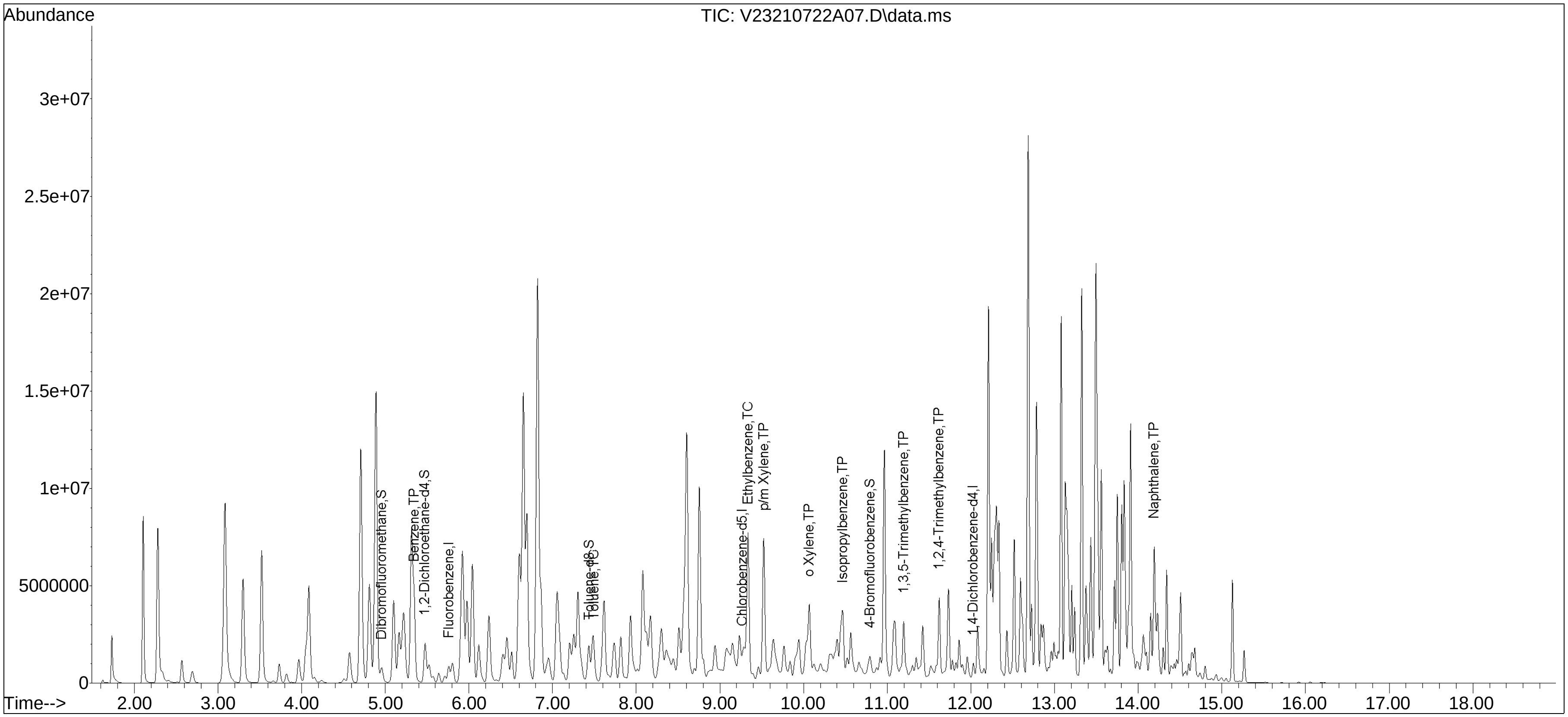
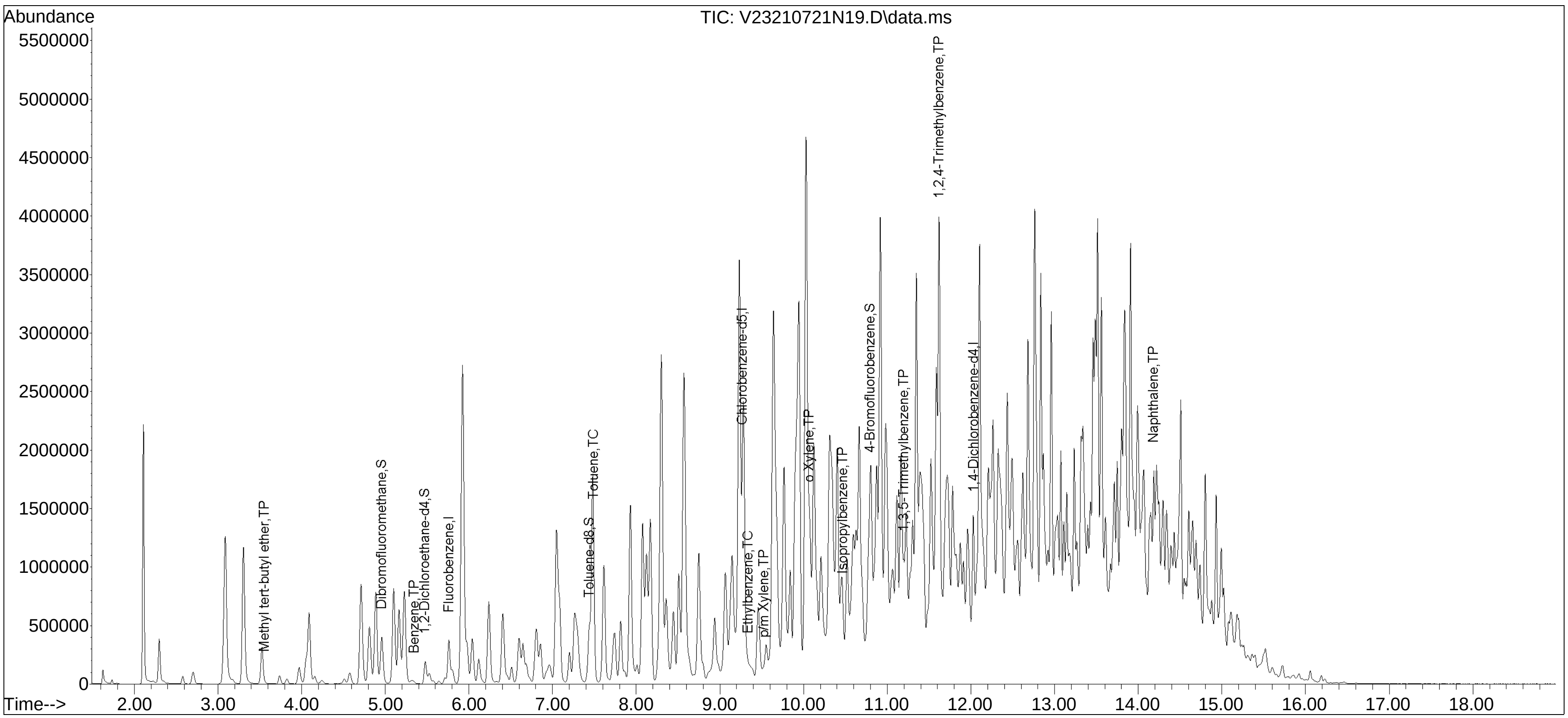


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N19.D
Acq On    : 21 Jul 2021  11:41 pm
Operator  : VOA123:MV
Sample    : L2138358-12D,31H,5.61,5,0.050,,A
Misc      : WG1526522,ICAL18108
ALS Vial  : 19   Sample Multiplier: 1

Quant Time: Jul 22 04:07:51 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•
```



Quantitation Report (QT Reviewed)

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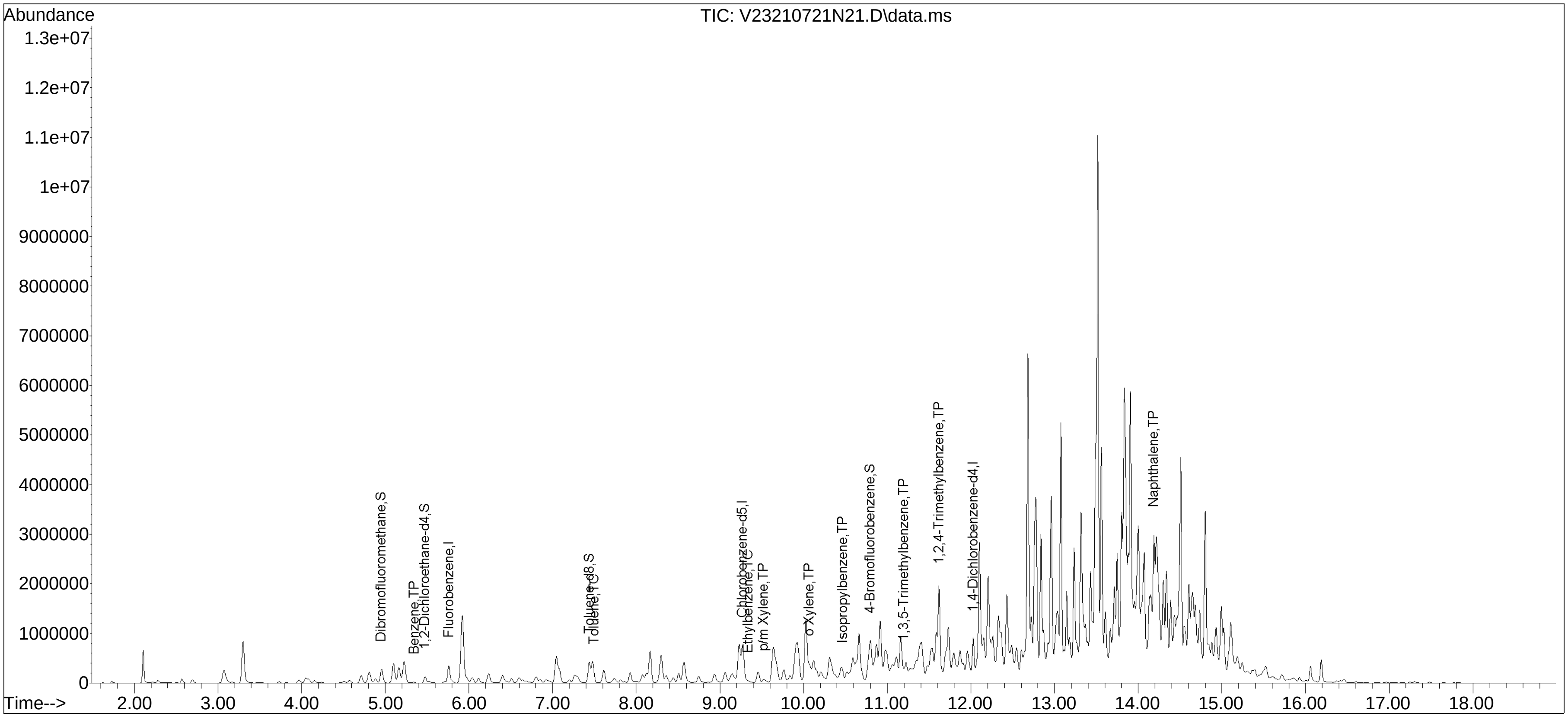
Data Path : I:\VOLATILES\VOA123\2021\210721N\
Data File : V23210721N21.D
Acq On    : 22 Jul 2021  12:31 am
Operator  : VOA123:MV
Sample    : L2138358-14,31H,5.41,5,0.100,,A
Misc      : WG1526522,ICAL18108
ALS Vial  : 21   Sample Multiplier: 1

Quant Time: Jul 22 04:04:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\210721N\V123_210626A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jun 29 14:55:56 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list21N\V23210721N01.D•
```



SGS

Dayton, NJ

07/29/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2138358

SGS Job Number: JD28614

Sampling Date: 07/16/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walku Drive
Westborough, MA 01581

ATTN: Ellen Collins

Total number of pages in report: **190**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

Table of Contents

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SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JD28614-1	07/16/21	09:05	07/20/21	SO	Soil	PB38-01-SS01
JD28614-2	07/16/21	09:15	07/20/21	SO	Soil	PB38-02-SS01
JD28614-3	07/16/21	09:30	07/20/21	SO	Soil	PB38-03-SS01
JD28614-4	07/16/21	09:35	07/20/21	SO	Soil	PB38-04-SS01
JD28614-5	07/16/21	09:45	07/20/21	SO	Soil	PB38-05-SS01
JD28614-6	07/16/21	10:05	07/20/21	SO	Soil	PB38-06-SS01
JD28614-7	07/16/21	10:35	07/20/21	SO	Soil	PB38-07-SS01
JD28614-8	07/16/21	10:45	07/20/21	SO	Soil	PB38-08-SS01
JD28614-9	07/16/21	10:55	07/20/21	SO	Soil	PB38-09-SS01
JD28614-10	07/16/21	11:05	07/20/21	SO	Soil	PB38-10-SS01
JD28614-11	07/16/21	11:35	07/20/21	SO	Soil	PB38-11-SS01
JD28614-12	07/16/21	11:45	07/20/21	SO	Soil	PB38-12-SS01
JD28614-13	07/16/21	11:55	07/20/21	SO	Soil	PB38-13-SS01

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

SGS North America Inc.

Sample Summary

(continued)

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
JD28614-14	07/16/21	12:05	07/20/21	SO	Soil	PB38-14-SS01
JD28614-15	07/16/21	11:00	07/20/21	AQ	Field Blank Soil	FB-210716-1
JD28614-16	07/16/21	13:00	07/20/21	AQ	Field Blank Soil	FB-210716-2
JD28614-17	07/16/21	00:00	07/20/21	SO	Soil	DUP-14

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

CASE NARRATIVE / CONFORMANCE SUMMARY

Client:	Alpha Analytical Laboratories, Inc.	**Job No**	JD28614
Site:	Alpha Analytical, PA	**Report Date**	7/29/2021 8:54:51 AM

On 07/20/2021, 15 Sample(s), 0 Trip Blank(s) and 2 Field Blank(s) were received at SGS North America Inc. at a maximum corrected temperature of 4.1 C. Samples were intact and chemically preserved, unless noted below. A SGS North America Inc. Job Number of JD28614 was assigned to the project. Laboratory sample ID, client sample ID and dates of sample collection are detailed in the report's Results Summary Section.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Compounds qualified as out of range in the continuing calibration summary report are acceptable as per method requirements when there is a high bias but the sample result is non-detect.

Metals Analysis By Method SW846 6010D

Matrix: AQ **Batch ID:** MP27687

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28597-4MS, JD28597-4MSD, JD28597-4SDL were used as the QC samples for metals.

Matrix: SO **Batch ID:** MP27576

- All samples were digested within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) JD28614-6MS, JD28614-6MSD, JD28614-6SDL were used as the QC samples for metals.

SGS North America Inc. certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting the Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

SGS North America Inc. is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. Data release is authorized by SGS North America Inc indicated via signature on the report cover

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-1	**PB38-01-SS01**					
Lead		110	2.6		mg/kg	SW846 6010D
JD28614-2	**PB38-02-SS01**					
Lead		22.9	2.4		mg/kg	SW846 6010D
JD28614-3	**PB38-03-SS01**					
Lead		96.7	2.4		mg/kg	SW846 6010D
JD28614-4	**PB38-04-SS01**					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-5	**PB38-05-SS01**					
Lead		13.6	2.4		mg/kg	SW846 6010D
JD28614-6	**PB38-06-SS01**					
Lead		17.8	2.5		mg/kg	SW846 6010D
JD28614-7	**PB38-07-SS01**					
Lead		81.7	2.4		mg/kg	SW846 6010D
JD28614-8	**PB38-08-SS01**					
Lead		30.3	2.3		mg/kg	SW846 6010D
JD28614-9	**PB38-09-SS01**					
Lead		188	2.4		mg/kg	SW846 6010D
JD28614-10	**PB38-10-SS01**					
Lead		464	2.5		mg/kg	SW846 6010D
JD28614-11	**PB38-11-SS01**					
Lead		780	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD28614
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/16/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD28614-12	**PB38-12-SS01**					
Lead		31.6	3.3		mg/kg	SW846 6010D
JD28614-13	**PB38-13-SS01**					
Lead		12.7	2.4		mg/kg	SW846 6010D
JD28614-14	**PB38-14-SS01**					
Lead		36.6	2.8		mg/kg	SW846 6010D
JD28614-15	**FB-210716-1**					
No hits reported in this sample.						
JD28614-16	**FB-210716-2**					
No hits reported in this sample.						
JD28614-17	**DUP-14**					
Lead		179	2.2		mg/kg	SW846 6010D

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-01-SS01		
Lab Sample ID:	JD28614-1	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	110	2.6	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-02-SS01		
Lab Sample ID:	JD28614-2	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	80.1
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	22.9	2.4	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

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Client Sample ID:	PB38-03-SS01		
Lab Sample ID:	JD28614-3	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	96.7	2.4	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-04-SS01		
Lab Sample ID:	JD28614-4	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	83.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-05-SS01		
Lab Sample ID:	JD28614-5	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	79.7
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	13.6	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-06-SS01		
Lab Sample ID:	JD28614-6	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	17.8	2.5	mg/kg	1	07/23/21	07/24/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50885
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-07-SS01		
Lab Sample ID:	JD28614-7	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	81.7	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Page 1 of 1

Client Sample ID: PB38-08-SS01
Lab Sample ID: JD28614-8
Matrix: SO - Soil
Project: Alpha Analytical, PA

Date Sampled: 07/16/21
Date Received: 07/20/21
Percent Solids: 84.6

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	30.3	2.3	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-09-SS01		
Lab Sample ID:	JD28614-9	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	86.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	188	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-10-SS01		
Lab Sample ID:	JD28614-10	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	85.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	464	2.5	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-11-SS01			
Lab Sample ID:	JD28614-11		**Date Sampled:**	07/16/21
Matrix:	SO - Soil		**Date Received:**	07/20/21
			Percent Solids:	84.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	780	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-12-SS01		
Lab Sample ID:	JD28614-12	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	82.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	31.6	3.3	mg/kg	2	07/23/21	07/28/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50902
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-13-SS01		
Lab Sample ID:	JD28614-13	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	81.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	12.7	2.4	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB38-14-SS01		
Lab Sample ID:	JD28614-14	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	74.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	36.6	2.8	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210716-1		
Lab Sample ID:	JD28614-15	**Date Sampled:**	07/16/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210716-2		
Lab Sample ID:	JD28614-16	**Date Sampled:**	07/16/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/20/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	07/27/21	07/27/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50895
(2) Prep QC Batch: MP27687

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	DUP-14		
Lab Sample ID:	JD28614-17	**Date Sampled:**	07/16/21
Matrix:	SO - Soil	**Date Received:**	07/20/21
		Percent Solids:	88.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	179	2.2	mg/kg	1	07/23/21	07/26/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50891
(2) Prep QC Batch: MP27576

RL = Reporting Limit

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Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody
- Sample Tracking Chronicle
- Internal Chain of Custody

ALPHA ANALYTICAL

SO
FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD28614

Alpha Job Number
L2138358

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138358

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB38-01-SS01	07-16-21 09:05	SOIL	Total Lead	E37
2	PB38-02-SS01	07-16-21 09:15	SOIL	Total Lead	T2
3	PB38-03-SS01	07-16-21 09:30	SOIL	Total Lead	A29
4	PB38-04-SS01	07-16-21 09:35	SOIL	Total Lead	
5	PB38-05-SS01	07-16-21 09:45	SOIL	Total Lead	
6	PB38-06-SS01	07-16-21 10:05	SOIL	Total Lead	
7	PB38-07-SS01	07-16-21 10:35	SOIL	Total Lead	
8	PB38-08-SS01	07-16-21 10:45	SOIL	Total Lead	
9	PB38-09-SS01	07-16-21 10:55	SOIL	Total Lead	

INITIAL ASESSMENT TS-213

LABEL VERIFICATION ______

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21	[illegible]	7/19/21 20:05
Paul Mazzella	7/19/21 20:05	Paul Mazzella	7/19/21 20:05
Paul Mazzella	7/19/21 22:35	Don DAAL	7/20/21 830
Don DAAL	7/20/21 10:35	[illegible]	7/20/21 10:35

Form No: AL_subcoc

IR-5 OA ice 4.1°C IP

JD28614: Chain of Custody
Page 1 of 3

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JD28614

Subcontract Chain of Custody

ALPHA ANALYTICAL

SGS- North America
2235 US-130
Dayton, NJ 08810

Alpha Job Number
L2138358

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2138358

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com EQUISTERRP1 needed

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB38-10-SS01	07-16-21 11:05	SOIL	Total Lead	
11	PB38-11-SS01	07-16-21 11:35	SOIL	Total Lead	
12	PB38-12-SS01	07-16-21 11:45	SOIL	Total Lead	
13	PB38-13-SS01	07-16-21 11:55	SOIL	Total Lead	
14	PB38-14-SS01	07-16-21 12:05	SOIL	Total Lead	
15	FB-210716-1	07-16-21 11:00	WATER	Total Lead	
16	FB-210716-2	07-16-21 13:00	WATER	Total Lead	
17	DUP-14	07-16-21 00:00	SOIL	Total Lead	

Relinquished By:	Date/Time:	Received By:	Date/Time:
AAL	7/19/21		1530
7/17	20:05	Paul Mazzella	7/19/21 20:05
Paul Mazzella	7/19/21 22:35	Don D. AAL	7/20/21 8:30
Don D AAL	7/20/21 10:35	John Yukas	7/20/21 10:35

Form No: AL_subcoc

IR5

On ice 4.1°C IP

JD28614: Chain of Custody
Page 2 of 3

SGS Sample Receipt Summary

Job Number: JD28614 **Client:** ALPHA ANALYTICAL **Project:** L2138358

Date / Time Received: 7/20/2021 10:35:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (4.1);

Cooler Temps (Corrected) °C: Cooler 1: (4.1);

Cooler Security	Y	N
1. Custody Seals Present:	☑	☐
2. Custody Seals Intact:	☑	☐
3. COC Present:	☑	☐
4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments

SM089-03
Rev. Date 12/7/17

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-1 PB38-01-SS01	Collected: 16-JUL-21 09:05 By:		Received: 20-JUL-21 By: MK			
JD28614-1	SW846 6010D	24-JUL-21 02:56	ND	23-JUL-21	MS	PB
JD28614-2 PB38-02-SS01	Collected: 16-JUL-21 09:15 By:		Received: 20-JUL-21 By: MK			
JD28614-2	SW846 6010D	24-JUL-21 03:01	ND	23-JUL-21	MS	PB
JD28614-3 PB38-03-SS01	Collected: 16-JUL-21 09:30 By:		Received: 20-JUL-21 By: MK			
JD28614-3	SW846 6010D	24-JUL-21 03:06	ND	23-JUL-21	MS	PB
JD28614-4 PB38-04-SS01	Collected: 16-JUL-21 09:35 By:		Received: 20-JUL-21 By: MK			
JD28614-4	SW846 6010D	26-JUL-21 16:58	ND	23-JUL-21	MS	PB
JD28614-5 PB38-05-SS01	Collected: 16-JUL-21 09:45 By:		Received: 20-JUL-21 By: MK			
JD28614-5	SW846 6010D	26-JUL-21 17:03	ND	23-JUL-21	MS	PB
JD28614-6 PB38-06-SS01	Collected: 16-JUL-21 10:05 By:		Received: 20-JUL-21 By: MK			
JD28614-6	SW846 6010D	24-JUL-21 02:46	ND	23-JUL-21	MS	PB
JD28614-7 PB38-07-SS01	Collected: 16-JUL-21 10:35 By:		Received: 20-JUL-21 By: MK			
JD28614-7	SW846 6010D	26-JUL-21 17:08	ND	23-JUL-21	MS	PB
JD28614-8 PB38-08-SS01	Collected: 16-JUL-21 10:45 By:		Received: 20-JUL-21 By: MK			
JD28614-8	SW846 6010D	26-JUL-21 17:13	ND	23-JUL-21	MS	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-9	Collected: 16-JUL-21 10:55 By:		Received: 20-JUL-21 By: MK			
PB38-09-SS01						
JD28614-9	SW846 6010D	26-JUL-21 17:18	ND	23-JUL-21	MS	PB
JD28614-10	Collected: 16-JUL-21 11:05 By:		Received: 20-JUL-21 By: MK			
PB38-10-SS01						
JD28614-10	SW846 6010D	26-JUL-21 17:23	ND	23-JUL-21	MS	PB
JD28614-11	Collected: 16-JUL-21 11:35 By:		Received: 20-JUL-21 By: MK			
PB38-11-SS01						
JD28614-11	SW846 6010D	26-JUL-21 17:38	ND	23-JUL-21	MS	PB
JD28614-12	Collected: 16-JUL-21 11:45 By:		Received: 20-JUL-21 By: MK			
PB38-12-SS01						
JD28614-12	SW846 6010D	28-JUL-21 13:43	ND	23-JUL-21	MS	PB
JD28614-13	Collected: 16-JUL-21 11:55 By:		Received: 20-JUL-21 By: MK			
PB38-13-SS01						
JD28614-13	SW846 6010D	26-JUL-21 17:49	ND	23-JUL-21	MS	PB
JD28614-14	Collected: 16-JUL-21 12:05 By:		Received: 20-JUL-21 By: MK			
PB38-14-SS01						
JD28614-14	SW846 6010D	26-JUL-21 17:53	ND	23-JUL-21	MS	PB
JD28614-15	Collected: 16-JUL-21 11:00 By:		Received: 20-JUL-21 By: MK			
FB-210716-1						
JD28614-15	SW846 6010D	27-JUL-21 21:56	ND	27-JUL-21	AK	PB
JD28614-16	Collected: 16-JUL-21 13:00 By:		Received: 20-JUL-21 By: MK			
FB-210716-2						
JD28614-16	SW846 6010D	27-JUL-21 22:02	ND	27-JUL-21	AK	PB

SGS North America Inc.

Internal Sample Tracking Chronicle

Alpha Analytical Laboratories, Inc.

Job No: JD28614

Alpha Analytical, PA
Project No: L2138358

Sample Number	Method	Analyzed	By	Prepped	By	Test Codes
JD28614-17 DUP-14	Collected: 16-JUL-21 00:00 By:		Received: 20-JUL-21 By: MK			
JD28614-17	SW846 6010D	26-JUL-21 17:58	ND	23-JUL-21	MS	PB

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-1.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-1.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-1.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-1.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-1.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-1.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-1.1
JD28614-1.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-2.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-2.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-2.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-2.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-2.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-2.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-2.1
JD28614-2.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-3.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-3.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-3.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-3.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-3.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-3.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-3.1
JD28614-3.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-4.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-4.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-4.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-4.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-4.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-4.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-4.1
JD28614-4.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-5.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-5.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-5.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-5.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-5.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-5.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-5.1
JD28614-5.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-6.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-6.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-6.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-6.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-6.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-6.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-6.1
JD28614-6.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-7.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-7.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-7.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-7.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-7.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-7.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-7.1
JD28614-7.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-8.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-8.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-8.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-8.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-8.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-8.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-8.1
JD28614-8.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-9.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-9.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-9.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-9.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-9.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-9.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-9.1
JD28614-9.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-9.1

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-9.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-10.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-10.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-10.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-10.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-10.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-10.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-10.1
JD28614-10.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-11.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-11.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-11.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-11.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-11.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-11.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-11.1
JD28614-11.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-12.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-12.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-12.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-12.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-12.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-12.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-12.1
JD28614-12.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-13.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-13.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-13.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-13.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-13.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-13.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-13.1
JD28614-13.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-14.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-14.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage

SGS Internal Chain of Custody

Job Number: JD28614
Account: ALPHAMAW Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Received: 07/20/21

Sample.Bottle Number	Transfer FROM	Transfer TO	Date/Time	Reason
JD28614-14.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-14.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-14.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-14.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-14.1
JD28614-14.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage
JD28614-15.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-15.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-15.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-15.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-15.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-15.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-15.1
JD28614-15.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-16.1	Tyler Strong	Secured Storage	07/21/21 14:45	Return to Storage
JD28614-16.1	Secured Storage	Benjamin Gaines	07/26/21 16:27	Retrieve from Storage
JD28614-16.1	Benjamin Gaines	Secured Staging Area	07/26/21 16:27	Return to Storage
JD28614-16.1	Secured Staging Area	Alyssa Koshy	07/27/21 07:28	Retrieve from Storage
JD28614-16.1	Alyssa Koshy	Secured Storage	07/27/21 12:47	Return to Storage
JD28614-16.1.1	Alyssa Koshy	Metals Digestion	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Metals Digestion	Alyssa Koshy	07/27/21 10:45	Digestate from JD28614-16.1
JD28614-16.1.1	Alyssa Koshy	Metals Digestate Storage	07/27/21 10:45	Return to Storage
JD28614-17.1	Tyler Strong	Secured Storage	07/21/21 14:23	Return to Storage
JD28614-17.1	Secured Storage	Todd Shoemaker	07/22/21 16:15	Retrieve from Storage
JD28614-17.1	Todd Shoemaker	Secured Staging Area	07/22/21 16:15	Return to Storage
JD28614-17.1	Secured Staging Area	Alyssa Koshy	07/23/21 07:28	Retrieve from Storage
JD28614-17.1	Alyssa Koshy	Secured Storage	07/23/21 13:20	Return to Storage
JD28614-17.1.1	Alyssa Koshy	Metals Digestion	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Metals Digestion	Alyssa Koshy	07/23/21 11:51	Digestate from JD28614-17.1
JD28614-17.1.1	Alyssa Koshy	Metals Digestate Storage	07/23/21 11:51	Return to Storage

Dayton, NJ

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Instrument Runlogs
- Initial and Continuing Calibration Blanks
- Initial and Continuing Calibration Checks
- High and Low Check Standards
- Interfering Element Check Standards
- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:21	MA50885-STD1	1		STDA
17:26	MA50885-STD2	1		STDB
17:31	ZZZZZZ	1		
17:36	ZZZZZZ	1		
17:41	MA50885-ICV1	1		
17:46	MA50885-ICB1	1		
17:51	MA50885-CCV1	1		
17:56	MA50885-CCB1	1		
18:01	MA50885-CRI1	1		
18:06	MA50885-CRID1	1		
18:11	MA50885-ICSA1	1		
18:16	MA50885-ICSAB1	1		
18:21	MA50885-HSTD1	1		
18:26	MA50885-HSTD2	1		
18:31	ZZZZZZ	1		
18:37	ZZZZZZ	1		
18:42	ZZZZZZ	1		
18:47	MA50885-CCV2	1		
18:52	MA50885-CCB2	1		
18:57	ZZZZZZ	5		
19:02	ZZZZZZ	5		
19:07	MA50885-HSTD3	1		
19:12	MA50885-CCV3	1		
19:17	MA50885-CCB3	1		
19:22	MP27580-S1	5		
19:27	MP27580-S2	5		
19:32	JD28370-6A	5		(sample used for QC only; not part of login JD28614)
19:37	MP27580-SD1	25		
19:42	ZZZZZZ	5		
19:48	ZZZZZZ	5		
19:53	ZZZZZZ	5		
19:58	ZZZZZZ	5		
20:03	ZZZZZZ	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:09	MA50885-CCV4	1		
20:13	MA50885-CCB4	1		
20:18	ZZZZZZ	5		
20:24	ZZZZZZ	5		
20:29	ZZZZZZ	5		
20:34	ZZZZZZ	5		
20:39	ZZZZZZ	5		
20:44	ZZZZZZ	5		
20:50	ZZZZZZ	5		
20:55	MP27581-MB1	5		
21:00	MP27581-B1	5		
21:05	MP27581-S1	5		
21:10	MA50885-CCV5	1		
21:15	MA50885-CCB5	1		
21:20	MP27581-S2	5		
21:25	JD28602-1A	5		(sample used for QC only; not part of login JD28614)
21:30	MP27581-SD1	25		
21:35	ZZZZZZ	5		
21:41	ZZZZZZ	5		
21:46	ZZZZZZ	5		
21:51	MP27582-MB1	5		
21:56	MP27582-B1	5		
22:01	MP27582-S1	5		
22:06	MP27582-S2	5		
22:11	MA50885-CCV6	1		
22:16	MA50885-CCB6	1		
22:21	JD28385-50	5		(sample used for QC only; not part of login JD28614)
22:26	MP27582-SD1	25		
22:31	ZZZZZZ	5		
22:36	ZZZZZZ	5		
22:41	ZZZZZZ	5		
22:46	MP27583-MB1	5		
22:51	MP27583-B1	5		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
22:56	MP27583-S1	5		
23:01	MP27583-S2	5		
23:06	JD28385-42	5		(sample used for QC only; not part of login JD28614)
23:11	MA50885-CCV7	1		
23:16	MA50885-CCB7	1		
23:21	MP27583-SD1	25		
23:26	ZZZZZZ	5		
23:32	ZZZZZZ	5		
23:37	ZZZZZZ	5		
23:42	ZZZZZZ	5		
23:47	ZZZZZZ	5		
23:52	MP27578-MB1	1		
23:58	MP27578-B1	1		
00:02	MP27578-S1	1		
00:07	MP27578-S2	1		
00:12	MA50885-CCV8	1		
00:17	MA50885-CCB8	1		
00:22	JD28643-11	1		(sample used for QC only; not part of login JD28614)
00:27	MP27578-SD1	5		
00:32	ZZZZZZ	1		
00:37	ZZZZZZ	1		
00:42	ZZZZZZ	1		
00:47	ZZZZZZ	1		
00:52	ZZZZZZ	1		
00:57	ZZZZZZ	1		
01:02	ZZZZZZ	1		
01:07	ZZZZZZ	1		
01:12	MA50885-CCV9	1		
01:17	MA50885-CCB9	1		
01:22	ZZZZZZ	1		
01:27	ZZZZZZ	1		
01:32	ZZZZZZ	1		
01:37	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
01:42	ZZZZZZ	1		
01:47	ZZZZZZ	1		
01:51	ZZZZZZ	1		
01:56	ZZZZZZ	1		
02:01	ZZZZZZ	1		
02:06	ZZZZZZ	1		
02:11	MA50885-CCV10	1		
02:16	MA50885-CCB10	1		
02:21	ZZZZZZ	1		
02:26	MP27576-B1	1		
02:31	MP27576-MB1	1		
02:36	MP27576-S1	1		
02:41	MP27576-S2	1		
02:46	JD28614-6	1		
02:51	MP27576-SD1	5		
02:56	JD28614-1	1		
03:01	JD28614-2	1		
03:06	JD28614-3	1		
----------->	Last reportable sample/prep for job JD28614			
03:11	MA50885-CCV11	1		
03:16	MA50885-CCB11	1		
----------->	Last reportable CCB for job JD28614			
03:21	JD28614-4	1		instrument stopped
03:26	JD28614-5	1		instrument stopped
03:31	JD28614-7	1		instrument stopped
03:36	JD28614-8	1		instrument stopped
03:41	JD28614-9	1		instrument stopped
03:46	JD28614-10	1		instrument stopped
03:51	JD28614-11	1		instrument stopped
03:56	JD28614-12	1		instrument stopped
04:01	JD28614-13	1		instrument stopped

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
17:31	ZZZZZZ	1	
17:36	ZZZZZZ	1	
17:41	MA50885-ICV1	1	X
17:46	MA50885-ICB1	1	X
17:51	MA50885-CCV1	1	X
17:56	MA50885-CCB1	1	X
18:01	MA50885-CRI1	1	X
18:06	MA50885-CRID1	1	X
18:11	MA50885-ICSA1	1	X
18:16	MA50885-ICSAB1	1	X
18:21	MA50885-HSTD1	1	X
18:26	MA50885-HSTD2	1	X
18:31	ZZZZZZ	1	
18:37	ZZZZZZ	1	
18:42	ZZZZZZ	1	
18:47	MA50885-CCV2	1	X
18:52	MA50885-CCB2	1	X
18:57	ZZZZZZ	5	
19:02	ZZZZZZ	5	
19:07	MA50885-HSTD3	1	X
19:12	MA50885-CCV3	1	X
19:17	MA50885-CCB3	1	X
19:22	MP27580-S1	5	X
19:27	MP27580-S2	5	X
19:32	JD28370-6A	5	X (a)
19:37	MP27580-SD1	25	X
19:42	ZZZZZZ	5	
19:48	ZZZZZZ	5	
19:53	ZZZZZZ	5	
19:58	ZZZZZZ	5	
20:03	ZZZZZZ	5	
20:09	MA50885-CCV4	1	X
20:13	MA50885-CCB4	1	X
		Element:	Pb

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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
20:18	ZZZZZZ	5	
20:24	ZZZZZZ	5	
20:29	ZZZZZZ	5	
20:34	ZZZZZZ	5	
20:39	ZZZZZZ	5	
20:44	ZZZZZZ	5	
20:50	ZZZZZZ	5	
20:55	MP27581-MB1	5	X
21:00	MP27581-B1	5	X
21:05	MP27581-S1	5	X
21:10	MA50885-CCV5	1	X
21:15	MA50885-CCB5	1	X
21:20	MP27581-S2	5	X
21:25	JD28602-1A	5	X (a)
21:30	MP27581-SD1	25	X
21:35	ZZZZZZ	5	
21:41	ZZZZZZ	5	
21:46	ZZZZZZ	5	
21:51	MP27582-MB1	5	X
21:56	MP27582-B1	5	X
22:01	MP27582-S1	5	X
22:06	MP27582-S2	5	X
22:11	MA50885-CCV6	1	X
22:16	MA50885-CCB6	1	X
22:21	JD28385-50	5	X (a)
22:26	MP27582-SD1	25	X
22:31	ZZZZZZ	5	
22:36	ZZZZZZ	5	
22:41	ZZZZZZ	5	
22:46	MP27583-MB1	5	X
22:51	MP27583-B1	5	X
22:56	MP27583-S1	5	X
23:01	MP27583-S2	5	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:06	JD28385-42	5	X (a)
23:11	MA50885-CCV7	1	X
23:16	MA50885-CCB7	1	X
23:21	MP27583-SD1	25	X
23:26	ZZZZZZ	5	
23:32	ZZZZZZ	5	
23:37	ZZZZZZ	5	
23:42	ZZZZZZ	5	
23:47	ZZZZZZ	5	
23:52	MP27578-MB1	1	X
23:58	MP27578-B1	1	X
00:02	MP27578-S1	1	X
00:07	MP27578-S2	1	X
00:12	MA50885-CCV8	1	X
00:17	MA50885-CCB8	1	X
00:22	JD28643-11	1	X (a)
00:27	MP27578-SD1	5	X
00:32	ZZZZZZ	1	
00:37	ZZZZZZ	1	
00:42	ZZZZZZ	1	
00:47	ZZZZZZ	1	
00:52	ZZZZZZ	1	
00:57	ZZZZZZ	1	
01:02	ZZZZZZ	1	
01:07	ZZZZZZ	1	
01:12	MA50885-CCV9	1	X
01:17	MA50885-CCB9	1	X
01:22	ZZZZZZ	1	
01:27	ZZZZZZ	1	
01:32	ZZZZZZ	1	
01:37	ZZZZZZ	1	
01:42	ZZZZZZ	1	
01:47	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
01:51	ZZZZZZ	1	
01:56	ZZZZZZ	1	
02:01	ZZZZZZ	1	
02:06	ZZZZZZ	1	
02:11	MA50885-CCV10	1	X
02:16	MA50885-CCB10	1	X
02:21	ZZZZZZ	1	
02:26	MP27576-B1	1	X
02:31	MP27576-MB1	1	X
02:36	MP27576-S1	1	X
02:41	MP27576-S2	1	X
02:46	JD28614-6	1	X
02:51	MP27576-SD1	5	X
02:56	JD28614-1	1	X
03:01	JD28614-2	1	X
03:06	JD28614-3	1	X
03:11	MA50885-CCV11	1	X
03:16	MA50885-CCB11	1	X
03:21	JD28614-4	1	instrument stopped
03:26	JD28614-5	1	instrument stopped
03:31	JD28614-7	1	instrument stopped
03:36	JD28614-8	1	instrument stopped
03:41	JD28614-9	1	instrument stopped
03:46	JD28614-10	1	instrument stopped
03:51	JD28614-11	1	instrument stopped
03:56	JD28614-12	1	instrument stopped
04:01	JD28614-13	1	instrument stopped

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

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SGS

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:21	MA50885-STD1	3196 R	86341 R	8580 R	8763 R
17:26	MA50885-STD2	3025	82681	8425	7660
17:31	ZZZZZZ	3134	85064	8466	8047
17:36	ZZZZZZ	3223	88231	8582	8836
17:41	MA50885-ICV1	3119	84261	8598	7963
17:46	MA50885-ICB1	3243	87818	8688	8885
17:51	MA50885-CCV1	3157	84247	8583	8035
17:56	MA50885-CCB1	3262	87517	8625	8879
18:01	MA50885-CRI1	3237	86363	8704	8706
18:06	MA50885-CRID1	3246	86469	8614	8793
18:11	MA50885-ICSA1	2957	76774	8297	7158
18:16	MA50885-ICSAB1	2995	77179	8226	7228
18:21	MA50885-HSTD1	3263	85857	8631	8706
18:26	MA50885-HSTD2	3012	77648	8251	7232
18:31	ZZZZZZ	3274	85348	8557	8875
18:37	ZZZZZZ	3273	87085	8662	8984
18:42	ZZZZZZ	3352	87383	8559	9022
18:47	MA50885-CCV2	3237	83353	8444	8127
18:52	MA50885-CCB2	3321	86703	8597	8941
18:57	ZZZZZZ	3236	83554	8607	8319
19:02	ZZZZZZ	3239	83816	8604	8261
19:07	MA50885-HSTD3	3030	77601	8256	7269
19:12	MA50885-CCV3	3260	83828	8468	8173
19:17	MA50885-CCB3	3366	87325	8545	9038
19:22	MP27580-S1	3216	81256	8583	7914
19:27	MP27580-S2	3175	81200	8438	7842
19:32	JD28370-6A	3169	80971	8555	7866
19:37	MP27580-SD1	3283	84651	8558	8500
19:42	ZZZZZZ	3128	80115	8443	7747
19:48	ZZZZZZ	3150	80568	8460	7793
19:53	ZZZZZZ	3151	80596	8481	7813
19:58	ZZZZZZ	3132	80493	8486	7753
20:03	ZZZZZZ	3169	81166	8489	7901

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:09	MA50885-CCV4	3302	85288	8827	8254
20:13	MA50885-CCB4	3339	87964	8883	8974
20:18	ZZZZZZ	3122	79405	8309	7732
20:24	ZZZZZZ	3078	79827	8187	7641
20:29	ZZZZZZ	3055	79116	8399	7576
20:34	ZZZZZZ	3059	79272	8394	7611
20:39	ZZZZZZ	3071	79746	8499	7654
20:44	ZZZZZZ	3050	79811	8471	7611
20:50	ZZZZZZ	3075	79860	8465	7655
20:55	MP27581-MB1	3118	80458	8534	7826
21:00	MP27581-B1	3157	81248	8528	7834
21:05	MP27581-S1	3078	80119	8440	7634
21:10	MA50885-CCV5	3205	83274	8515	8090
21:15	MA50885-CCB5	3323	86915	8632	8978
21:20	MP27581-S2	3065	79509	8402	7586
21:25	JD28602-1A	3045	79192	8380	7569
21:30	MP27581-SD1	3218	83640	8491	8348
21:35	ZZZZZZ	3126	79685	8540	7781
21:41	ZZZZZZ	3041	77480	7819	7594
21:46	ZZZZZZ	3026	76562	7670	7599
21:51	MP27582-MB1	3196	82959	7825	8641
21:56	MP27582-B1	3172	82757	7823	8431
22:01	MP27582-S1	2975	77507	7675	7601
22:06	MP27582-S2	2964	76941	7581	7564
22:11	MA50885-CCV6	3085	78962	7673	7808
22:16	MA50885-CCB6	3180	82307	7679	8573
22:21	JD28385-50	2910	75836	7444	7501
22:26	MP27582-SD1	3070	79944	7515	8160
22:31	ZZZZZZ	2870	75508	7409	7450
22:36	ZZZZZZ	2969	77396	7561	7729
22:41	ZZZZZZ	2984	78273	7677	7789
22:46	MP27583-MB1	2964	76293	7504	7512
22:51	MP27583-B1	2985	76840	7550	7476

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
Analyst: ND Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
22:56	MP27583-S1	2913	75478	7456	7287
23:01	MP27583-S2	2916	75375	7415	7300
23:06	JD28385-42	2882	74628	7252	7232
23:11	MA50885-CCV7	3036	78509	7514	7731
23:16	MA50885-CCB7	3158	82029	7664	8570
23:21	MP27583-SD1	3067	79390	7577	7991
23:26	ZZZZZZ	2926	75750	7496	7355
23:32	ZZZZZZ	2904	74763	7286	7312
23:37	ZZZZZZ	2896	75034	7431	7323
23:42	ZZZZZZ	2895	74878	7366	7299
23:47	ZZZZZZ	2956	76300	7548	7419
23:52	MP27578-MB1	3096	81312	7615	8430
23:58	MP27578-B1	3007	78625	7592	7809
00:02	MP27578-S1	3203	83529	8178	7890
00:07	MP27578-S2	3276	84035	8298	8093
00:12	MA50885-CCV8	3125	80545	7853	7938
00:17	MA50885-CCB8	3174	82816	7666	8606
00:22	JD28643-11	3367	86860	8430	8487
00:27	MP27578-SD1	3270	85056	8011	8614
00:32	ZZZZZZ	No results reported for the elements associated with this internal standard.			
00:37	ZZZZZZ	3354	85091	8272	8103
00:42	ZZZZZZ	3315	83804	8123	8340
00:47	ZZZZZZ	3380	85216	8465	8082
00:52	ZZZZZZ	3405	87268	8551	8321
00:57	ZZZZZZ	3360	86306	8490	8332
01:02	ZZZZZZ	3377	86896	8534	8242
01:07	ZZZZZZ	3404	86625	8499	8209
01:12	MA50885-CCV9	3115	80358	7806	7906
01:17	MA50885-CCB9	3218	83271	7811	8710
01:22	ZZZZZZ	3407	86636	8520	8244
01:27	ZZZZZZ	3395	86598	8500	8344
01:32	ZZZZZZ	3371	86642	8547	8230
01:37	ZZZZZZ	3329	85332	8406	8157

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
Analyst: ND   Run ID: MA50885
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
01:42	ZZZZZZ	3365	86068	8472	8268
01:47	ZZZZZZ	3358	86167	8348	8461
01:51	ZZZZZZ	3325	85600	8294	8604
01:56	ZZZZZZ	3458	88656	8689	8341
02:01	ZZZZZZ	3331	85030	8446	8237
02:06	ZZZZZZ	3334	86081	8352	8603
02:11	MA50885-CCV10	3127	80105	7778	7921
02:16	MA50885-CCB10	3237	83788	7903	8746
02:21	ZZZZZZ	3384	87023	8536	8409
02:26	MP27576-B1	3089	79787	7789	7966
02:31	MP27576-MB1	3230	83978	8030	8743
02:36	MP27576-S1	3222	82529	8295	7873
02:41	MP27576-S2	3236	82607	8264	7856
02:46	JD28614-6	3348	85376	8428	8235
02:51	MP27576-SD1	3299	84094	8098	8498
02:56	JD28614-1	3391	85978	8458	8411
03:01	JD28614-2	3373	84749	8314	8367
03:06	JD28614-3	3338	85011	8260	8353
03:11	MA50885-CCV11	3149	80157	7811	7968
03:16	MA50885-CCB11	3268	83642	7891	8808
03:21	JD28614-4	No results reported for the elements associated with this internal standard.			
03:26	JD28614-5	No results reported for the elements associated with this internal standard.			
03:31	JD28614-7	No results reported for the elements associated with this internal standard.			
03:36	JD28614-8	No results reported for the elements associated with this internal standard.			
03:41	JD28614-9	No results reported for the elements associated with this internal standard.			
03:46	JD28614-10	No results reported for the elements associated with this internal standard.			
03:51	JD28614-11	No results reported for the elements associated with this internal standard.			
03:56	JD28614-12	No results reported for the elements associated with this internal standard.			
04:01	JD28614-13	No results reported for the elements associated with this internal standard.			

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			17:46		17:56		18:52		19:17	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.500	<20	0.400	<20	1.50	<20	0.200	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			17:46		17:56		18:52		19:17	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			20:13		21:15		22:16		23:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.400	<20	0.400	<20	0.100	<20	-0.300	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: result < RL   Run ID: MA50885   Units: ug/l

Time:			20:13		21:15		22:16		23:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: result < RL   Run ID: MA50885   Units: ug/l

Time:			00:17		01:17		02:16		03:16	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	500	16								
Antimony	20	2.5								
Arsenic	20	2	anr							
Barium	200	.4	anr							
Beryllium	2.0	.1								
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	5.0	.4	anr							
Calcium	5000	5.6								
Chromium	10	.5	anr							
Cobalt	50	.5								
Copper	25	1								
Iron	500	11								
Lead	20	1.2	0.100	<20	-0.200	<20	0.100	<20	0.300	<20
Lithium	50	2.3								
Magnesium	5000	65								
Manganese	15	.2								
Molybdenum	20	.4								
Nickel	40	.3	anr							
Phosphorus	200	4.1								
Potassium	10000	55								
Selenium	20	3.5	anr							
Silicon	200	1.6								
Silver	5.0	1.1	anr							
Sodium	10000	11								
Strontium	50	.1								
Sulfur	100	4.4								
Thallium	10	2.5								
Tin	200	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6								
Zinc	50	.1								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: result < RL Run ID: MA50885 Units: ug/l

Time:			00:17		01:17		02:16		03:16	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zirconium	20	.4								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		17:41			17:51			18:47	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2030	101.5	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		17:41			17:51			18:47	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		19:12			20:09			21:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2060	103.0	2000	2060	103.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

6.1.4

6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP　Date Analyzed: 07/23/21　Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery　Run ID: MA50885　Units: ug/l

Time:		19:12			20:09			21:10	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

6.1.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50885   Units: ug/l

Time:		22:11			23:11			00:12	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2160	108.0	2000	2140	107.0	2000	2080	104.0
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:		22:11			23:11			00:12	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time: Sample ID: Metal	CCV True	01:12 CCV9 Results	% Rec	CCV True	02:11 CCV10 Results	% Rec	CCV True	03:11 CCV11 Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	2000	2090	104.5	2000	2080	104.0	2000	2070	103.5
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50885 Units: ug/l

Time:		01:12			02:11			03:11	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50885 Units: ug/l

Time:		18:21			18:26			19:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2		HSTD	HSTD3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper									
Iron									
Lead	8000	8170	102.1						
Lithium									
Magnesium									
Manganese									
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium									
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									
Zinc									

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP　　Date Analyzed: 07/23/21　　Methods: SW846 6010D
QC Limits: 90 to 110 % Recovery　　Run ID: MA50885　　Units: ug/l

Time:		18:21			18:26			19:07	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2		HSTD	HSTD3	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50885 Units: ug/l

Time: / Sample ID: / Metal	CRI True	CRIA True	CRID True	18:01 CRI1 Results	% Rec	18:06 CRID1 Results	% Rec
Aluminum	200	500	100				
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000				
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500					
Lead	3.0	20	2.5	3.00	100.0		
Lithium	50						
Magnesium	5000	2000	100				
Manganese	15		3.0				
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000				
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000				
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				
Zinc	20		10				

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP　Date Analyzed: 07/23/21　Methods: SW846 6010D
QC Limits: CRI 80-120%　CRIA 80-120%　Run ID: MA50885　Units: ug/l

Time: Sample ID: Metal	CRI True	CRIA True	CRID True	18:01 CRI1 Results	% Rec	18:06 CRID1 Results	% Rec
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP   Date Analyzed: 07/23/21   Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50885   Units: ug/l

Time:			18:11		18:16	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	501000	100.2	488000	97.6
Antimony		1000	-3.20		973	97.3
Arsenic		1000	0.700		972	97.2
Barium		500	1.30		487	97.4
Beryllium		500	0.200		489	97.8
Bismuth		500	7.10		489	97.8
Boron		500	-4.00		471	94.2
Cadmium		1000	0.00		1010	101.0
Calcium	400000	400000	382000	95.5	372000	93.0
Chromium		500	-3.80		478	95.6
Cobalt		500	-0.100		491	98.2
Copper		500	5.40		506	101.2
Iron	200000	200000	200000	100.0	191000	95.5
Lead		1000	-0.800		999	99.9
Lithium		500	-15.4		488	97.6
Magnesium	500000	500000	489000	97.8	482000	96.4
Manganese		500	0.500		520	104.0
Molybdenum		500	-1.50		451	90.2
Nickel		1000	-0.900		975	97.5
Phosphorus		500	18.9		443	88.6
Potassium			167		180	
Selenium		1000	-5.30		901	90.1
Silicon		500	-4.40		500	100.0
Silver		1000	-1.10		1000	100.0
Sodium			-22.3		43.6	
Strontium		500	0.700		470	94.0
Sulfur		500	23.7		479	95.8
Thallium		1000	-4.40		1030	103.0
Tin		500	-3.20		473	94.6
Titanium		500	-1.10		490	98.0
Tungsten		500	8.20		472	94.4
Vanadium		500	-0.400		499	99.8
Zinc		1000	2.00		995	99.5

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072321M2.ICP Date Analyzed: 07/23/21 Methods: SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50885 Units: ug/l

Time:			18:11		18:16	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zirconium		500	0.100		455	91.0

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:30	MA50891-STD1	1		STDA
11:35	MA50891-STD2	1		STDB
11:40	ZZZZZZ	1		
11:45	ZZZZZZ	1		
11:50	MA50891-ICV1	1		
12:02	MA50891-ICB1	1		
12:09	MA50891-ICCV1	1		
12:22	MA50891-CCB1	1		
12:42	MA50891-CRI1	1		
12:47	MA50891-CRID1	1		
13:03	ZZZZZZ	1		
13:09	ZZZZZZ	1		
13:14	MA50891-ICSA1	1		
13:19	MA50891-ICSAB1	1		
13:24	MA50891-HSTD1	1		
13:29	MA50891-HSTD2	1		
13:34	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:45	MA50891-CCV1	1		
13:50	MA50891-CCB2	1		
13:55	MP27569-MB1	1		
14:00	MP27569-B1	1		
14:05	MP27569-S1	1		Mg high
14:10	MP27569-S2	1		Mg high
14:15	JD28454-12	1		(sample used for QC only; not part of login JD28614)
14:20	MP27569-SD1	5		Mg high
14:25	ZZZZZZ	1		
14:30	ZZZZZZ	1		
14:35	ZZZZZZ	1		
14:40	MA50891-CCV2	1		
14:45	MA50891-CCB3	1		
14:51	ZZZZZZ	1		
14:56	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:01	ZZZZZZ	1		
15:06	ZZZZZZ	1		
15:11	ZZZZZZ	1		
15:16	ZZZZZZ	1		
15:21	ZZZZZZ	1		
15:26	ZZZZZZ	1		
15:31	ZZZZZZ	1		
15:36	MA50891-CCV3	1		
15:41	MA50891-CCB4	1		
15:47	ZZZZZZ	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	ZZZZZZ	1		
16:07	ZZZZZZ	1		
16:12	ZZZZZZ	1		
16:17	ZZZZZZ	1		
16:22	ZZZZZZ	1		
16:28	ZZZZZZ	1		
16:33	MA50891-CCV4	1		
16:38	MA50891-CCB5	1		
16:43	ZZZZZZ	5		
16:48	ZZZZZZ	1		
16:53	ZZZZZZ	1		
16:58	JD28614-4	1		
17:03	JD28614-5	1		
17:08	JD28614-7	1		
17:13	JD28614-8	1		
17:18	JD28614-9	1		
17:23	JD28614-10	1		
17:28	MA50891-CCV5	1		
17:33	MA50891-CCB6	1		
17:38	JD28614-11	1		
17:43	JD28614-12	1		FE high

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
17:49	JD28614-13	1		
17:53	JD28614-14	1		
17:58	JD28614-17	1		
----------->	Last reportable sample/prep for job JD28614			
18:03	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:23	MA50891-CCV6	1		
18:28	MA50891-CCB7	1		
----------->	Last reportable CCB for job JD28614			
18:34	ZZZZZZ	1		
18:39	MP27589-B1	1		
18:44	MP27589-S1	1		
18:48	MP27589-S2	1		
18:53	JD27825-1R	1		(sample used for QC only; not part of login JD28614)
18:58	MP27589-SD1	5		
19:04	MP27592-MB1	1		
19:09	MP27592-B1	1		
19:14	MP27592-S1	1		
19:19	MP27592-S2	1		
19:23	MA50891-CCV7	1		
19:28	MA50891-CCB8	1		
19:33	JD28584-1	1		(sample used for QC only; not part of login JD28614)
19:39	MP27592-SD1	5		
19:44	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
20:00	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	MA50891-CCV8	1		
20:31	MA50891-CCB9	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
20:36	ZZZZZZ	1		
20:42	ZZZZZZ	1		
20:47	ZZZZZZ	1		
20:52	ZZZZZZ	1		
20:58	ZZZZZZ	1		
21:03	ZZZZZZ	1		
21:08	ZZZZZZ	1		
21:13	ZZZZZZ	1		
21:18	ZZZZZZ	1		
21:23	ZZZZZZ	1		
21:28	MA50891-CCV9	1		
21:33	MA50891-CCB10	1		
21:39	MP27662-MB1	1		
21:44	MP27662-B1	1		
21:49	MP27662-S1	1		
21:54	MP27662-S2	1		high rsd
21:59	JD28714-4	1		(sample used for QC only; not part of login JD28614)
22:04	MP27662-SD1	5		
22:09	ZZZZZZ	1		
22:14	ZZZZZZ	1		
22:19	ZZZZZZ	1		
22:25	MA50891-CCV10	1		
22:29	MA50891-CCB11	1		
22:35	ZZZZZZ	1		
22:40	ZZZZZZ	1		
22:45	ZZZZZZ	1		
22:50	ZZZZZZ	1		
22:55	ZZZZZZ	1		
23:00	ZZZZZZ	1		
23:05	ZZZZZZ	1		
23:11	MP27589-MB1	1		
23:16	ZZZZZZ	1		
23:21	MA50891-CCV11	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:26	MA50891-CCB12	1		
23:31	ZZZZZZ	1		
23:37	ZZZZZZ	1		
23:42	ZZZZZZ	1		
23:47	ZZZZZZ	1		
23:53	ZZZZZZ	1		
23:58	ZZZZZZ	1		
00:03	MA50891-CCV12	1		
00:08	MA50891-CCB13	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
11:40	ZZZZZZ	1	
11:45	ZZZZZZ	1	
11:50	MA50891-ICV1	1	X
12:02	MA50891-ICB1	1	X
12:09	MA50891-ICCV1	1	X
12:22	MA50891-CCB1	1	X
12:42	MA50891-CRI1	1	X
12:47	MA50891-CRID1	1	X
13:03	ZZZZZZ	1	
13:09	ZZZZZZ	1	
13:14	MA50891-ICSA1	1	X
13:19	MA50891-ICSAB1	1	X
13:24	MA50891-HSTD1	1	X
13:29	MA50891-HSTD2	1	X
13:34	ZZZZZZ	1	
13:39	ZZZZZZ	1	
13:45	MA50891-CCV1	1	X
13:50	MA50891-CCB2	1	X
13:55	MP27569-MB1	1	X
14:00	MP27569-B1	1	X
14:05	MP27569-S1	1	Mg high
14:10	MP27569-S2	1	Mg high
14:15	JD28454-12	1	Mg high
14:20	MP27569-SD1	5	Mg high
14:25	ZZZZZZ	1	
14:30	ZZZZZZ	1	
14:35	ZZZZZZ	1	
14:40	MA50891-CCV2	1	X
14:45	MA50891-CCB3	1	X
14:51	ZZZZZZ	1	
14:56	ZZZZZZ	1	
15:01	ZZZZZZ	1	
15:06	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
15:11	ZZZZZZ	1	
15:16	ZZZZZZ	1	
15:21	ZZZZZZ	1	
15:26	ZZZZZZ	1	
15:31	ZZZZZZ	1	
15:36	MA50891-CCV3	1	X
15:41	MA50891-CCB4	1	X
15:47	ZZZZZZ	1	
15:52	ZZZZZZ	1	
15:57	ZZZZZZ	1	
16:02	ZZZZZZ	1	
16:07	ZZZZZZ	1	
16:12	ZZZZZZ	1	
16:17	ZZZZZZ	1	
16:22	ZZZZZZ	1	
16:28	ZZZZZZ	1	
16:33	MA50891-CCV4	1	X
16:38	MA50891-CCB5	1	X
16:43	ZZZZZZ	5	
16:48	ZZZZZZ	1	
16:53	ZZZZZZ	1	
16:58	JD28614-4	1	X
17:03	JD28614-5	1	X
17:08	JD28614-7	1	X
17:13	JD28614-8	1	X
17:18	JD28614-9	1	X
17:23	JD28614-10	1	X
17:28	MA50891-CCV5	1	X
17:33	MA50891-CCB6	1	X
17:38	JD28614-11	1	X
17:43	JD28614-12	1	
17:49	JD28614-13	1	X
17:53	JD28614-14	1	X
		Element:	Pb

6.2.1
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REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb	
17:58	JD28614-17	1	X	
18:03	ZZZZZZ	1		
18:08	ZZZZZZ	1		
18:13	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:23	MA50891-CCV6	1	X	
18:28	MA50891-CCB7	1	X	
18:34	ZZZZZZ	1		
18:39	MP27589-B1	1		
18:44	MP27589-S1	1		
18:48	MP27589-S2	1		
18:53	JD27825-1R	1		(a)
18:58	MP27589-SD1	5		
19:04	MP27592-MB1	1	X	
19:09	MP27592-B1	1	X	
19:14	MP27592-S1	1		
19:19	MP27592-S2	1		
19:23	MA50891-CCV7	1	X	
19:28	MA50891-CCB8	1	X	
19:33	JD28584-1	1		(a)
19:39	MP27592-SD1	5		
19:44	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
20:00	ZZZZZZ	1		
20:05	ZZZZZZ	1		
20:10	ZZZZZZ	1		
20:16	ZZZZZZ	1		
20:21	ZZZZZZ	1		
20:26	MA50891-CCV8	1	X	
20:31	MA50891-CCB9	1	X	
20:36	ZZZZZZ	1		
20:42	ZZZZZZ	1		
		Element:	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
20:47	ZZZZZZ	1	
20:52	ZZZZZZ	1	
20:58	ZZZZZZ	1	
21:03	ZZZZZZ	1	
21:08	ZZZZZZ	1	
21:13	ZZZZZZ	1	
21:18	ZZZZZZ	1	
21:23	ZZZZZZ	1	
21:28	MA50891-CCV9	1	X
21:33	MA50891-CCB10	1	X
21:39	MP27662-MB1	1	
21:44	MP27662-B1	1	
21:49	MP27662-S1	1	
21:54	MP27662-S2	1	
21:59	JD28714-4	1	(a)
22:04	MP27662-SD1	5	
22:09	ZZZZZZ	1	
22:14	ZZZZZZ	1	
22:19	ZZZZZZ	1	
22:25	MA50891-CCV10	1	X
22:29	MA50891-CCB11	1	X
22:35	ZZZZZZ	1	
22:40	ZZZZZZ	1	
22:45	ZZZZZZ	1	
22:50	ZZZZZZ	1	
22:55	ZZZZZZ	1	
23:00	ZZZZZZ	1	
23:05	ZZZZZZ	1	
23:11	MP27589-MB1	1	
23:16	ZZZZZZ	1	
23:21	MA50891-CCV11	1	X
23:26	MA50891-CCB12	1	X
23:31	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:37	ZZZZZZ	1	
23:42	ZZZZZZ	1	
23:47	ZZZZZZ	1	
23:53	ZZZZZZ	1	
23:58	ZZZZZZ	1	
00:03	MA50891-CCV12	1	X
00:08	MA50891-CCB13	1	X

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:30	MA50891-STD1	1772 R	56545 R	2111 R	5756 R
11:35	MA50891-STD2	1679	53298	2055	5441
11:40	ZZZZZZ	1739	55341	2130	5571
11:45	ZZZZZZ	1763	56508	2122	5719
11:50	MA50891-ICV1	1723	55031	2105	5533
12:02	MA50891-ICB1	1787	57433	2136	5784
12:09	MA50891-ICCV1	1706	55387	2112	5482
12:22	MA50891-CCB1	1767	56406	2096	5730
12:42	MA50891-CRI1	1773	56803	2117	5718
12:47	MA50891-CRID1	1766	56594	2111	5716
13:03	ZZZZZZ	1760	56650	2096	5676
13:09	ZZZZZZ	1745	56440	2094	5629
13:14	MA50891-ICSA1	1571	50959	2013	5123
13:19	MA50891-ICSAB1	1579	51179	2017	5155
13:24	MA50891-HSTD1	1744	55876	2122	5765
13:29	MA50891-HSTD2	1626	53109	2028	5215
13:34	ZZZZZZ	1750	56674	2087	5839
13:39	ZZZZZZ	1711	56184	2080	5700
13:45	MA50891-CCV1	1732	55561	2073	5533
13:50	MA50891-CCB2	1770	56866	2091	5719
13:55	MP27569-MB1	1796	57110	2125	5796
14:00	MP27569-B1	1740	55765	2107	5582
14:05	MP27569-S1	No results reported for the elements associated with this internal standard.			
14:10	MP27569-S2	No results reported for the elements associated with this internal standard.			
14:15	JD28454-12	No results reported for the elements associated with this internal standard.			
14:20	MP27569-SD1	No results reported for the elements associated with this internal standard.			
14:25	ZZZZZZ	1897	59425	2212	5864
14:30	ZZZZZZ	1947	61087	2277	5819
14:35	ZZZZZZ	1846	57897	2179	5721
14:40	MA50891-CCV2	1725	54867	2024	5500
14:45	MA50891-CCB3	1773	56440	2038	5697
14:51	ZZZZZZ	1866	58631	2218	5761
14:56	ZZZZZZ	1631	54148	2046	4909

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:01	ZZZZZZ	1572	52768	1994	4824
15:06	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:11	ZZZZZZ	1662	54951	2046	4954
15:16	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:21	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:26	ZZZZZZ	1588	52336	1968	4818
15:31	ZZZZZZ	1612	54243	2001	4856
15:36	MA50891-CCV3	1728	54695	1931	5497
15:41	MA50891-CCB4	1783	56456	1963	5734
15:47	ZZZZZZ	No results reported for the elements associated with this internal standard.			
15:52	ZZZZZZ	1578	52988	1930	4799
15:57	ZZZZZZ	1732	57440	2083	4994
16:02	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:07	ZZZZZZ	No results reported for the elements associated with this internal standard.			
16:12	ZZZZZZ	1856	57563	2063	5751
16:17	ZZZZZZ	1588	53382	1895	4903
16:22	ZZZZZZ	1785	56209	1903	5794
16:28	ZZZZZZ	1749	55570	1892	5643
16:33	MA50891-CCV4	1728	54719	1894	5520
16:38	MA50891-CCB5	1783	56259	1915	5763
16:43	ZZZZZZ	1744	56167	1935	5616
16:48	ZZZZZZ	1758	56111	1917	5665
16:53	ZZZZZZ	1707	54612	1905	5482
16:58	JD28614-4	1815	58521	2060	5653
17:03	JD28614-5	1878	59067	2083	5715
17:08	JD28614-7	1838	58437	2066	5635
17:13	JD28614-8	1887	60558	2116	5654
17:18	JD28614-9	1828	58886	2049	5622
17:23	JD28614-10	1811	57931	2032	5608
17:28	MA50891-CCV5	1726	54933	1894	5504
17:33	MA50891-CCB6	1756	55594	1862	5667
17:38	JD28614-11	1810	57852	2001	5732
17:43	JD28614-12	1910	60863	2097	5795

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
17:49	JD28614-13	1853	58025	2014	5893
17:53	JD28614-14	1901	60345	2102	5705
17:58	JD28614-17	1800	57591	2013	5556
18:03	ZZZZZZ	1914	60727	2109	5687
18:08	ZZZZZZ	1871	59127	2037	5768
18:13	ZZZZZZ	1933	61050	2133	5755
18:18	ZZZZZZ	1886	59451	2055	5653
18:23	MA50891-CCV6	1713	54572	1869	5472
18:28	MA50891-CCB7	1773	56681	1874	5718
18:34	ZZZZZZ	1764	55813	1891	5686
18:39	MP27589-B1	1725	54597	1874	5525
18:44	MP27589-S1	1715	55084	1891	5484
18:48	MP27589-S2	1709	54672	1892	5469
18:53	JD27825-1R	1741	55538	1884	5586
18:58	MP27589-SD1	1795	56831	1872	5797
19:04	MP27592-MB1	1785	56206	1904	5805
19:09	MP27592-B1	1713	53707	1877	5523
19:14	MP27592-S1	1675	53818	1862	5331
19:19	MP27592-S2	1665	53452	1862	5306
19:23	MA50891-CCV7	1718	54261	1868	5497
19:28	MA50891-CCB8	1778	56141	1902	5747
19:33	JD28584-1	1689	54694	1864	5357
19:39	MP27592-SD1	1751	55911	1879	5621
19:44	ZZZZZZ	1422	47278	1774	4262
19:49	ZZZZZZ	1392	46926	1758	4183
19:54	ZZZZZZ	1350	46258	1747	4064
20:00	ZZZZZZ	1346	45791	1731	4041
20:05	ZZZZZZ	1602	52310	1836	4913
20:10	ZZZZZZ	1580	51444	1834	4838
20:16	ZZZZZZ	1327	44305	1723	3921 !a
20:21	ZZZZZZ	1383	46449	1753	4086
20:26	MA50891-CCV8	1722	54837	1852	5520
20:31	MA50891-CCB9	1782	55385	1879	5778

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
20:36	ZZZZZZ	1441	47877	1767	4345
20:42	ZZZZZZ	1474	48592	1754	4460
20:47	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:52	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:58	ZZZZZZ	1694	55115	1863	5439
21:03	ZZZZZZ	1715	54564	1855	5478
21:08	ZZZZZZ	1723	54369	1818	5506
21:13	ZZZZZZ	1708	54021	1827	5471
21:18	ZZZZZZ	1670	54429	1821	5356
21:23	ZZZZZZ	1714	54286	1848	5470
21:28	MA50891-CCV9	1725	53825	1845	5587
21:33	MA50891-CCB10	1772	54938	1847	5764
21:39	MP27662-MB1	1764	56255	1843	5761
21:44	MP27662-B1	1711	54008	1846	5540
21:49	MP27662-S1	1674	53360	1824	5374
21:54	MP27662-S2	1786	54335	1824	5684
21:59	JD28714-4	1818	60119	2099	5792
22:04	MP27662-SD1	1859	60806	2115	5983
22:09	ZZZZZZ	1840	59685	2116	5844
22:14	ZZZZZZ	1853	59782	2133	5944
22:19	ZZZZZZ	1843	60092	2122	5899
22:25	MA50891-CCV10	1815	58208	2083	5809
22:29	MA50891-CCB11	1870	59995	2096	6048
22:35	ZZZZZZ	1819	59834	2086	5824
22:40	ZZZZZZ	1842	59817	2121	5897
22:45	ZZZZZZ	1834	59468	2101	5897
22:50	ZZZZZZ	1813	59846	2091	5833
22:55	ZZZZZZ	1847	59827	2132	5927
23:00	ZZZZZZ	1818	58709	2109	5790
23:05	ZZZZZZ	1873	60710	2107	6074
23:11	MP27589-MB1	1864	60326	2103	6039
23:16	ZZZZZZ	1850	59104	2099	5998
23:21	MA50891-CCV11	1795	58021	2066	5743

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50891
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:26	MA50891-CCB12	1826	59699	2065	5928
23:31	ZZZZZZ	1862	59462	2086	6019
23:37	ZZZZZZ	1703	57739	2047	5432
23:42	ZZZZZZ	1825	58700	2041	5943
23:47	ZZZZZZ	1844	55406	2165	5697
23:53	ZZZZZZ	1823	58691	2079	5973
23:58	ZZZZZZ	1829	58277	2083	5961
00:03	MA50891-CCV12	1752	56769	2035	5681
00:08	MA50891-CCB13	1793	57801	2085	5895

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50891   Units: ug/l

Time:			12:02		12:22		13:50		14:45	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2								
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13	anr							
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7								
Iron	100	3.3	anr							
Lead	3.0	2	0.300	<3.0	0.600	<3.0	0.200	<3.0	2.60	<3.0
Lithium	50	1.5								
Magnesium	5000	25	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35	anr							
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			12:02		12:22		13:50		14:45	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

Page 2

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			15:41		16:38		17:33		18:28	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2								
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13	anr							
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7								
Iron	100	3.3	anr							
Lead	3.0	2	1.40	<3.0	1.10	<3.0	2.10	<3.0	0.500	<3.0
Lithium	50	1.5								
Magnesium	5000	25	anr							
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35	anr							
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

6.2.3

6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50891 Units: ug/l

Time:			15:41		16:38		17:33		18:28	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery   Run ID: MA50891   Units: ug/l

Time:		12:09	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2080	104.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

CALIBRATION CHECK STANDARDS SUMMARY
Initial Continuing Calibration Check

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: to % Recovery   Run ID: MA50891   Units: ug/l

Time:		12:09	
Sample ID:	ICCV	ICCV1	
Metal	True	Results	% Rec
Zinc	anr		
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:		11:50			13:45			14:40	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	2000	2100	105.0	2000	2060	103.0	2000	2080	104.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		11:50			13:45			14:40	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		15:36			16:33			17:28	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt									
Copper									
Iron	anr								
Lead	2000	2110	105.5	2000	2080	104.0	2000	2090	104.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.2.5

6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		15:36			16:33			17:28	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50891   Units: ug/l

Time:		18:23	
Sample ID:	CCV	CCV6	
Metal	True	Results	% Rec
Aluminum			
Antimony			
Arsenic	anr		
Barium	anr		
Beryllium			
Bismuth			
Boron			
Cadmium	anr		
Calcium	anr		
Cerium			
Chromium	anr		
Cobalt			
Copper			
Iron	anr		
Lead	2000	2120	106.0
Lithium			
Magnesium	anr		
Manganese	anr		
Molybdenum			
Nickel	anr		
Phosphorus			
Potassium	anr		
Selenium	anr		
Silicon			
Silver	anr		
Sodium	anr		
Strontium			
Sulfur			
Thallium			
Tin			
Titanium			
Tungsten			
Vanadium			

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50891 Units: ug/l

Time:		18:23	
Sample ID:	CCV	CCV6	
Metal	True	Results	% Rec
Zinc	anr		
Zirconium			

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery   Run ID: MA50891   Units: ug/l

Time:		13:24			13:29	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper						
Iron						
Lead	8000	8260	103.3			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

6.2.6

6

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery   Run ID: MA50891   Units: ug/l

Time:		13:24			13:29	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP Date Analyzed: 07/26/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50891 Units: ug/l

Time: Sample ID: Metal	CRI True	CRIA True	CRID True	12:42 CRI1 Results	% Rec	12:47 CRID1 Results	% Rec
Aluminum	200	500	100				
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000	anr			
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500		anr			
Lead	3.0	20	2.5	3.20	106.7		
Lithium	50						
Magnesium	5000	2000	100	anr			
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000	anr			
Selenium	10	20	5.0	anr			
Silicon	200						
Silver	5.0		2.0	anr			
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50891   Units: ug/l

Time:				12:42		12:47	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50891   Units: ug/l

Time:			13:14		13:19	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Aluminum	500000	500000	522000	104.4	511000	102.2
Antimony		1000	-2.50		1030	103.0
Arsenic		1000	0.00		1020	102.0
Barium		500	3.50		520	104.0
Beryllium		500	-0.700		518	103.6
Bismuth		500	-16.7		502	100.4
Boron		500	0.800		521	104.2
Cadmium		1000	-1.10		1080	108.0
Calcium	400000	400000	400000	100.0	393000	98.3
Cerium			78.3		573*	
Chromium		500	-0.100		498	99.6
Cobalt		500	1.40		503	100.6
Copper		500	-2.70		551	110.2
Iron	200000	200000	211000	105.5	203000	101.5
Lead		1000	2.20		1020	102.0
Lithium		500	-4.50		507	101.4
Magnesium	500000	500000	517000	103.4	510000	102.0
Manganese		500	-6.90		525	105.0
Molybdenum		500	3.90		483	96.6
Nickel		1000	1.70		1010	101.0
Phosphorus		500	10.3		513	102.6
Potassium			-14.9		1.30	
Selenium		1000	-2.80		962	96.2
Silicon		500	-7.70		525	105.0
Silver		1000	1.40		1030	103.0
Sodium			39.3		110	
Strontium		500	-1.60		512	102.4
Sulfur		500	7.10		509	101.8
Thallium		1000	7.10		968	96.8
Tin		500	-0.400		500	100.0
Titanium		500	-2.10		500	100.0
Tungsten		500	2.30		503	100.6
Vanadium		500	2.20		513	102.6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072621M1.ICP   Date Analyzed: 07/26/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50891   Units: ug/l

Time:			13:14		13:19	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	5.50		1030	103.0
Zirconium		500	-0.900		457	91.4

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
12:30	MA50895-STD1	1		STDA
12:35	MA50895-STD2	1		STDB
12:40	ZZZZZZ	1		
12:45	ZZZZZZ	1		
12:51	MA50895-ICV1	1		
12:58	MA50895-ICB1	1		
13:03	MA50895-CCV1	1		
13:08	MA50895-CCB1	1		
13:13	MA50895-CRI1	1		
13:18	MA50895-CRID1	1		
13:24	MA50895-ICSA1	1		
13:29	MA50895-ICSAB1	1		
13:33	MA50895-HSTD1	1		
13:39	MA50895-HSTD2	1		
13:44	ZZZZZZ	1		
13:49	ZZZZZZ	1		
13:54	ZZZZZZ	1		
13:59	MA50895-CCV2	1		
14:04	MA50895-CCB2	1		
14:10	MA50895-CRI2	1		
14:16	MA50895-CRI3	1		
14:21	ZZZZZZ	1		
14:26	ZZZZZZ	2		
14:31	ZZZZZZ	1		
14:36	ZZZZZZ	1		
14:41	MP27569-S1	5		
14:46	MP27569-S2	5		
14:51	MA50895-CCV3	1		
14:56	MA50895-CCB3	1		
15:01	JD28454-12	5		(sample used for QC only; not part of login JD28614)
15:06	MP27569-SD1	25		
15:11	ZZZZZZ	5		
15:17	ZZZZZZ	10		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
15:22	ZZZZZZ	5		
15:27	ZZZZZZ	5		
15:32	ZZZZZZ	5		
15:37	ZZZZZZ	10		
15:42	MA50895-CCV4	1		
15:47	MA50895-CCB4	1		
15:52	ZZZZZZ	1		
15:57	ZZZZZZ	1		
16:02	MP27592-S1	5		
16:07	MP27592-S2	5		
16:12	JD28584-1	5		(sample used for QC only; not part of login JD28614)
16:17	MP27592-SD1	25		
16:23	ZZZZZZ	50		
16:28	ZZZZZZ	50		
16:33	ZZZZZZ	50		
16:38	MA50895-CCV5	1		
16:43	MA50895-CCB5	1		
16:48	ZZZZZZ	1		
16:54	ZZZZZZ	50		
16:59	ZZZZZZ	10		
17:04	ZZZZZZ	10		
17:09	ZZZZZZ	50		
17:14	ZZZZZZ	50		
17:19	ZZZZZZ	50		
17:25	ZZZZZZ	50		
17:30	ZZZZZZ	100		
17:35	MA50895-CCV6	1		
17:40	MA50895-CCB6	1		
17:45	ZZZZZZ	100		
17:50	ZZZZZZ	2		
17:55	ZZZZZZ	2		
18:00	ZZZZZZ	200		
18:06	ZZZZZZ	2		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
18:11	MA50895-CCV7	1		
18:16	MA50895-CCB7	1		
18:21	MP27688-MB1	1		rerun with sunocco
18:26	MP27688-B1	1		rerun with sunocco
18:31	ZZZZZZ	1		
18:36	ZZZZZZ	1		
18:41	ZZZZZZ	1		
18:46	ZZZZZZ	1		
18:51	ZZZZZZ	1		
18:57	ZZZZZZ	1		
19:02	ZZZZZZ	1		
19:07	MA50895-CCV8	1		
19:12	MA50895-CCB8	1		
19:17	ZZZZZZ	1		
19:22	ZZZZZZ	1		
19:28	ZZZZZZ	1		
19:33	ZZZZZZ	1		
19:38	ZZZZZZ	1		
19:43	ZZZZZZ	1		
19:49	ZZZZZZ	1		
19:54	ZZZZZZ	1		
19:59	MP27687-MB1	1		ZN raised to 60ppb for the batch
20:04	MP27687-B1	1		
20:09	MA50895-CCV9	1		
20:14	MA50895-CCB9	1		
20:19	MP27687-S1	1		CCV out
20:24	MP27687-S2	1		CCV out
20:29	JD28597-4	1		(sample used for QC only; not part of login JD28614)
20:34	MP27687-SD1	5		CCV out
20:39	ZZZZZZ	1		
20:45	ZZZZZZ	5		
20:50	ZZZZZZ	1		
20:55	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
21:00	ZZZZZZ	1		
21:05	ZZZZZZ	1		
21:10	MA50895-CCV10	1		
21:15	MA50895-CCB10	1		
21:21	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:31	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:41	ZZZZZZ	1		
21:46	ZZZZZZ	1		
21:51	ZZZZZZ	1		
21:56	JD28614-15	1		
22:02	JD28614-16	1		
----------->	Last reportable sample/prep for job JD28614			
22:07	MA50895-CCV11	1		
22:12	MA50895-CCB11	1		
----------->	Last reportable CCB for job JD28614			
22:17	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:27	ZZZZZZ	1		
22:33	ZZZZZZ	1		
22:38	MP27685-MB1	1		
22:43	MP27685-B1	1		
22:48	MP27685-S1	1		
22:53	MP27685-S2	1		
22:57	JD28870-2	1		(sample used for QC only; not part of login JD28614)
23:03	MP27685-SD1	5		
23:08	MA50895-CCV12	1		
23:13	MA50895-CCB12	1		
23:18	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:33	ZZZZZZ	1		
23:38	ZZZZZZ	1		
23:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
23:48	ZZZZZZ	1		
23:54	ZZZZZZ	1		
23:59	ZZZZZZ	1		
00:04	ZZZZZZ	1		
00:09	MA50895-CCV13	1		
00:14	MA50895-CCB13	1		
00:19	ZZZZZZ	1		
00:24	ZZZZZZ	1		
00:29	ZZZZZZ	1		
00:34	ZZZZZZ	1		
00:40	ZZZZZZ	1		
00:45	ZZZZZZ	1		
00:50	ZZZZZZ	1		
00:55	ZZZZZZ	1		
01:00	MA50895-CCV14	1		
01:05	MA50895-CCB14	1		
01:10	MP27686-MB1	1		
01:15	MP27686-B1	1		
01:20	MP27686-S1	1		
01:25	MP27686-S2	1		needs post spike for As, ba, Cr, SE
01:30	JD28868-1	1		(sample used for QC only; not part of login JD28614)
01:35	MP27686-SD1	5		
01:40	ZZZZZZ	1		
01:45	ZZZZZZ	1		
01:50	ZZZZZZ	1		
01:55	ZZZZZZ	1		
02:01	MA50895-CCV15	1		
02:06	MA50895-CCB15	1		
02:11	ZZZZZZ	1		
02:16	ZZZZZZ	1		
02:21	ZZZZZZ	1		
02:26	ZZZZZZ	1		
02:31	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
02:36	ZZZZZZ	1		
02:41	ZZZZZZ	1		
02:46	ZZZZZZ	1		
02:51	ZZZZZZ	1		
02:56	MA50895-CCV16	1		
03:01	MA50895-CCB16	1		
03:06	ZZZZZZ	1		
03:11	ZZZZZZ	1		
03:16	ZZZZZZ	1		
03:21	ZZZZZZ	1		
03:26	ZZZZZZ	1		
03:31	ZZZZZZ	1		
03:36	ZZZZZZ	1		
03:42	ZZZZZZ	1		
03:47	MA50895-CCV17	1		
03:52	MA50895-CCB17	1		
03:57	ZZZZZZ	1		
04:02	ZZZZZZ	1		
04:08	ZZZZZZ	1		
04:13	ZZZZZZ	1		
04:18	ZZZZZZ	1		
04:23	ZZZZZZ	1		
04:29	MA50895-CCV18	1		
04:34	MA50895-CCB18	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
12:40	ZZZZZZ	1	
12:45	ZZZZZZ	1	
12:51	MA50895-ICV1	1	X
12:58	MA50895-ICB1	1	X
13:03	MA50895-CCV1	1	X
13:08	MA50895-CCB1	1	X
13:13	MA50895-CRI1	1	
13:18	MA50895-CRID1	1	X
13:24	MA50895-ICSA1	1	X
13:29	MA50895-ICSAB1	1	X
13:33	MA50895-HSTD1	1	X
13:39	MA50895-HSTD2	1	X
13:44	ZZZZZZ	1	
13:49	ZZZZZZ	1	
13:54	ZZZZZZ	1	
13:59	MA50895-CCV2	1	X
14:04	MA50895-CCB2	1	X
14:10	MA50895-CRI2	1	
14:16	MA50895-CRI3	1	X
14:21	ZZZZZZ	1	
14:26	ZZZZZZ	2	
14:31	ZZZZZZ	1	
14:36	ZZZZZZ	1	
14:41	MP27569-S1	5	X
14:46	MP27569-S2	5	X
14:51	MA50895-CCV3	1	X
14:56	MA50895-CCB3	1	X
15:01	JD28454-12	5	X (a)
15:06	MP27569-SD1	25	X
15:11	ZZZZZZ	5	
15:17	ZZZZZZ	10	
15:22	ZZZZZZ	5	
15:27	ZZZZZZ	5	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
15:32	ZZZZZZ	5	
15:37	ZZZZZZ	10	
15:42	MA50895-CCV4	1	X
15:47	MA50895-CCB4	1	X
15:52	ZZZZZZ	1	
15:57	ZZZZZZ	1	
16:02	MP27592-S1	5	X
16:07	MP27592-S2	5	X
16:12	JD28584-1	5	(a)
16:17	MP27592-SD1	25	X
16:23	ZZZZZZ	50	
16:28	ZZZZZZ	50	
16:33	ZZZZZZ	50	
16:38	MA50895-CCV5	1	X
16:43	MA50895-CCB5	1	X
16:48	ZZZZZZ	1	
16:54	ZZZZZZ	50	
16:59	ZZZZZZ	10	
17:04	ZZZZZZ	10	
17:09	ZZZZZZ	50	
17:14	ZZZZZZ	50	
17:19	ZZZZZZ	50	
17:25	ZZZZZZ	50	
17:30	ZZZZZZ	100	
17:35	MA50895-CCV6	1	X
17:40	MA50895-CCB6	1	X
17:45	ZZZZZZ	100	
17:50	ZZZZZZ	2	
17:55	ZZZZZZ	2	
18:00	ZZZZZZ	200	
18:06	ZZZZZZ	2	
18:11	MA50895-CCV7	1	X
18:16	MA50895-CCB7	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP
Date Analyzed: 07/27/21
Methods: EPA 200.7, SW846 6010D
Analyst: ND
Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
18:21	MP27688-MB1	1	
18:26	MP27688-B1	1	
18:31	ZZZZZZ	1	
18:36	ZZZZZZ	1	
18:41	ZZZZZZ	1	
18:46	ZZZZZZ	1	
18:51	ZZZZZZ	1	
18:57	ZZZZZZ	1	
19:02	ZZZZZZ	1	
19:07	MA50895-CCV8	1	X
19:12	MA50895-CCB8	1	X
19:17	ZZZZZZ	1	
19:22	ZZZZZZ	1	
19:28	ZZZZZZ	1	
19:33	ZZZZZZ	1	
19:38	ZZZZZZ	1	
19:43	ZZZZZZ	1	
19:49	ZZZZZZ	1	
19:54	ZZZZZZ	1	
19:59	MP27687-MB1	1	X
20:04	MP27687-B1	1	X
20:09	MA50895-CCV9	1	X
20:14	MA50895-CCB9	1	X
20:19	MP27687-S1	1	X
20:24	MP27687-S2	1	X
20:29	JD28597-4	1	X (a)
20:34	MP27687-SD1	5	X
20:39	ZZZZZZ	1	
20:45	ZZZZZZ	5	
20:50	ZZZZZZ	1	
20:55	ZZZZZZ	1	
21:00	ZZZZZZ	1	
21:05	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb	
21:10	MA50895-CCV10	1	X	
21:15	MA50895-CCB10	1	X	
21:21	ZZZZZZ	1		
21:26	ZZZZZZ	1		
21:31	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:41	ZZZZZZ	1		
21:46	ZZZZZZ	1		
21:51	ZZZZZZ	1		
21:56	JD28614-15	1	X	
22:02	JD28614-16	1	X	
22:07	MA50895-CCV11	1	X	
22:12	MA50895-CCB11	1	X	
22:17	ZZZZZZ	1		
22:22	ZZZZZZ	1		
22:27	ZZZZZZ	1		
22:33	ZZZZZZ	1		
22:38	MP27685-MB1	1		
22:43	MP27685-B1	1		
22:48	MP27685-S1	1		
22:53	MP27685-S2	1		
22:57	JD28870-2	1		(a)
23:03	MP27685-SD1	5		
23:08	MA50895-CCV12	1	X	
23:13	MA50895-CCB12	1	X	
23:18	ZZZZZZ	1		
23:23	ZZZZZZ	1		
23:28	ZZZZZZ	1		
23:33	ZZZZZZ	1		
23:38	ZZZZZZ	1		
23:43	ZZZZZZ	1		
23:48	ZZZZZZ	1		
23:54	ZZZZZZ	1		
		Element:	Pb	

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
23:59	ZZZZZZ	1	
00:04	ZZZZZZ	1	
00:09	MA50895-CCV13	1	X
00:14	MA50895-CCB13	1	X
00:19	ZZZZZZ	1	
00:24	ZZZZZZ	1	
00:29	ZZZZZZ	1	
00:34	ZZZZZZ	1	
00:40	ZZZZZZ	1	
00:45	ZZZZZZ	1	
00:50	ZZZZZZ	1	
00:55	ZZZZZZ	1	
01:00	MA50895-CCV14	1	X
01:05	MA50895-CCB14	1	X
01:10	MP27686-MB1	1	X
01:15	MP27686-B1	1	X
01:20	MP27686-S1	1	X
01:25	MP27686-S2	1	X
01:30	JD28868-1	1	X (a)
01:35	MP27686-SD1	5	X
01:40	ZZZZZZ	1	
01:45	ZZZZZZ	1	
01:50	ZZZZZZ	1	
01:55	ZZZZZZ	1	
02:01	MA50895-CCV15	1	X
02:06	MA50895-CCB15	1	X
02:11	ZZZZZZ	1	
02:16	ZZZZZZ	1	
02:21	ZZZZZZ	1	
02:26	ZZZZZZ	1	
02:31	ZZZZZZ	1	
02:36	ZZZZZZ	1	
02:41	ZZZZZZ	1	
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
02:46	ZZZZZZ	1	
02:51	ZZZZZZ	1	
02:56	MA50895-CCV16	1	X
03:01	MA50895-CCB16	1	X
03:06	ZZZZZZ	1	
03:11	ZZZZZZ	1	
03:16	ZZZZZZ	1	
03:21	ZZZZZZ	1	
03:26	ZZZZZZ	1	
03:31	ZZZZZZ	1	
03:36	ZZZZZZ	1	
03:42	ZZZZZZ	1	
03:47	MA50895-CCV17	1	X
03:52	MA50895-CCB17	1	X
03:57	ZZZZZZ	1	
04:02	ZZZZZZ	1	
04:08	ZZZZZZ	1	
04:13	ZZZZZZ	1	
04:18	ZZZZZZ	1	
04:23	ZZZZZZ	1	
04:29	MA50895-CCV18	1	X
04:34	MA50895-CCB18	1	X

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
12:30	MA50895-STD1	1623 R	51950 R	1799 R	4876 R
12:35	MA50895-STD2	1541	50618	1788	4663
12:40	ZZZZZZ	1593	51463	1818	4749
12:45	ZZZZZZ	1637	52540	1839	4895
12:51	MA50895-ICV1	1582	51852	1828	4713
12:58	MA50895-ICB1	1633	51927	1826	4884
13:03	MA50895-CCV1	1597	51685	1822	4742
13:08	MA50895-CCB1	1639	52313	1842	4892
13:13	MA50895-CRI1	No results reported for the elements associated with this internal standard.			
13:18	MA50895-CRID1	1633	52521	1845	4860
13:24	MA50895-ICSA1	1497	48854	1825	4539
13:29	MA50895-ICSAB1	1500	48683	1814	4550
13:33	MA50895-HSTD1	1606	51986	1842	4933
13:39	MA50895-HSTD2	1514	49314	1804	4515
13:44	ZZZZZZ	1634	52142	1829	5043
13:49	ZZZZZZ	1594	51881	1839	4881
13:54	ZZZZZZ	1665	52626	1834	4929
13:59	MA50895-CCV2	1599	50552	1804	4730
14:04	MA50895-CCB2	1655	52297	1837	4919
14:10	MA50895-CRI2	No results reported for the elements associated with this internal standard.			
14:16	MA50895-CRI3	1648	52128	1838	4876
14:21	ZZZZZZ	1669	52978	1879	4933
14:26	ZZZZZZ	1731	54609	1904	4973
14:31	ZZZZZZ	1671	52110	1834	4970
14:36	ZZZZZZ	1636	51020	1823	4869
14:41	MP27569-S1	1563	50404	1780	4569
14:46	MP27569-S2	1598	50810	1802	4644
14:51	MA50895-CCV3	1603	50339	1822	4719
14:56	MA50895-CCB3	1676	51427	1809	4940
15:01	JD28454-12	1575	50205	1785	4573
15:06	MP27569-SD1	1625	50840	1800	4793
15:11	ZZZZZZ	1584	50517	1783	4540
15:17	ZZZZZZ	1539	49700	1774	4482

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
15:22	ZZZZZZ	1516	49343	1771	4417
15:27	ZZZZZZ	1552	49576	1762	4529
15:32	ZZZZZZ	1566	50385	1793	4522
15:37	ZZZZZZ	1561	50004	1775	4585
15:42	MA50895-CCV4	1620	50686	1799	4782
15:47	MA50895-CCB4	1651	50880	1798	4868
15:52	ZZZZZZ	1663	51443	1814	4887
15:57	ZZZZZZ	1636	51326	1839	4807
16:02	MP27592-S1	1637	50833	1830	4775
16:07	MP27592-S2	1635	51181	1810	4771
16:12	JD28584-1	1636	50896	1808	4786
16:17	MP27592-SD1	1651	51246	1811	4862
16:23	ZZZZZZ	1629	51029	1798	4733
16:28	ZZZZZZ	1651	51387	1795	4795
16:33	ZZZZZZ	1655	52126	1819	4824
16:38	MA50895-CCV5	1605	50128	1783	4729
16:43	MA50895-CCB5	1648	50889	1789	4869
16:48	ZZZZZZ	1658	51441	1817	4903
16:54	ZZZZZZ	1602	50674	1794	4655
16:59	ZZZZZZ	1613	50766	1807	4686
17:04	ZZZZZZ	1611	52028	1814	4673
17:09	ZZZZZZ	1604	51074	1806	4670
17:14	ZZZZZZ	1616	51266	1784	4702
17:19	ZZZZZZ	1622	51598	1794	4733
17:25	ZZZZZZ	1631	51503	1797	4778
17:30	ZZZZZZ	1593	50370	1767	4585
17:35	MA50895-CCV6	1591	50154	1785	4689
17:40	MA50895-CCB6	1652	51031	1802	4879
17:45	ZZZZZZ	1604	50625	1771	4628
17:50	ZZZZZZ	1658	51779	1817	4835
17:55	ZZZZZZ	1636	51367	1792	4761
18:00	ZZZZZZ	1620	50693	1782	4696
18:06	ZZZZZZ	1651	51764	1802	4812

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
18:11	MA50895-CCV7	1621	50768	1787	4783
18:16	MA50895-CCB7	1652	51688	1788	4891
18:21	MP27688-MB1	1673	52525	1825	4933
18:26	MP27688-B1	1623	51167	1784	4793
18:31	ZZZZZZ	1720	54435	1934	4674
18:36	ZZZZZZ	1673	52540	1851	4836
18:41	ZZZZZZ	1650	52243	1843	4808
18:46	ZZZZZZ	1657	51854	1832	4807
18:51	ZZZZZZ	1656	52115	1837	4806
18:57	ZZZZZZ	1622	51248	1808	4666
19:02	ZZZZZZ	1626	51740	1804	4740
19:07	MA50895-CCV8	1604	50566	1788	4725
19:12	MA50895-CCB8	1658	51024	1790	4898
19:17	ZZZZZZ	1638	52160	1844	4710
19:22	ZZZZZZ	1619	49682	1797	4686
19:28	ZZZZZZ	1640	52187	1839	4698
19:33	ZZZZZZ	1648	52509	1851	4717
19:38	ZZZZZZ	1623	50721	1810	4640
19:43	ZZZZZZ	1647	51905	1819	4830
19:49	ZZZZZZ	1655	52590	1835	4901
19:54	ZZZZZZ	1664	51180	1780	4913
19:59	MP27687-MB1	1676	51865	1818	4946
20:04	MP27687-B1	1647	51770	1874	4846
20:09	MA50895-CCV9	1637	51346	1792	4806
20:14	MA50895-CCB9	1683	52415	1805	4962
20:19	MP27687-S1	1649	51690	1834	4834
20:24	MP27687-S2	1641	51518	1869	4816
20:29	JD28597-4	1647	52550	1820	4834
20:34	MP27687-SD1	1680	51602	1807	4947
20:39	ZZZZZZ	3915 !a	125390 !a	4442 !a	5394
20:45	ZZZZZZ	No results reported for the elements associated with this internal standard.			
20:50	ZZZZZZ	1891	62331	2250	5426
20:55	ZZZZZZ	1817	59855	2209	5248

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
21:00	ZZZZZZ	1917	61543	2232	5529
21:05	ZZZZZZ	1928	61946	2250	5606
21:10	MA50895-CCV10	1828	57840	2112	5300
21:15	MA50895-CCB10	1819	57621	2030	5329
21:21	ZZZZZZ	1824	59508	2142	5311
21:26	ZZZZZZ	1881	61620	2207	5442
21:31	ZZZZZZ	1890	61960	2223	5471
21:36	ZZZZZZ	1790	59693	2171	5079
21:41	ZZZZZZ	1826	58227	2130	5266
21:46	ZZZZZZ	1796	59243	2109	5153
21:51	ZZZZZZ	1824	59204	2176	5215
21:56	JD28614-15	1903	59682	2194	5553
22:02	JD28614-16	1885	60617	2081	5500
22:07	MA50895-CCV11	1774	57290	2076	5175
22:12	MA50895-CCB11	1819	57350	2047	5366
22:17	ZZZZZZ	1774	58502	2181	5118
22:22	ZZZZZZ	1800	59846	2226	5166
22:27	ZZZZZZ	1924	59583	2166	5606
22:33	ZZZZZZ	1815	58361	2202	5331
22:38	MP27685-MB1	1796	57044	2021	5274
22:43	MP27685-B1	1752	56262	2020	5139
22:48	MP27685-S1	1772	55470	2032	5168
22:53	MP27685-S2	1773	56188	2028	5165
22:57	JD28870-2	1816	56017	1999	5274
23:03	MP27685-SD1	1794	55498	1976	5233
23:08	MA50895-CCV12	1707	54569	1932	5001
23:13	MA50895-CCB12	1801	56538	1992	5273
23:18	ZZZZZZ	1808	55830	2030	5233
23:23	ZZZZZZ	1803	56511	2029	5198
23:28	ZZZZZZ	1836	56916	2091	5205
23:33	ZZZZZZ	1671	55202	1974	4669
23:38	ZZZZZZ	1864	58837	2134	5190
23:43	ZZZZZZ	1807	57003	2047	5194

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
23:48	ZZZZZZ	1848	57943	2091	5195
23:54	ZZZZZZ	1841	57856	2085	5220
23:59	ZZZZZZ	1827	57307	2079	5196
00:04	ZZZZZZ	1855	58438	2124	5173
00:09	MA50895-CCV13	1742	54749	1944	5099
00:14	MA50895-CCB13	1800	56587	1988	5279
00:19	ZZZZZZ	1820	57206	2070	5193
00:24	ZZZZZZ	1828	57130	2082	5227
00:29	ZZZZZZ	1831	57258	2054	5222
00:34	ZZZZZZ	1811	56257	2032	5225
00:40	ZZZZZZ	1838	57415	2055	5234
00:45	ZZZZZZ	1683	54317	1981	4756
00:50	ZZZZZZ	1815	57120	2068	5220
00:55	ZZZZZZ	1662	55151	1959	4670
01:00	MA50895-CCV14	1710	56655	1954	5015
01:05	MA50895-CCB14	1773	55554	1913	5229
01:10	MP27686-MB1	1790	56735	1977	5253
01:15	MP27686-B1	1767	55826	1953	5190
01:20	MP27686-S1	1808	57642	2062	5133
01:25	MP27686-S2	1807	57976	2057	5123
01:30	JD28868-1	1838	57401	2061	5172
01:35	MP27686-SD1	1792	57361	2001	5199
01:40	ZZZZZZ	1886	59362	2113	5189
01:45	ZZZZZZ	1909	60626	2177	5256
01:50	ZZZZZZ	1903	61094	2161	5196
01:55	ZZZZZZ	1915	60858	2177	5179
02:01	MA50895-CCV15	1743	55770	1938	5099
02:06	MA50895-CCB15	1789	56304	1932	5263
02:11	ZZZZZZ	1914	60214	2141	5239
02:16	ZZZZZZ	1868	59162	2114	5176
02:21	ZZZZZZ	1906	59372	2130	5204
02:26	ZZZZZZ	1772	57242	2026	5241
02:31	ZZZZZZ	1871	59269	2113	5147

6.3.2
6

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50895
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
02:36	ZZZZZZ	1860	58831	2069	5194
02:41	ZZZZZZ	1864	58835	2093	5199
02:46	ZZZZZZ	1812	58036	1996	5116
02:51	ZZZZZZ	1842	58810	2071	5179
02:56	MA50895-CCV16	1733	55194	1917	5073
03:01	MA50895-CCB16	1792	57272	1936	5273
03:06	ZZZZZZ	1886	59709	2116	5209
03:11	ZZZZZZ	1872	61042	2075	5286
03:16	ZZZZZZ	1930	61102	2200	5379
03:21	ZZZZZZ	1938	61212	2203	5401
03:26	ZZZZZZ	1926	62167	2157	5225
03:31	ZZZZZZ	1927	62355	2170	5313
03:36	ZZZZZZ	1802	57842	2008	5301
03:42	ZZZZZZ	1785	58032	1981	5253
03:47	MA50895-CCV17	1741	55939	1939	5111
03:52	MA50895-CCB17	1811	57680	1963	5340
03:57	ZZZZZZ	1815	58051	1962	5352
04:02	ZZZZZZ	1793	57918	1953	5285
04:08	ZZZZZZ	1786	55330	2068	5070
04:13	ZZZZZZ	1795	58206	1968	5331
04:18	ZZZZZZ	1774	58039	1990	5258
04:23	ZZZZZZ	1659	57194	1918	4869
04:29	MA50895-CCV18	1722	57160	1944	5105
04:34	MA50895-CCB18	1787	58512	1986	5316

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

(a) No samples reported for the elements associated with this internal standard.

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			12:58		13:08		14:04		14:56	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.00	<3.0	-0.100	<3.0	0.300	<3.0	0.400	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			12:58		13:08		14:04		14:56	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			15:47		16:43		17:40		18:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	-0.900	<3.0	-0.500	<3.0	-1.30	<3.0	-0.300	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50895   Units: ug/l

Time:			15:47		16:43		17:40		18:16	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			19:12		20:14		21:15		22:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	9.2	anr							
Antimony	6.0	2.8								
Arsenic	3.0	2.6	anr							
Barium	200	.2	anr							
Beryllium	1.0	.2								
Bismuth	20	2.5								
Boron	100	1.8								
Cadmium	3.0	.4	anr							
Calcium	5000	13								
Cerium	100									
Chromium	10	.7	anr							
Cobalt	50	.6								
Copper	10	.7	anr							
Iron	100	3.3	anr							
Lead	3.0	2	0.800	<3.0	0.500	<3.0	0.200	<3.0	0.500	<3.0
Lithium	50	1.5								
Magnesium	5000	25								
Manganese	15	.1	anr							
Molybdenum	20	.6								
Nickel	10	.8	anr							
Phosphorus	50	7								
Potassium	10000	35								
Selenium	10	3.6	anr							
Silicon	200	2.2								
Silver	10	.6	anr							
Sodium	10000	14	anr							
Strontium	10	.1								
Sulfur	50	3.7								
Thallium	10	5.2								
Tin	10	1.4								
Titanium	10	.8								
Tungsten	50	1.3								
Vanadium	50	.5								

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50895 Units: ug/l

Time:			19:12		20:14		21:15		22:12	
Sample ID:			CCB8		CCB9		CCB10		CCB11	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.3	anr							
Zirconium	10	.5								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time: Sample ID: Metal	ICV True	12:51 ICV1 Results	% Rec	CCV True	13:03 CCV1 Results	% Rec	CCV True	13:59 CCV2 Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1990	99.5	2000	1980	99.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		12:51			13:03			13:59	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time: / Sample ID: / Metal	CCV True	14:51 CCV3 Results	% Rec	CCV True	15:42 CCV4 Results	% Rec	CCV True	16:38 CCV5 Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2040	102.0	2000	2030	101.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		14:51			15:42			16:38	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50895   Units: ug/l

Time:		17:35			18:11			19:07	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	2040	102.0	2000	2010	100.5	2000	1990	99.5
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		17:35			18:11			19:07	
Sample ID:	CCV	CCV6		CCV	CCV7		CCV	CCV8	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50895 Units: ug/l

Time:		20:09			21:10			22:07	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Bismuth									
Boron									
Cadmium	anr								
Calcium									
Cerium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	2000	1980	99.0	2000	1920	96.0	2000	2000	100.0
Lithium									
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium									
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium									

6.3.4
6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50895   Units: ug/l

Time:		20:09			21:10			22:07	
Sample ID:	CCV	CCV9		CCV	CCV10		CCV	CCV11	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50895 Units: ug/l

Time:		13:33			13:39	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	8000	8010	100.1			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50895 Units: ug/l

Time:		13:33			13:39	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50895   Units: ug/l

Time: / Sample ID: / Metal	CRI True	CRIA True	CRID True	13:18 CRID1 Results	% Rec	14:16 CRI3 Results	% Rec
Aluminum	200	500	100	anr			
Antimony	6.0	20	3.0				
Arsenic	8.0	20	3.0	anr			
Barium	200		4.0	anr			
Beryllium	2.0		1.0				
Bismuth	20						
Boron	100		10				
Cadmium	3.0		1.0	anr			
Calcium	5000	2000	1000				
Cerium							
Chromium	10		2.0	anr			
Cobalt	50		3.0				
Copper	10		2.0				
Iron	100	500					
Lead	3.0	20	2.5			2.70	90.0
Lithium	50						
Magnesium	5000	2000	100				
Manganese	15		3.0	anr			
Molybdenum	20						
Nickel	10		4.0	anr			
Phosphorus	50						
Potassium	5000		2000				
Selenium	10	20	5.0				
Silicon	200						
Silver	5.0		2.0				
Sodium	5000		1000	anr			
Strontium	10						
Sulfur	50						
Thallium	10		2.0				
Tin	10						
Titanium	10						
Tungsten	50						
Vanadium	50		2.0				

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50895 Units: ug/l

Time:				13:18		14:16	
Sample ID:	CRI	CRIA	CRID	CRID1		CRI3	
Metal	True	True	True	Results	% Rec	Results	% Rec
Zinc	20		10	anr			
Zirconium	10						

(*) Outside of QC limits
(anr) Analyte not requested

6.3.6

6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP   Date Analyzed: 07/27/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery   Run ID: MA50895   Units: ug/l

Time: / Sample ID: / Metal	ICSA True	ICSAB True	13:24 ICSA1 Results	% Rec	13:29 ICSAB1 Results	% Rec
Aluminum	500000	500000	489000	97.8	478000	95.6
Antimony		1000	2.10		963	96.3
Arsenic		1000	2.10		947	94.7
Barium		500	2.60		489	97.8
Beryllium		500	-0.500		483	96.6
Bismuth		500	-11.0		473	94.6
Boron		500	0.800		490	98.0
Cadmium		1000	-1.10		1010	101.0
Calcium	400000	400000	371000	92.8	364000	91.0
Cerium			74.1		536*	
Chromium		500	0.400		470	94.0
Cobalt		500	1.50		473	94.6
Copper		500	-4.30		522	104.4
Iron	200000	200000	199000	99.5	190000	95.0
Lead		1000	1.90		958	95.8
Lithium		500	-4.70		470	94.0
Magnesium	500000	500000	484000	96.8	477000	95.4
Manganese		500	-6.30		503	100.6
Molybdenum		500	4.00		451	90.2
Nickel		1000	1.60		947	94.7
Phosphorus		500	9.80		479	95.8
Potassium			-49.2		-56.1	
Selenium		1000	-5.50		893	89.3
Silicon		500	-16.0		472	94.4
Silver		1000	3.80		982	98.2
Sodium			-33.8		21.7	
Strontium		500	-1.40		478	95.6
Sulfur		500	9.50		472	94.4
Thallium		1000	5.90		908	90.8
Tin		500	-0.100		469	93.8
Titanium		500	-2.10		473	94.6
Tungsten		500	2.20		474	94.8
Vanadium		500	2.20		487	97.4

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SF072721M1.ICP Date Analyzed: 07/27/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50895 Units: ug/l

Time:			13:24		13:29	
Sample ID:	ICSA	ICSAB	ICSA1		ICSAB1	
Metal	True	True	Results	% Rec	Results	% Rec
Zinc		1000	6.00		961	96.1
Zirconium		500	-0.800		436	87.2

(*) Outside of QC limits
(anr) Analyte not requested

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:28	MA50902-STD1	1		STDA
08:33	MA50902-STD2	1		STDB
08:38	ZZZZZZ	1		
08:43	ZZZZZZ	1		
08:48	MA50902-ICV1	1		
08:53	MA50902-ICB1	1		
08:58	MA50902-CCV1	1		
09:03	MA50902-CCB1	1		
09:08	MA50902-CRI1	1		
09:13	MA50902-CRID1	1		
09:18	MA50902-ICSA1	1		
09:23	MA50902-ICSAB1	1		
09:28	MA50902-HSTD1	1		
09:33	MA50902-HSTD2	1		
09:38	ZZZZZZ	1		
09:43	ZZZZZZ	1		
09:49	ZZZZZZ	1		
09:54	MA50902-CCV2	1		
09:59	MA50902-CCB2	1		
10:04	MP27688-MB1	1		
10:09	MP27688-B1	1		
10:14	MP27688-S1	1		
10:18	MP27688-S2	1		
10:23	JD28553-1	1		(sample used for QC only; not part of login JD28614)
10:28	MP27688-SD1	5		
10:33	ZZZZZZ	1		
10:39	ZZZZZZ	1		
10:44	ZZZZZZ	1		
10:49	MA50902-CCV3	1		
10:54	MA50902-CCB3	1		
10:59	ZZZZZZ	5		
11:04	ZZZZZZ	5		
11:09	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
11:14	MP27681-MB1	5		
11:19	MP27681-B1	5		
11:25	MP27681-S1	5		
11:29	MP27681-S2	5		
11:34	MP27681-D1	5		
11:40	JD28603-2	5		(sample used for QC only; not part of login JD28614)
11:45	MA50902-CCV4	1		
11:50	MA50902-CCB4	1		
11:55	MP27681-SD1	25		
12:00	ZZZZZZ	5		
12:05	ZZZZZZ	5		
12:11	ZZZZZZ	5		
12:16	ZZZZZZ	5		
12:21	ZZZZZZ	1		
12:26	ZZZZZZ	1		
12:31	ZZZZZZ	5		
12:37	ZZZZZZ	1		
12:42	MA50902-CCV5	1		
12:47	MA50902-CCB5	1		
12:52	MA50902-CRID2	1		
12:57	MA50902-CRI2	1		
13:02	MA50902-ICSA2	1		
13:07	MA50902-ICSAB2	1		
13:12	MA50902-CCV6	1		
13:17	MA50902-CCB6	1		
13:22	ZZZZZZ	5		
13:27	ZZZZZZ	5		
13:32	ZZZZZZ	5		
13:38	ZZZZZZ	1		
13:43	JD28614-12	2		
-----------> Last reportable sample/prep for job JD28614				
13:48	ZZZZZZ	25		
13:53	ZZZZZZ	50		
13:58	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
14:03	ZZZZZZ	1		
14:08	MA50902-CCV7	1		
14:13	MA50902-CCB7	1		
-----------> Last reportable CCB for job JD28614				
14:18	MP27593-S3	1		
14:23	MP27593-S4	1		
14:28	ZZZZZZ	5		
14:33	ZZZZZZ	5		
14:38	ZZZZZZ	5		
14:43	ZZZZZZ	50		
14:49	ZZZZZZ	5		
14:54	ZZZZZZ	5		
14:59	MA50902-CCV8	1		
15:04	MA50902-CCB8	1		
15:09	ZZZZZZ	5		
15:14	MP27680-S1	5		
15:19	MP27680-S2	5		
15:24	ZZZZZZ	100		
15:29	MP27689-MB1	1		
15:34	MP27689-B1	1		
15:39	MP27689-S1	1		
15:43	MP27689-S2	1		
15:48	JD28662-1	1		(sample used for QC only; not part of login JD28614)
15:53	MA50902-CCV9	1		
15:58	MA50902-CCB9	1		
16:03	MP27689-SD1	5		
16:08	MP27689-S1	5		
16:13	MP27689-S2	5		
16:18	JD28662-1	5		(sample used for QC only; not part of login JD28614)
16:23	MP27689-SD1	25		
16:28	ZZZZZZ	1		
16:33	ZZZZZZ	10		
16:38	ZZZZZZ	1		
16:43	ZZZZZZ	1		

SGS Instrument Runlog
Inorganics Analyses

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Dilution Factor	PS Recov	Comments
16:48	MA50902-CCV10	1		
16:53	MA50902-CCB10	1		
16:58	ZZZZZZ	1		
17:04	ZZZZZZ	2		
17:09	ZZZZZZ	2		
17:14	ZZZZZZ	5		
17:19	ZZZZZZ	1		
17:24	ZZZZZZ	2		
17:29	ZZZZZZ	2		
17:34	ZZZZZZ	1		
17:39	MA50902-CCV11	1		
17:44	MA50902-CCB11	1		
17:49	ZZZZZZ	1		
17:54	ZZZZZZ	1		

Refer to raw data for calibration curve and standards.

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
08:38	ZZZZZZ	1	
08:43	ZZZZZZ	1	
08:48	MA50902-ICV1	1	X
08:53	MA50902-ICB1	1	X
08:58	MA50902-CCV1	1	X
09:03	MA50902-CCB1	1	X
09:08	MA50902-CRI1	1	X
09:13	MA50902-CRID1	1	X
09:18	MA50902-ICSA1	1	X
09:23	MA50902-ICSAB1	1	X
09:28	MA50902-HSTD1	1	X
09:33	MA50902-HSTD2	1	X
09:38	ZZZZZZ	1	
09:43	ZZZZZZ	1	
09:49	ZZZZZZ	1	
09:54	MA50902-CCV2	1	X
09:59	MA50902-CCB2	1	X
10:04	MP27688-MB1	1	
10:09	MP27688-B1	1	
10:14	MP27688-S1	1	
10:18	MP27688-S2	1	
10:23	JD28553-1	1	(a)
10:28	MP27688-SD1	5	
10:33	ZZZZZZ	1	
10:39	ZZZZZZ	1	
10:44	ZZZZZZ	1	
10:49	MA50902-CCV3	1	X
10:54	MA50902-CCB3	1	X
10:59	ZZZZZZ	5	
11:04	ZZZZZZ	5	
11:09	ZZZZZZ	1	
11:14	MP27681-MB1	5	X
11:19	MP27681-B1	5	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
11:25	MP27681-S1	5	X
11:29	MP27681-S2	5	X
11:34	MP27681-D1	5	X
11:40	JD28603-2	5	X (a)
11:45	MA50902-CCV4	1	X
11:50	MA50902-CCB4	1	X
11:55	MP27681-SD1	25	X
12:00	ZZZZZZ	5	
12:05	ZZZZZZ	5	
12:11	ZZZZZZ	5	
12:16	ZZZZZZ	5	
12:21	ZZZZZZ	1	
12:26	ZZZZZZ	1	
12:31	ZZZZZZ	5	
12:37	ZZZZZZ	1	
12:42	MA50902-CCV5	1	X
12:47	MA50902-CCB5	1	X
12:52	MA50902-CRID2	1	X
12:57	MA50902-CRI2	1	X
13:02	MA50902-ICSA2	1	X
13:07	MA50902-ICSAB2	1	X
13:12	MA50902-CCV6	1	X
13:17	MA50902-CCB6	1	X
13:22	ZZZZZZ	5	
13:27	ZZZZZZ	5	
13:32	ZZZZZZ	5	
13:38	ZZZZZZ	1	
13:43	JD28614-12	2	X
13:48	ZZZZZZ	25	
13:53	ZZZZZZ	50	
13:58	ZZZZZZ	1	
14:03	ZZZZZZ	1	
14:08	MA50902-CCV7	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP
Date Analyzed: 07/28/21
Methods: EPA 200.7, SW846 6010D
Analyst: ND
Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
14:13	MA50902-CCB7	1	X
14:18	MP27593-S3	1	
14:23	MP27593-S4	1	
14:28	ZZZZZZ	5	
14:33	ZZZZZZ	5	
14:38	ZZZZZZ	5	
14:43	ZZZZZZ	50	
14:49	ZZZZZZ	5	
14:54	ZZZZZZ	5	
14:59	MA50902-CCV8	1	X
15:04	MA50902-CCB8	1	X
15:09	ZZZZZZ	5	
15:14	MP27680-S1	5	
15:19	MP27680-S2	5	
15:24	ZZZZZZ	100	
15:29	MP27689-MB1	1	
15:34	MP27689-B1	1	
15:39	MP27689-S1	1	X
15:43	MP27689-S2	1	X
15:48	JD28662-1	1	X (a)
15:53	MA50902-CCV9	1	X
15:58	MA50902-CCB9	1	X
16:03	MP27689-SD1	5	X
16:08	MP27689-S1	5	
16:13	MP27689-S2	5	
16:18	JD28662-1	5	
16:23	MP27689-SD1	25	
16:28	ZZZZZZ	1	
16:33	ZZZZZZ	10	
16:38	ZZZZZZ	1	
16:43	ZZZZZZ	1	
16:48	MA50902-CCV10	1	X
16:53	MA50902-CCB10	1	X
		Element:	Pb

REPORTED ELEMENTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
Analyst: ND Run ID: MA50902
Parameters: Pb

Time	Sample Description	Element: Dilution	Pb
16:58	ZZZZZZ	1	
17:04	ZZZZZZ	2	
17:09	ZZZZZZ	2	
17:14	ZZZZZZ	5	
17:19	ZZZZZZ	1	
17:24	ZZZZZZ	2	
17:29	ZZZZZZ	2	
17:34	ZZZZZZ	1	
17:39	MA50902-CCV11	1	X
17:44	MA50902-CCB11	1	X
17:49	ZZZZZZ	1	
17:54	ZZZZZZ	1	

(a) Sample used for QC only; not part of login JD28614.

Element: Pb

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
08:28	MA50902-STD1	3121 R	82184 R	7606 R	8365 R
08:33	MA50902-STD2	3014	77898	7505	7416
08:38	ZZZZZZ	3094	80300	7583	7701
08:43	ZZZZZZ	3166	82575	7646	8451
08:48	MA50902-ICV1	3102	80657	7595	7725
08:53	MA50902-ICB1	3178	83155	7592	8468
08:58	MA50902-CCV1	3110	80641	7627	7728
09:03	MA50902-CCB1	3196	83567	7624	8511
09:08	MA50902-CRI1	3167	82523	7582	8335
09:13	MA50902-CRID1	3187	83028	7497	8462
09:18	MA50902-ICSA1	2957	73716	7230	7005
09:23	MA50902-ICSAB1	2959	74169	7203	7004
09:28	MA50902-HSTD1	3167	81119	7284	8305
09:33	MA50902-HSTD2	2954	73899	7026	6962
09:38	ZZZZZZ	3177	80923	7232	8481
09:43	ZZZZZZ	3162	82267	7273	8524
09:49	ZZZZZZ	3221	81940	7211	8540
09:54	MA50902-CCV2	3139	78935	7193	7770
09:59	MA50902-CCB2	3226	81718	7177	8554
10:04	MP27688-MB1	3240	82616	7307	8602
10:09	MP27688-B1	3182	80311	7271	7989
10:14	MP27688-S1	3165	79959	7283	7859
10:18	MP27688-S2	3163	80082	7301	7862
10:23	JD28553-1	3214	81390	7386	8267
10:28	MP27688-SD1	3232	82364	7287	8503
10:33	ZZZZZZ	3015	76458	7230	7339
10:39	ZZZZZZ	3107	78624	7311	7522
10:44	ZZZZZZ	3136	79793	7370	7635
10:49	MA50902-CCV3	3153	79034	7147	7790
10:54	MA50902-CCB3	3228	81877	7230	8567
10:59	ZZZZZZ	3147	79508	7221	8007
11:04	ZZZZZZ	3171	80167	7265	8126
11:09	ZZZZZZ	3341	84272	7464	8932

6.4.2

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INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
11:14	MP27681-MB1	3046	75672	7139	7485
11:19	MP27681-B1	3122	77174	7165	7586
11:25	MP27681-S1	3096	77332	7234	7495
11:29	MP27681-S2	3104	77772	7196	7526
11:34	MP27681-D1	3072	77014	7229	7515
11:40	JD28603-2	3075	76733	7183	7526
11:45	MA50902-CCV4	3142	79109	7210	7763
11:50	MA50902-CCB4	3225	81512	7192	8557
11:55	MP27681-SD1	3154	79511	7191	8071
12:00	ZZZZZZ	3073	76586	7140	7527
12:05	ZZZZZZ	3073	76607	6944	7513
12:11	ZZZZZZ	3078	76779	7126	7531
12:16	ZZZZZZ	3063	76637	7164	7487
12:21	ZZZZZZ	3102	77707	7200	7686
12:26	ZZZZZZ	3095	77582	7265	7631
12:31	ZZZZZZ	3079	77105	7144	7565
12:37	ZZZZZZ	3086	78133	7271	7627
12:42	MA50902-CCV5	3145	79360	7240	7763
12:47	MA50902-CCB5	3225	82243	7289	8555
12:52	MA50902-CRID2	3213	82245	7317	8498
12:57	MA50902-CRI2	3206	81528	7355	8418
13:02	MA50902-ICSA2	2992	74902	7244	7060
13:07	MA50902-ICSAB2	2983	74362	7189	7038
13:12	MA50902-CCV6	3157	79488	7281	7812
13:17	MA50902-CCB6	3242	82368	7270	8597
13:22	ZZZZZZ	3094	77684	7195	7555
13:27	ZZZZZZ	3092	77313	7203	7583
13:32	ZZZZZZ	3089	77661	7150	7611
13:38	ZZZZZZ	3245	83146	7349	8604
13:43	JD28614-12	3270	82114	7519	7949
13:48	ZZZZZZ	3358	85105	7560	8495
13:53	ZZZZZZ	3282	83516	7390	8487
13:58	ZZZZZZ	3237	81876	7224	8575

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
14:03	ZZZZZZ	3246	82943	7304	8613
14:08	MA50902-CCV7	3150	78836	7180	7782
14:13	MA50902-CCB7	3230	81436	7169	8552
14:18	MP27593-S3	2915	72264	7089	6632
14:23	MP27593-S4	2927	71959	7111	6646
14:28	ZZZZZZ	3202	81081	7203	8368
14:33	ZZZZZZ	3205	81336	7248	8326
14:38	ZZZZZZ	3167	79103	7179	7975
14:43	ZZZZZZ	3225	81551	7283	8438
14:49	ZZZZZZ	3197	80428	7243	8267
14:54	ZZZZZZ	3200	80901	7210	8345
14:59	MA50902-CCV8	3149	78862	7187	7775
15:04	MA50902-CCB8	3231	81959	7192	8554
15:09	ZZZZZZ	3239	82156	7269	8592
15:14	MP27680-S1	3025	77128	7104	7596
15:19	MP27680-S2	3041	77455	7137	7632
15:24	ZZZZZZ	3221	81747	7191	8497
15:29	MP27689-MB1	3244	82901	7371	8604
15:34	MP27689-B1	3193	80470	7374	8002
15:39	MP27689-S1	3095	78524	7284	7550
15:43	MP27689-S2	3095	79023	7320	7559
15:48	JD28662-1	3102	78058	7273	7701
15:53	MA50902-CCV9	3148	79235	7203	7779
15:58	MA50902-CCB9	3237	82028	7240	8575
16:03	MP27689-SD1	3180	80530	7225	8227
16:08	MP27689-S1	No results reported for the elements associated with this internal standard.			
16:13	MP27689-S2	No results reported for the elements associated with this internal standard.			
16:18	JD28662-1	No results reported for the elements associated with this internal standard.			
16:23	MP27689-SD1	No results reported for the elements associated with this internal standard.			
16:28	ZZZZZZ	2944	73697	7276	6635
16:33	ZZZZZZ	3132	78884	7232	7806
16:38	ZZZZZZ	3123	79490	7363	7876
16:43	ZZZZZZ	2958	73849	7355	6674

INTERNAL STANDARD SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
Analyst: ND   Run ID: MA50902
Parameters: Pb

Time	Sample Description	Istd#1	Istd#2	Istd#3	Istd#4
16:48	MA50902-CCV10	3161	79559	7230	7811
16:53	MA50902-CCB10	3240	81995	7282	8577
16:58	ZZZZZZ	3140	80121	7346	7923
17:04	ZZZZZZ	3160	79195	7218	7986
17:09	ZZZZZZ	3201	80725	7422	8079
17:14	ZZZZZZ	3219	81608	7413	8327
17:19	ZZZZZZ	3156	78804	7508	7784
17:24	ZZZZZZ	3194	81314	7504	8053
17:29	ZZZZZZ	3227	82575	7695	8171
17:34	ZZZZZZ	3237	83665	7742	8309
17:39	MA50902-CCV11	3211	81545	7576	7938
17:44	MA50902-CCB11	3310	84911	7595	8782
17:49	ZZZZZZ	3322	85917	7762	8778
17:54	ZZZZZZ	3330	83571	7857	8822

R = Reference for ISTD limits. ! = Outside limits.

LEGEND:

Istd#	Parameter	Limits
Istd#1	Yttrium (2243)	70-130 %
Istd#2	Yttrium (3600)	70-130 %
Istd#3	Yttrium (3710)	70-130 %
Istd#4	Indium	70-130 %

6.4.2
6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50902 Units: ug/l

Time:			08:53		09:03		09:59		10:54	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	-0.100	<3.0	-0.100	<3.0	0.400	<3.0	0.800	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50902   Units: ug/l

Time:			08:53		09:03		09:59		10:54	
Sample ID:			ICB1		CCB1		CCB2		CCB3	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL   Run ID: MA50902   Units: ug/l

Time: Sample ID: Metal	RL	IDL	11:50 CCB4 raw	final	12:47 CCB5 raw	final	13:17 CCB6 raw	final	14:13 CCB7 raw	final
Aluminum	200	16	anr							
Antimony	6.0	2.5	anr							
Arsenic	3.0	2	anr							
Barium	200	.4	anr							
Beryllium	1.0	.1	anr							
Bismuth	20	3.6								
Boron	100	1.9								
Cadmium	3.0	.4	anr							
Calcium	5000	5.6	anr							
Cerium	100									
Chromium	10	.5	anr							
Cobalt	50	.5	anr							
Copper	10	1	anr							
Iron	100	11	anr							
Lead	3.0	1.2	0.600	<3.0	0.600	<3.0	0.100	<3.0	0.00	<3.0
Lithium	50	2.3								
Magnesium	5000	65	anr							
Manganese	15	.2	anr							
Molybdenum	20	.4								
Nickel	10	.3	anr							
Phosphorus	50	4.1								
Potassium	10000	55	anr							
Selenium	10	3.5	anr							
Silicon	200	1.6								
Silver	10	1.1	anr							
Sodium	10000	11	anr							
Strontium	10	.1								
Sulfur	50	4.4								
Thallium	10	2.5								
Tin	10	1								
Titanium	10	.4								
Tungsten	50	2.8								
Vanadium	50	.6	anr							

6.4.3
6

BLANK RESULTS SUMMARY
Part 1 - Initial and Continuing Calibration Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: result < RL Run ID: MA50902 Units: ug/l

Time:			11:50		12:47		13:17		14:13	
Sample ID:			CCB4		CCB5		CCB6		CCB7	
Metal	RL	IDL	raw	final	raw	final	raw	final	raw	final
Zinc	20	.1	anr							
Zirconium	10	.4								

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:		08:48			08:58			09:54	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2030	101.5	2000	2010	100.5	2000	2070	103.5
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP　Date Analyzed: 07/28/21　Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery　Run ID: MA50902　Units: ug/l

Time:		08:48			08:58			09:54	
Sample ID:	ICV	ICV1		CCV	CCV1		CCV	CCV2	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50902   Units: ug/l

Time:		10:49			11:45			12:42	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Bismuth									
Boron									
Cadmium	anr								
Calcium	anr								
Cerium									
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	2000	2060	103.0	2000	2070	103.5	2000	2060	103.0
Lithium									
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Phosphorus									
Potassium	anr								
Selenium	anr								
Silicon									
Silver	anr								
Sodium	anr								
Strontium									
Sulfur									
Thallium									
Tin									
Titanium									
Tungsten									
Vanadium	anr								

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50902   Units: ug/l

Time:		10:49			11:45			12:42	
Sample ID:	CCV	CCV3		CCV	CCV4		CCV	CCV5	
Metal	True	Results	% Rec	True	Results	% Rec	True	Results	% Rec
Zinc	anr								
Zirconium									

(*) Outside of QC limits
(anr) Analyte not requested

6.4.4

6

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery   Run ID: MA50902   Units: ug/l

Time: / Sample ID: / Metal	CCV True	13:12 CCV6 Results	% Rec	CCV True	14:08 CCV7 Results	% Rec
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium	anr					
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	2000	2060	103.0	2000	2060	103.0
Lithium						
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium	anr					
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

CALIBRATION CHECK STANDARDS SUMMARY
Initial and Continuing Calibration Checks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 95 to 105 % Recovery Run ID: MA50902 Units: ug/l

Time:		13:12			14:08	
Sample ID:	CCV	CCV6		CCV	CCV7	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:28			09:33	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Aluminum						
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron						
Lead	8000	8240	103.0			
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium	anr					

HIGH STANDARD CHECK SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 90 to 110 % Recovery Run ID: MA50902 Units: ug/l

Time:		09:28			09:33	
Sample ID:	HSTD	HSTD1		HSTD	HSTD2	
Metal	True	Results	% Rec	True	Results	% Rec
Zinc	anr					
Zirconium						

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50902   Units: ug/l

Time:				09:08		09:13		12:52	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Aluminum	200	500	100	anr					
Antimony	6.0	20	3.0	anr					
Arsenic	8.0	20	3.0	anr					
Barium	200		4.0	anr					
Beryllium	2.0		1.0	anr					
Bismuth	20								
Boron	100		10						
Cadmium	3.0		1.0	anr					
Calcium	5000	2000	1000	anr					
Cerium									
Chromium	10		2.0	anr					
Cobalt	50		3.0	anr					
Copper	10		2.0	anr					
Iron	100	500		anr					
Lead	3.0	20	2.5	3.40	113.3				
Lithium	50								
Magnesium	5000	2000	100	anr					
Manganese	15		3.0	anr					
Molybdenum	20								
Nickel	10		4.0	anr					
Phosphorus	50								
Potassium	5000		2000	anr					
Selenium	10	20	5.0	anr					
Silicon	200								
Silver	5.0		2.0	anr					
Sodium	5000		1000	anr					
Strontium	10								
Sulfur	50								
Thallium	10		2.0						
Tin	10								
Titanium	10								
Tungsten	50								
Vanadium	50		2.0	anr					

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				09:08		09:13		12:52	
Sample ID:	CRI	CRIA	CRID	CRI1		CRID1		CRID2	
Metal	True	True	True	Results	% Rec	Results	% Rec	Results	% Rec
Zinc	20		10	anr					
Zirconium	10								

(*) Outside of QC limits
(anr) Analyte not requested

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP   Date Analyzed: 07/28/21   Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120%   Run ID: MA50902   Units: ug/l

Time: Sample ID: Metal	 CRI True	 CRIA True	 CRID True	12:57 CRI2 Results	 % Rec
Aluminum	200	500	100	anr	
Antimony	6.0	20	3.0	anr	
Arsenic	8.0	20	3.0	anr	
Barium	200		4.0	anr	
Beryllium	2.0		1.0	anr	
Bismuth	20				
Boron	100		10		
Cadmium	3.0		1.0	anr	
Calcium	5000	2000	1000	anr	
Cerium					
Chromium	10		2.0	anr	
Cobalt	50		3.0	anr	
Copper	10		2.0	anr	
Iron	100	500		anr	
Lead	3.0	20	2.5	3.10	103.3
Lithium	50				
Magnesium	5000	2000	100	anr	
Manganese	15		3.0	anr	
Molybdenum	20				
Nickel	10		4.0	anr	
Phosphorus	50				
Potassium	5000		2000	anr	
Selenium	10	20	5.0	anr	
Silicon	200				
Silver	5.0		2.0	anr	
Sodium	5000		1000	anr	
Strontium	10				
Sulfur	50				
Thallium	10		2.0		
Tin	10				
Titanium	10				
Tungsten	50				
Vanadium	50		2.0	anr	

LOW CALIBRATION CHECK STANDARDS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: CRI 80-120% CRIA 80-120% Run ID: MA50902 Units: ug/l

Time:				12:57	
Sample ID:	CRI	CRIA	CRID	CRI2	
Metal	True	True	True	Results	% Rec
Zinc	20		10	anr	
Zirconium	10				

(*) Outside of QC limits
(anr) Analyte not requested

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	ICSA True	ICSAB True	09:18 ICSA1 Results	% Rec	09:23 ICSAB1 Results	% Rec	13:02 ICSA2 Results	% Rec	13:07 ICSAB2 Results	% Rec
Aluminum	500000	500000	510000	102.0	503000	100.6	510000	102.0	502000	100.4
Antimony		1000	2.10		937	93.7	1.50		926	92.6
Arsenic		1000	0.900		950	95.0	1.70		930	93.0
Barium		500	1.60		501	100.2	1.70		500	100.0
Beryllium		500	0.300		496	99.2	0.300		494	98.8
Bismuth		500	4.40		490	98.0	5.60		484	96.8
Boron		500	-2.40		472	94.4	-1.70		465	93.0
Cadmium		1000	-0.300		1020	102.0	-0.300		1020	102.0
Calcium	400000	400000	393000	98.3	388000	97.0	393000	98.3	388000	97.0
Cerium			121*		597*		122*		593*	
Chromium		500	-2.70		483	96.6	-2.50		483	96.6
Cobalt		500	-0.600		486	97.2	-0.600		482	96.4
Copper		500	-3.30		486	97.2	-3.80		487	97.4
Iron	200000	200000	206000	103.0	198000	99.0	206000	103.0	198000	99.0
Lead		1000	0.400		998	99.8	0.500		989	98.9
Lithium		500	-16.0		472	94.4	-15.1		470	94.0
Magnesium	500000	500000	507000	101.4	503000	100.6	508000	101.6	503000	100.6
Manganese		500	0.300		514	102.8	0.400		514	102.8
Molybdenum		500	-1.50		446	89.2	-1.30		438	87.6
Nickel		1000	-0.500		981	98.1	-0.700		979	97.9
Phosphorus		500	15.6		423	84.6	10.3		473	94.6
Potassium			188		185		245		230	
Selenium		1000	-1.30		904	90.4	8.50		882	88.2
Silicon		500	-7.60		490	98.0	-7.00		481	96.2
Silver		1000	-2.10		1020	102.0	-1.70		1010	101.0
Sodium			-117		-52.4		-43.9		28.9	
Strontium		500	0.700		480	96.0	0.700		479	95.8
Sulfur		500	19.3		478	95.6	24.8		484	96.8
Thallium		1000	-8.50		962	96.2	-5.20		865	86.5
Tin		500	-2.00		464	92.8	-0.300		458	91.6
Titanium		500	-1.60		485	97.0	-1.00		483	96.6
Tungsten		500	9.90		473	94.6	9.00		467	93.4
Vanadium		500	-0.500		491	98.2	-0.800		490	98.0

6.4.7
6

INTERFERING ELEMENT CHECK STANDARDS SUMMARY
Part 1 - ICSA and ICSAB Standards

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

File ID: SE072821M1.ICP Date Analyzed: 07/28/21 Methods: EPA 200.7, SW846 6010D
QC Limits: 80 to 120 % Recovery Run ID: MA50902 Units: ug/l

Time: Sample ID: Metal	ICSA True	ICSAB True	09:18 ICSA1 Results	% Rec	09:23 ICSAB1 Results	% Rec	13:02 ICSA2 Results	% Rec	13:07 ICSAB2 Results	% Rec
Zinc		1000	3.20		994	99.4	3.10		980	98.0
Zirconium		500	0.700		448	89.6	0.800		447	89.4

(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.6	8.1		
Antimony	2.0	.25	.41		
Arsenic	2.0	.2	.28		
Barium	20	.04	1.9		
Beryllium	0.20	.01	.08		
Bismuth	2.0	.36	.52		
Boron	10	.19	1.5		
Cadmium	0.50	.04	.07		
Calcium	500	.56	44		
Chromium	1.0	.05	.37		
Cobalt	5.0	.05	.28		
Copper	2.5	.1	.84		
Iron	50	1.1	19		
Lead	2.0	.12	.41	0.060	<2.0
Lithium	5.0	.23	.92		
Magnesium	500	6.5	14		
Manganese	1.5	.02	.41		
Molybdenum	2.0	.04	.32		
Nickel	4.0	.03	.35		
Phosphorus	20	.41	3.3		
Potassium	1000	5.5	32		
Selenium	2.0	.35	.65		
Silicon	20	.16	11		
Silver	0.50	.11	.17		
Sodium	1000	1.1	78		
Strontium	5.0	.01	.18		
Sulfur	10	.44	9.4		
Thallium	1.0	.25	.58		
Tin	20	.1	3.8		
Titanium	1.0	.04	.34		
Tungsten	5.0	.28	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576 Methods: SW846 6010D
Matrix Type: SOLID Units: mg/kg

Prep Date: 07/23/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.04	.23		

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Lead	17.8	258	246	97.6	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Tungsten					
Vanadium					
Zinc					
Zirconium					

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MS	Spikelot MPSPK2	% Rec	QC Limits

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Lead	17.8	257	249	96.2	0.4	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Tungsten						
Vanadium						
Zinc						
Zirconium						

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	JD28614-6 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	209	200	104.5	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 07/23/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Lead	145	154	6.5	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				
Zirconium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27576
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/23/21

Metal	JD28614-6 Original	SDL 1:5	%DIF	QC Limits

Associated samples MP27576: JD28614-1, JD28614-2, JD28614-3, JD28614-4, JD28614-5, JD28614-6, JD28614-7, JD28614-8, JD28614-9, JD28614-10, JD28614-11, JD28614-12, JD28614-13, JD28614-14, JD28614-17

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	9.2	46		
Antimony	6.0	2.8	4.7		
Arsenic	3.0	2.6	2.8		
Barium	200	.2	13		
Beryllium	1.0	.2	.5		
Bismuth	20	2.5	4		
Boron	100	1.8	63		
Cadmium	3.0	.4	1		
Calcium	5000	13	99		
Cerium	100				
Chromium	10	.7	2		
Cobalt	50	.6	2.6		
Copper	10	.7	5.9		
Iron	100	3.3	32		
Lead	3.0	2	1.8	-0.40	<3.0
Lithium	50	1.5	7.3		
Magnesium	5000	25	140		
Manganese	15	.1	1.4		
Molybdenum	20	.6	3.6		
Nickel	10	.8	1.7		
Phosphorus	50	7	18		
Potassium	10000	35	200		
Selenium	10	3.6	4.9		
Silicon	200	2.2	100		
Silver	10	.6	1.9		
Sodium	10000	14	570		
Strontium	10	.1	1		
Sulfur	50	3.7	45		
Thallium	10	5.2	1.8		
Tin	10	1.4	3.7		
Titanium	10	.8	2.5		
Tungsten	50	1.3	40		
Vanadium	50	.5	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	60	.3	6.9		
Zirconium	10	.5	4.1		

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr				
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium					
Bismuth					
Boron					
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	0.0	1930	2000	96.5	75-125
Lithium					
Magnesium					
Manganese	anr				
Molybdenum					
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Bismuth						
Boron						
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	0.0	1950	2000	97.5	1.0	20
Lithium						
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

6.6.2
6

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr				
Zirconium					

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Bismuth				
Boron				
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	0.00	0.00	NC	0-10
Lithium				
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD28614
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27687
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 07/27/21

Metal	JD28597-4 Original	SDL 1:5	%DIF	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27687: JD28614-15, JD28614-16

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2140027
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/01/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140027-01	PB85-15-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:00	07/26/21
L2140027-02	PB85-17-SS01	SOIL	PHILADELPHIA, PA	07/26/21 14:25	07/26/21
L2140027-03	FB-210726	FIELD BLANK	PHILADELPHIA, PA	07/26/21 15:00	07/26/21
L2140027-04	TB-210726	TRIP BLANK (AQUEOUS)	PHILADELPHIA, PA	07/23/21 00:00	07/26/21

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2140027-02: The collection time was obtained from the container labels.

Volatile Organics

L2140027-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (203%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140027-01D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140027-02: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2140027-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (177%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Jennifer L Clements

Title: Technical Director/Representative

Date: 08/01/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

SAMPLE RESULTS

Lab ID:	L2140027-01 D	Date Collected:	07/26/21 14:00
Client ID:	PB85-15-SS01	Date Received:	07/26/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/28/21 21:09
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.67	0.067	4
Benzene	ND		mg/kg	0.17	0.056	4
Toluene	ND		mg/kg	0.33	0.18	4
Ethylbenzene	ND		mg/kg	0.33	0.047	4
Isopropylbenzene	12.		mg/kg	0.33	0.036	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.67	0.065	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.67	0.11	4
Naphthalene	0.95	J	mg/kg	1.3	0.22	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**203**	Q	70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

SAMPLE RESULTS

Lab ID:	L2140027-02	Date Collected:	07/26/21 14:25
Client ID:	PB85-17-SS01	Date Received:	07/26/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/28/21 20:18
Analyst: AJK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	ND		mg/kg	0.039	0.013	1
Toluene	ND		mg/kg	0.078	0.042	1
Ethylbenzene	ND		mg/kg	0.078	0.011	1
Isopropylbenzene	0.28		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.036	J	mg/kg	0.16	0.026	1
Naphthalene	0.28	J	mg/kg	0.31	0.050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	122		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**177**	Q	70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-03
Client ID: FB-210726
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 15:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Field Blank
Analytical Method: 1,8260C
Analytical Date: 07/29/21 10:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027

Project Number: 200.00135.005.03 **Report Date:** 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-04
Client ID: TB-210726
Sample Location: PHILADELPHIA, PA

Date Collected: 07/23/21 00:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Trip Blank (Aqueous)
Analytical Method: 1,8260C
Analytical Date: 07/29/21 10:53
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140027
Project Number:	200.00135.005.03	**Report Date:**	08/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/28/21 13:37
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1529146-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140027
Project Number: 200.00135.005.03 **Report Date:** 08/01/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/29/21 08:32
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-04 Batch: WG1529619-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
Naphthalene	0.23	J	ug/l	1.0	0.22

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140027
Project Number: 200.00135.005.03
Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1529146-3 WG1529146-4								
Methyl tert butyl ether	97		98		66-130	1		30
Benzene	86		85		70-130	1		30
Toluene	87		86		70-130	1		30
Ethylbenzene	94		92		70-130	2		30
Isopropylbenzene	98		97		70-130	1		30
1,3,5-Trimethylbenzene	99		99		70-130	0		30
1,2,4-Trimethylbenzene	100		100		70-130	0		30
Naphthalene	93		95		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		105		70-130
Toluene-d8	108		107		70-130
4-Bromofluorobenzene	115		114		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140027
Project Number: 200.00135.005.03
Report Date: 08/01/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-04 Batch: WG1529619-3 WG1529619-4								
Methyl tert butyl ether	91		91		63-130	0		20
Benzene	99		100		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20
Naphthalene	77		81		70-130	5		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		95		70-130
Toluene-d8	103		103		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	97		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-01
Client ID: PB85-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:00
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/27/21 10:51	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

SAMPLE RESULTS

Lab ID: L2140027-02
Client ID: PB85-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/26/21 14:25
Date Received: 07/26/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.0		%	0.100	NA	1	-	07/27/21 10:51	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2140027
Report Date: 08/01/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1528265-1 QC Sample: L2139980-01 Client ID: DUP Sample						
Solids, Total	81.6	82.7	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140027-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-01B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-01D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2140027-02B	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02C	Vial water preserved	A	NA		2.3	Y	Absent	27-JUL-21 08:05	PA-8260HLW(14)
L2140027-02D	Plastic 2oz unpreserved for TS	A	NA		2.3	Y	Absent		TS(7)
L2140027-03A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03C	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-03D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-03E	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04A	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04B	Vial HCl preserved	A	NA		2.3	Y	Absent		PA-8260(14)
L2140027-04C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)
L2140027-04D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		HOLD-504/8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140027
Report Date: 08/01/21

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:08012119:25

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 07/27/21

ALPHA Job #: L2140027

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
40027-01	PB85-15-5501	7/26	1400	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-02	PB85-17-5501	7/26	1420	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-03	FD-210726	7/26	1500	W	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	TB-210726	7/26		W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4

Container Type	G	G	G	-	-	-	-	-	-	-	-	-
Preservative	F	A	A	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/26 1529	[signature] AAL	7/26/21 1529
[signature]	7/26/21 1529	[signature] AAL	7/26/21 1735
[signature] AAL	7/26/21	[signature] AAL	7/26/21 22:30
[signature] AAL	7/27/21 02:25	[signature]	7/27/21 02:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

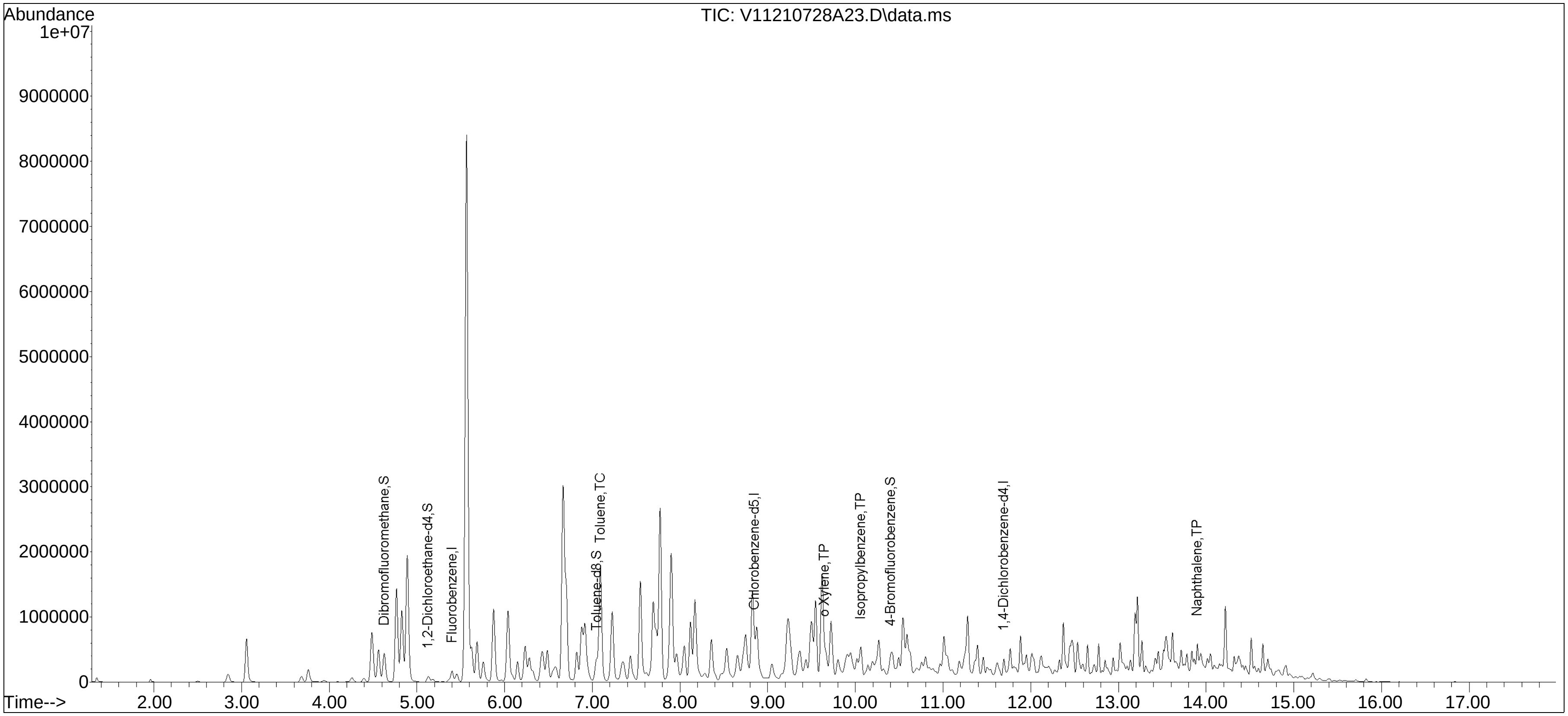
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A23.D
Acq On : 28 Jul 2021 09:09 pm
Operator : VOA111:AJK
Sample : L2140027-01D,31H,4.26,5,0.025,,A
Misc : WG1529146,ICAL18049
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jul 28 21:48:24 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•

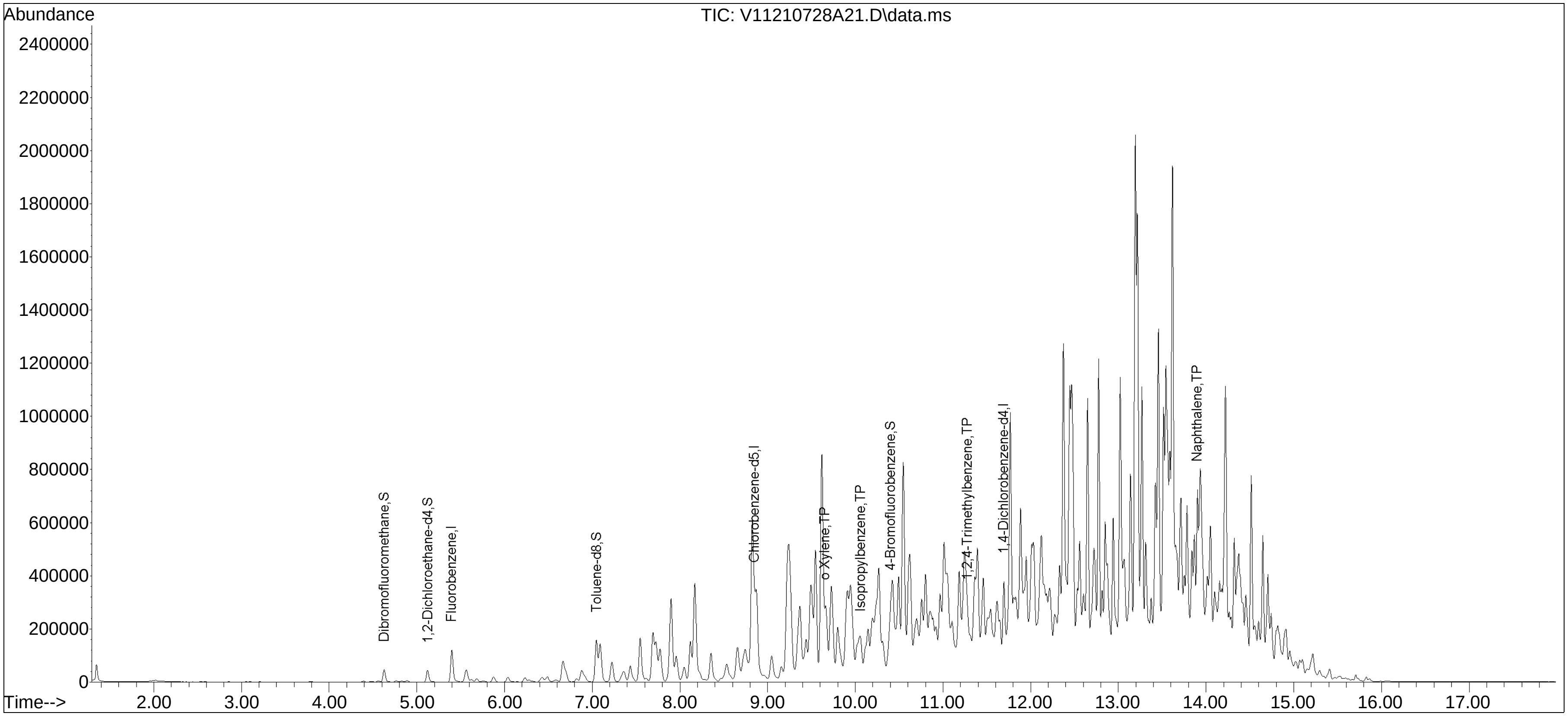


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210728A\
Data File : V11210728A21.D
Acq On : 28 Jul 2021 08:18 pm
Operator : VOA111:AJK
Sample : L2140027-02,31H,5.31,5,0.100,,A
Misc : WG1529146,ICAL18049
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Jul 28 21:47:27 2021
Quant Method : I:\VOLATILES\VOA111\2021\210728A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V11210728A02.D•



ANALYTICAL REPORT

Lab Number:	L2140301
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	08/06/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2140301-01	PB37-17-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:05	07/27/21
L2140301-02	PB37-16-SS01	SOIL	PHILADELPHIA, PA	07/27/21 10:10	07/27/21
L2140301-03	PB37-09-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:10	07/27/21
L2140301-04	PB37-11-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:30	07/27/21
L2140301-05	PB37-10-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:45	07/27/21
L2140301-06	PB37-15-SS01	SOIL	PHILADELPHIA, PA	07/27/21 11:55	07/27/21
L2140301-07	PB37-12-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:20	07/27/21
L2140301-08	PB37-06-SS01	SOIL	PHILADELPHIA, PA	07/27/21 12:30	07/27/21
L2140301-09	PB37-03-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:50	07/27/21
L2140301-10	PB37-02-SS01	SOIL	PHILADELPHIA, PA	07/27/21 13:55	07/27/21
L2140301-11	PB37-01-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:05	07/27/21
L2140301-12	PB37-05-SS01	SOIL	PHILADELPHIA, PA	07/27/21 14:25	07/27/21
L2140301-13	FB-210727	WATER	PHILADELPHIA, PA	07/27/21 15:00	07/27/21
L2140301-14	TB-210727	WATER	PHILADELPHIA, PA	07/27/21 00:00	07/27/21

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

August 06, 2021: This final report includes the results of all requested analyses.

August 03, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

The analysis of Total Lead was subcontracted. A copy of the laboratory report is included as an addendum. Please note: This data is only available in PDF format and is not available on Data Merger.

Volatile Organics

L2140301-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (492%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-02D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2140301-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (222%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (150%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an
attachment to this report.

L2140301-03: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

L2140301-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the

Case Narrative (continued)

chromatogram is included as an attachment to this report.

L2140301-05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2140301-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (167%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2140301-06: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2140301-07: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (140%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2140301-08: The surrogate recoveries are outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.

L2140301-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (133%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-09D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2140301-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (201%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2140301-10: The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (163%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2140301-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 08/06/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-01	Date Collected:	07/27/21 10:05
Client ID:	PB37-17-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 10:23
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00040	J	mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.00078	J	mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.0028		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0020		mg/kg	0.0020	0.00057	1
o-Xylene	0.014		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.016		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.0084		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.086		mg/kg	0.0020	0.00034	1
Naphthalene	0.0017	J	mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**492**	Q	70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-02 D
Client ID: PB37-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 10:10
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:26
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.043	J	mg/kg	0.12	0.041	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	ND		mg/kg	0.25	0.13	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.072	4
Ethylbenzene	0.18	J	mg/kg	0.25	0.035	4
p/m-Xylene	ND		mg/kg	0.50	0.14	4
o-Xylene	ND		mg/kg	0.25	0.072	4
Xylenes, Total	ND		mg/kg	0.25	0.072	4
Isopropylbenzene	6.0		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	ND		mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	ND		mg/kg	0.50	0.083	4
Naphthalene	0.21	J	mg/kg	0.99	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**222**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-03	Date Collected:	07/27/21 11:10
Client ID:	PB37-09-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 10:48
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0015		mg/kg	0.00061	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	0.0047		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.00056	J	mg/kg	0.0012	0.00017	1
p/m-Xylene	0.0038		mg/kg	0.0024	0.00068	1
o-Xylene	0.00052	J	mg/kg	0.0012	0.00036	1
Xylenes, Total	0.0043	J	mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.0092		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.0042		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.0035		mg/kg	0.0024	0.00041	1
Naphthalene	ND		mg/kg	0.0049	0.00080	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**150**	Q	70-130
Dibromofluoromethane	**65**	Q	70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-04
Client ID: PB37-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 11:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:09
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00031	1
Toluene	ND		mg/kg	0.0012	0.00065	1
1,2-Dibromoethane	ND		mg/kg	0.00060	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00067	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	0.00050	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1
Naphthalene	ND		mg/kg	0.0048	0.00078	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	118		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-05	Date Collected:	07/27/21 11:45
Client ID:	PB37-10-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 08:44
Analyst: MV
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.028	0.0093	1
1,2-Dichloroethane	ND		mg/kg	0.056	0.014	1
Toluene	0.074		mg/kg	0.056	0.030	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	0.16		mg/kg	0.056	0.0079	1
p/m-Xylene	0.10	J	mg/kg	0.11	0.031	1
o-Xylene	0.037	J	mg/kg	0.056	0.016	1
Xylenes, Total	0.14	J	mg/kg	0.056	0.016	1
Isopropylbenzene	0.88		mg/kg	0.056	0.0061	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	0.059	J	mg/kg	0.11	0.019	1
Naphthalene	2.1		mg/kg	0.22	0.036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	**167**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
Client ID: PB37-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 11:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:33
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00086	J	mg/kg	0.0025	0.00025	1
Benzene	0.0053		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00032	1
Toluene	0.0037		mg/kg	0.0013	0.00069	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.030		mg/kg	0.0013	0.00018	1
p/m-Xylene	0.021		mg/kg	0.0025	0.00071	1
o-Xylene	0.0020		mg/kg	0.0013	0.00037	1
Xylenes, Total	0.023		mg/kg	0.0013	0.00037	1
Isopropylbenzene	0.042		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.029		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00042	1
Naphthalene	0.22		mg/kg	0.0050	0.00082	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	123		70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-06	Date Collected:	07/27/21 11:55
Client ID:	PB37-15-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 11:39
Analyst: JC
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	ND		mg/kg	0.042	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.084	0.022	1
Toluene	ND		mg/kg	0.084	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.042	0.025	1
Ethylbenzene	0.046	J	mg/kg	0.084	0.012	1
p/m-Xylene	0.088	J	mg/kg	0.17	0.047	1
o-Xylene	ND		mg/kg	0.084	0.024	1
Xylenes, Total	0.088	J	mg/kg	0.084	0.024	1
Isopropylbenzene	0.027	J	mg/kg	0.084	0.0092	1
1,3,5-Trimethylbenzene	0.018	J	mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	0.20		mg/kg	0.17	0.028	1
Naphthalene	0.14	J	mg/kg	0.34	0.055	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-07	Date Collected:	07/27/21 12:20
Client ID:	PB37-12-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 12:29
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.13		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	1.2	E	mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.22		mg/kg	0.0010	0.00014	1
p/m-Xylene	1.2	E	mg/kg	0.0020	0.00058	1
o-Xylene	0.38		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.032		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.12		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.37	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.018		mg/kg	0.0041	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2140301

Project Number: 200.00135.005.03 | **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-07	Date Collected:	07/27/21 12:20
Client ID:	PB37-12-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 12:05
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.26		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	2.0		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.23		mg/kg	0.072	0.010	1
p/m-Xylene	0.97		mg/kg	0.14	0.040	1
o-Xylene	0.29		mg/kg	0.072	0.021	1
Xylenes, Total	1.3		mg/kg	0.072	0.021	1
Isopropylbenzene	0.033	J	mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.16		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.47		mg/kg	0.14	0.024	1
Naphthalene	0.19	J	mg/kg	0.29	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-08
Client ID: PB37-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 12:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:48
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	0.0085		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	0.0067		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00034	1
Ethylbenzene	0.0040		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.063		mg/kg	0.0024	0.00066	1
o-Xylene	0.0058		mg/kg	0.0012	0.00034	1
Xylenes, Total	0.069		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.018		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.027		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.0091		mg/kg	0.0024	0.00039	1
Naphthalene	ND		mg/kg	0.0047	0.00076	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**133**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09 D2
Client ID: PB37-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:50
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 11:13
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	65.		mg/kg	0.47	0.25	10
p/m-Xylene	62.		mg/kg	0.94	0.26	10
Xylenes, Total	85.		mg/kg	0.094	0.027	10
1,2,4-Trimethylbenzene	32.		mg/kg	0.94	0.16	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-09 D	Date Collected:	07/27/21 13:50
Client ID:	PB37-03-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 08:18
Analyst: MV
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.19	0.019	2
Benzene	0.80		mg/kg	0.047	0.016	2
1,2-Dichloroethane	ND		mg/kg	0.094	0.024	2
Toluene	63.	E	mg/kg	0.094	0.051	2
1,2-Dibromoethane	ND		mg/kg	0.047	0.027	2
Ethylbenzene	15.		mg/kg	0.094	0.013	2
p/m-Xylene	60.	E	mg/kg	0.19	0.052	2
o-Xylene	23.		mg/kg	0.094	0.027	2
Isopropylbenzene	1.4		mg/kg	0.094	0.010	2
1,3,5-Trimethylbenzene	10.		mg/kg	0.19	0.018	2
1,2,4-Trimethylbenzene	30.	E	mg/kg	0.19	0.031	2
Naphthalene	1.8		mg/kg	0.37	0.061	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**201**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
Client ID: PB37-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 11:38
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	0.0023		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	0.0014		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	0.19		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.25		mg/kg	0.0022	0.00063	1
o-Xylene	0.0066		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.26		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.048		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.090		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.69	E	mg/kg	0.0022	0.00037	1
Naphthalene	0.099		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**163**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
Date Collected: 07/27/21 13:55
Client ID: PB37-02-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 08/02/21 12:31
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.035	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	ND		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	0.24		mg/kg	0.069	0.0098	1
p/m-Xylene	0.37		mg/kg	0.14	0.039	1
o-Xylene	ND		mg/kg	0.069	0.020	1
Xylenes, Total	0.37		mg/kg	0.069	0.020	1
Isopropylbenzene	0.071		mg/kg	0.069	0.0076	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	1.0		mg/kg	0.14	0.023	1
Naphthalene	0.28		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-11	Date Collected:	07/27/21 14:05
Client ID:	PB37-01-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 09:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00060	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	0.0016	J	mg/kg	0.0022	0.00062	1
o-Xylene	0.00046	J	mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0021	J	mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0036		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	0.00068	J	mg/kg	0.0022	0.00037	1
Naphthalene	0.0024	J	mg/kg	0.0044	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**151**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
Client ID: PB37-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:25
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 07/30/21 14:11
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	1.3		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	9.8		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	3.8		mg/kg	0.072	0.010	1
p/m-Xylene	14.		mg/kg	0.14	0.040	1
o-Xylene	4.7		mg/kg	0.072	0.021	1
Xylenes, Total	19.		mg/kg	0.072	0.021	1
Isopropylbenzene	0.32		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	2.8		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	10.		mg/kg	0.14	0.024	1
Naphthalene	1.9		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	115		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-13
Client ID: FB-210727
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 15:00
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 07/29/21 16:31
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-13
Client ID: FB-210727
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 15:00
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/02/21 03:21
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-14	Date Collected:	07/27/21 00:00
Client ID:	TB-210727	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	07/29/21 14:55
Analytical Date:	07/29/21 16:37		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2140301

Project Number: 200.00135.005.03 | **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-14	Date Collected:	07/27/21 00:00
Client ID:	TB-210727	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 08/02/21 02:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
Naphthalene	ND		ug/l	1.0	0.22	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2140301
Project Number: 200.00135.005.03 | **Report Date:** 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 07/29/21 16:06
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 07/29/21 14:55

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 13-14 Batch: WG1529463-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06-07,09-10 Batch: WG1530505-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 07/30/21 07:00
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,05,09,12 Batch: WG1530505-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	103		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/01/21 18:58
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 13-14 Batch: WG1530605-5					
1,2-Dichloroethane	ND		ug/l	0.50	0.13

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	108		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 08/02/21 10:23
Analyst: JC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 08 Batch: WG1530896-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 13-14 Batch: WG1529463-2									
1,2-Dibromoethane	116		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,03-04,06-07,10-11 Batch: WG1530504-3 WG1530504-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301

Project Number: 200.00135.005.03 **Report Date:** 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,05,09,12 Batch: WG1530505-3 WG1530505-4								
Methyl tert butyl ether	106		98		66-130	8		30
Benzene	90		80		70-130	12		30
1,2-Dichloroethane	103		94		70-130	9		30
Toluene	89		80		70-130	11		30
1,2-Dibromoethane	94		90		70-130	4		30
Ethylbenzene	94		83		70-130	12		30
p/m-Xylene	86		76		70-130	12		30
o-Xylene	89		80		70-130	11		30
Isopropylbenzene	95		85		70-130	11		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	100		89		70-130	12		30
Naphthalene	99		95		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		109		70-130
Toluene-d8	106		107		70-130
4-Bromofluorobenzene	115		115		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06-07,09-10 Batch: WG1530505-8 WG1530505-9								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	87		85		70-130	2		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	95		92		70-130	3		30
1,2-Dibromoethane	90		91		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	95		92		70-130	3		30
Isopropylbenzene	114		110		70-130	4		30
1,3,5-Trimethylbenzene	112		110		70-130	2		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30
Naphthalene	100		104		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 13-14 Batch: WG1530605-3 WG1530605-4								
1,2-Dichloroethane	95		94		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		90		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	95		98		70-130
Dibromofluoromethane	104		103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2140301
Report Date: 08/06/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 08 Batch: WG1530896-3 WG1530896-4								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	87		85		70-130	2		30
1,2-Dichloroethane	88		89		70-130	1		30
Toluene	95		92		70-130	3		30
1,2-Dibromoethane	90		91		70-130	1		30
Ethylbenzene	102		99		70-130	3		30
p/m-Xylene	94		92		70-130	2		30
o-Xylene	95		92		70-130	3		30
Isopropylbenzene	114		110		70-130	4		30
1,3,5-Trimethylbenzene	112		110		70-130	2		30
1,2,4-Trimethylbenzene	112		110		70-130	2		30
Naphthalene	100		104		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		102		70-130
Toluene-d8	109		108		70-130
4-Bromofluorobenzene	118		118		70-130
Dibromofluoromethane	94		96		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-01
Date Collected: 07/27/21 10:05
Client ID: PB37-17-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-02
Date Collected: 07/27/21 10:10
Client ID: PB37-16-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-03
Date Collected: 07/27/21 11:10
Client ID: PB37-09-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-04
Client ID: PB37-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 11:30
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.9		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2140301
Project Number:	200.00135.005.03	**Report Date:**	08/06/21

SAMPLE RESULTS

Lab ID:	L2140301-05	Date Collected:	07/27/21 11:45
Client ID:	PB37-10-SS01	Date Received:	07/27/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-06
Date Collected: 07/27/21 11:55
Client ID: PB37-15-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-07 Date Collected: 07/27/21 12:20
Client ID: PB37-12-SS01 Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-08
Date Collected: 07/27/21 12:30
Client ID: PB37-06-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.9		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-09
Client ID: PB37-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 07/27/21 13:50
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.6		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-10
Client ID: PB37-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 13:55
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2140301
Project Number: 200.00135.005.03
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-11
Date Collected: 07/27/21 14:05
Client ID: PB37-01-SS01
Date Received: 07/27/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

SAMPLE RESULTS

Lab ID: L2140301-12
Client ID: PB37-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 07/27/21 14:25
Date Received: 07/27/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.2		%	0.100	NA	1	-	07/28/21 08:21	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-12 QC Batch ID: WG1528692-1 QC Sample: L2140301-01 Client ID: PB37-17-SS01						
Solids, Total	80.2	79.7	%	1		20

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-01A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-01B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-01E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-02A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-02B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-02E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-03A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-03B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-03E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-04A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-04B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-04E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-05A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-05B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-05C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-05E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-06A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-06B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-06E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-07A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-07B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-07E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-08A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW(14)
L2140301-08B	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08C	Vial water preserved	A	NA		2.5	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-08D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-08E	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2140301-09A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-09B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-09E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-10A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2140301-10B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260H(14),PA-8260HLW(14)
L2140301-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-10E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2140301
Report Date: 08/06/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2140301-11A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-11B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 10:15	PA-8260HLW(14)
L2140301-11C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-11E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-12A	Vial MeOH preserved	B	NA		5.8	Y	Absent		PA-8260HLW(14)
L2140301-12B	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12C	Vial water preserved	B	NA		5.8	Y	Absent	28-JUL-21 05:31	PA-8260HLW(14)
L2140301-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		5.8	Y	Absent		SUB-TOTAL LEAD()
L2140301-12E	Plastic 120ml unpreserved	B	NA		5.8	Y	Absent		TS(7)
L2140301-13A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13C	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-13D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13E	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-13F	Plastic 250ml HNO3 preserved	A	<2	<2	2.5	Y	Absent		SUB-TOTAL LEAD()
L2140301-14A	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14B	Vial HCl preserved	A	NA		2.5	Y	Absent		PA-8260(14)
L2140301-14C	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)
L2140301-14D	Vial Na2S2O3 preserved	A	NA		2.5	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2140301
Project Number: 200.00135.005.03 **Report Date:** 08/06/21

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/28/21

ALPHA Job #: L2140301

Project Information

Project Name: Philadelphia Refinery

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
40301-01	PB37-17-SS01	7/27	1005	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB37-16-SS01	↓	1010	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB37-09-SS01		1110			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-04	PB37-11-SS01		1130			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-05	PB37-10-SS01		1145			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-06	PB37-15-SS01		1155			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	PB37-12-SS01		1220			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-08	PB37-06-SS01		1230			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-09	PB37-03-SS01		1350			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-10	PB37-02-SS01	↓	1355	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/27 1528	[signature] AAL	7/27/ 15:28
[signature] AAL	7/27/21 1526	[signature] AAL	7/27/21 1710
[signature] AAL	7/27/21	[signature]	7/28/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01 (I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 7/28/21

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Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: Time:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1,2)		Sample Specific Comments	TOTAL # BOTTLES
40301-11	PB37-01-5501	7/27	1405	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-12	PB37-05-5501		1425	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-13	FB-210727A		1500	W		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		7
-14	TB-210727			W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	7/27 1618	[signature] AAL	7/27/21 1528
[signature]	7/27/21 1524	[signature] AAL	7/27/21 1710
[signature] AAL	7/27/21	[signature]	7/27/21
7/27/21		[signature]	7/28/21 02:00

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

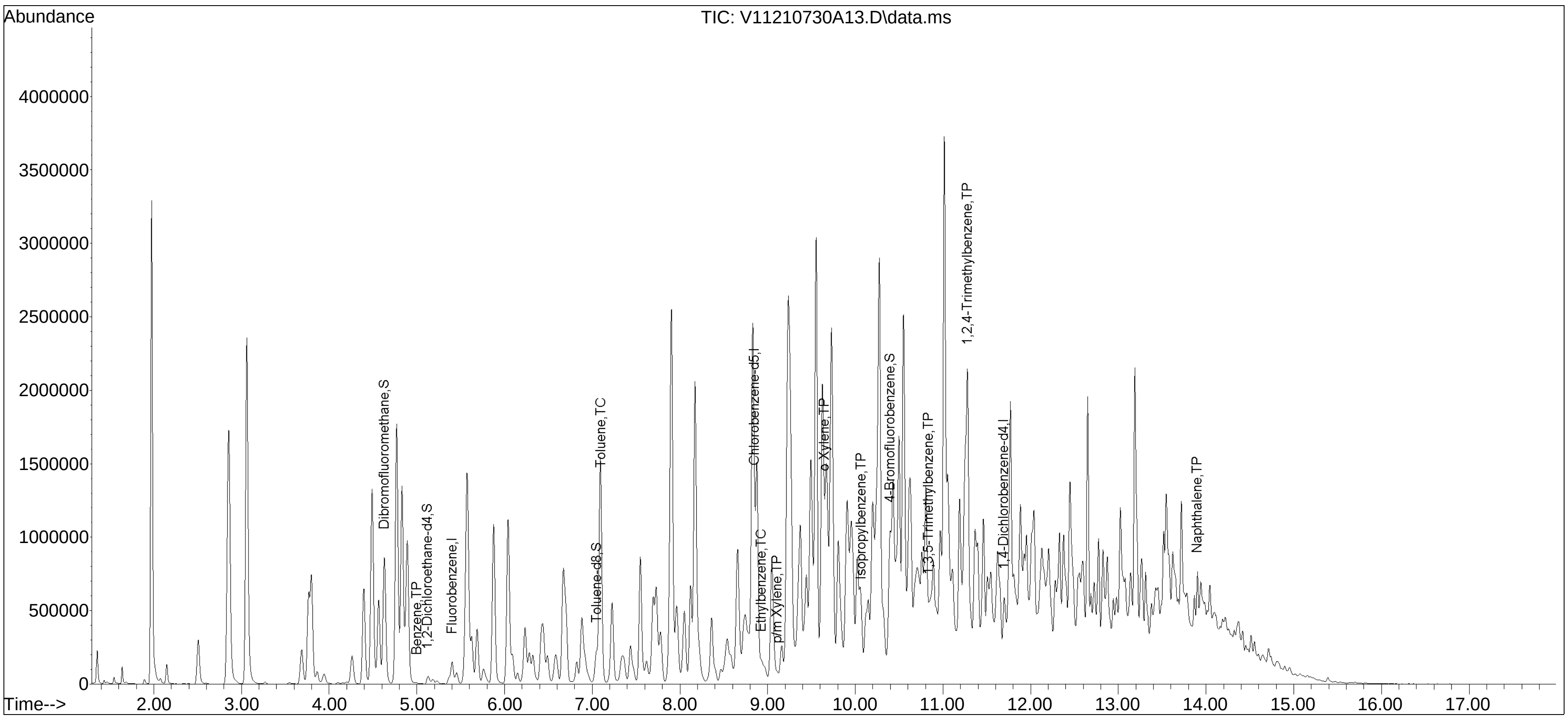
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A13.D
Acq On : 30 Jul 2021 10:23 am
Operator : VOA111:JC
Sample : L2140301-01,31,6.16,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Aug 02 06:24:49 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•



Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A06.D
Acq On    : 30 Jul 2021  07:26 am
Operator  : VOA111:MV
Sample    : L2140301-02D,31H,6.08,5,0.025,,A
Misc      : WG1530505,ICAL18049
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Jul 30 09:43:13 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•
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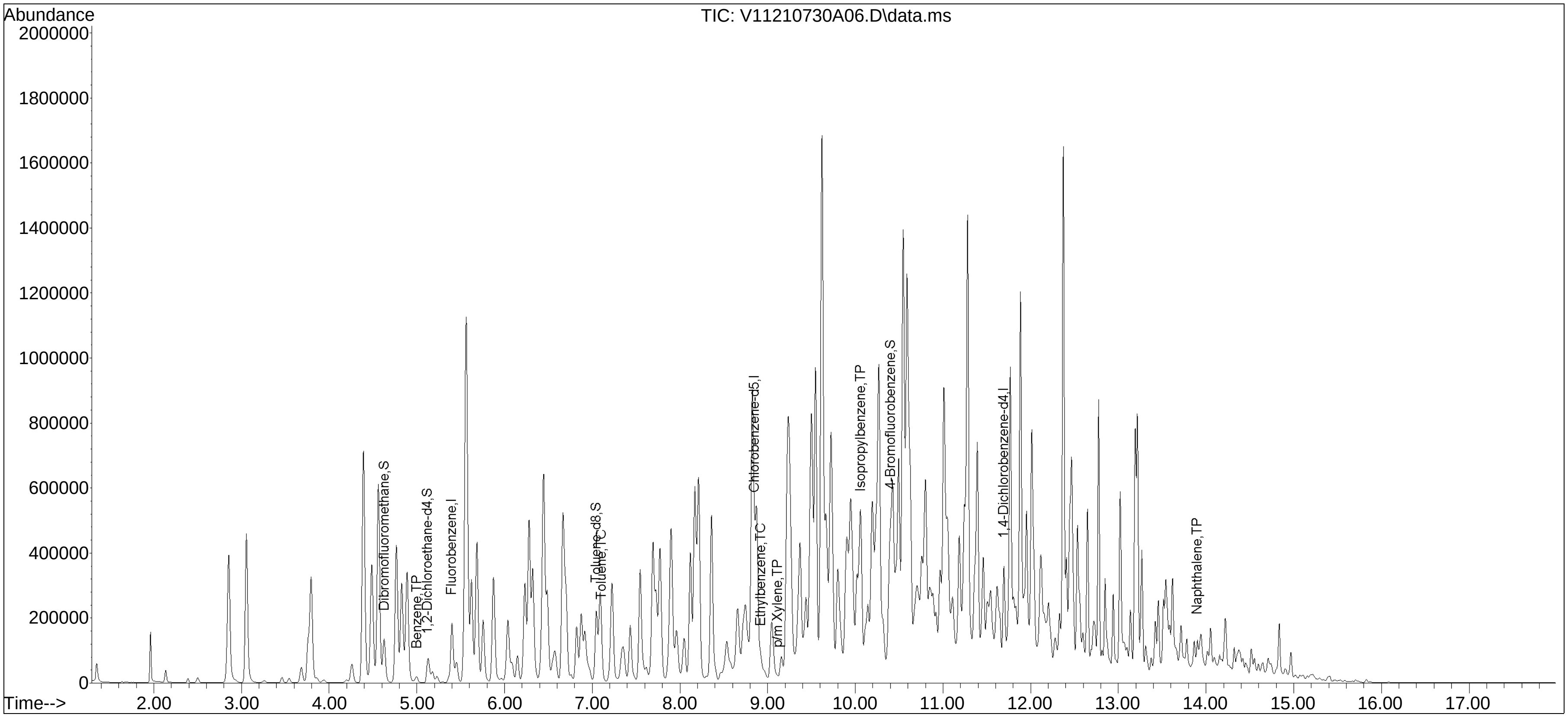
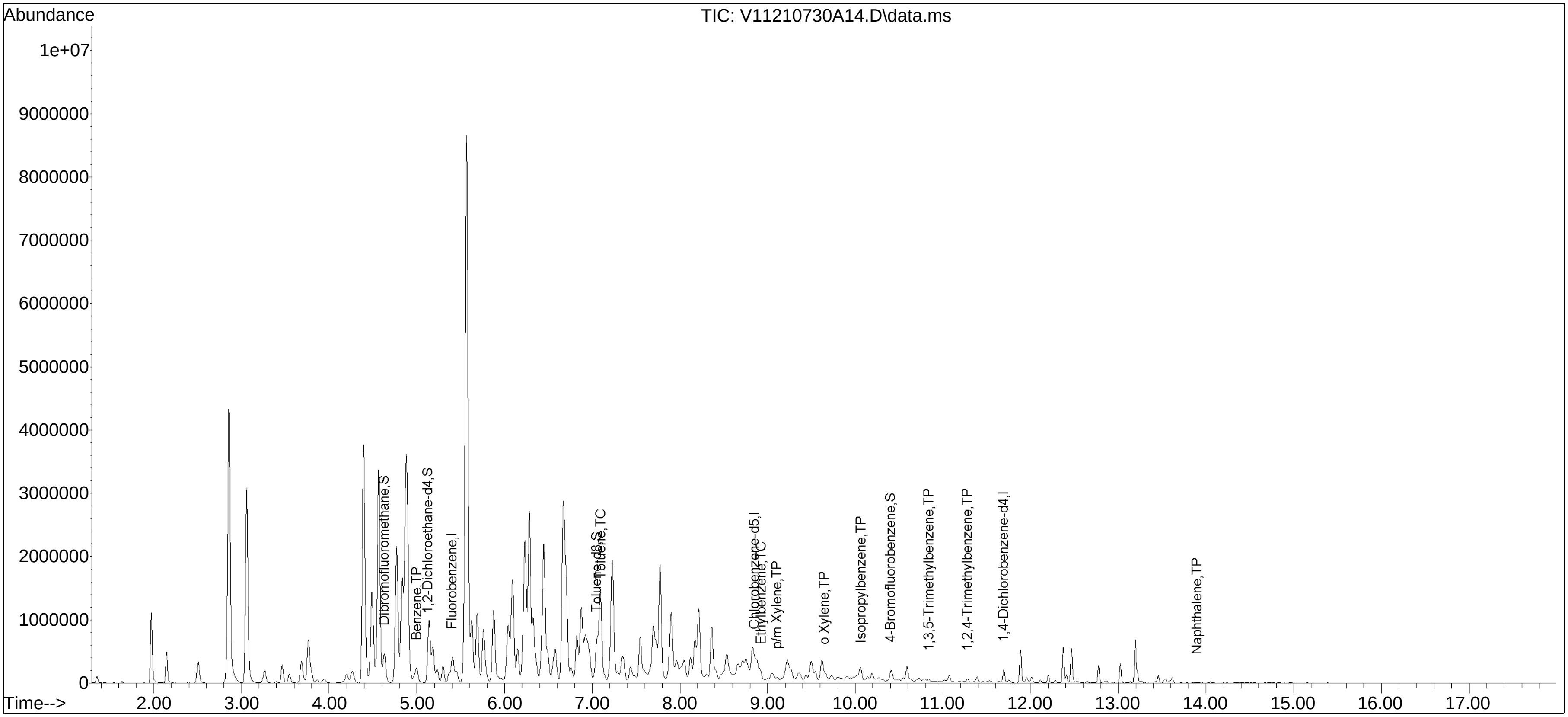


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A14.D
Acq On : 30 Jul 2021 10:48 am
Operator : VOA111:JC
Sample : L2140301-03,31,4.50,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Aug 02 06:25:10 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

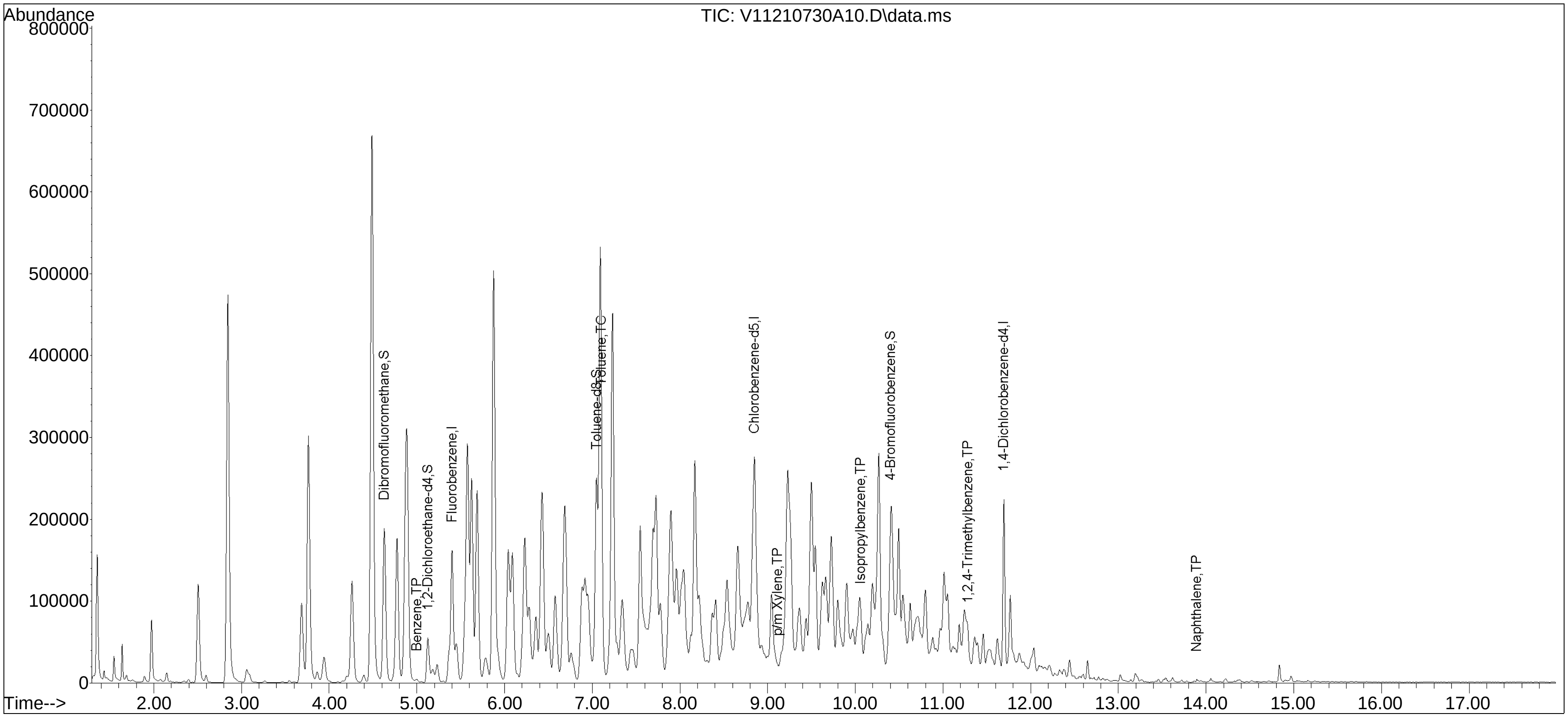


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A10.D
Acq On : 30 Jul 2021 09:09 am
Operator : VOA111:MV
Sample : L2140301-04,31,5.05,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Jul 30 09:44:42 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

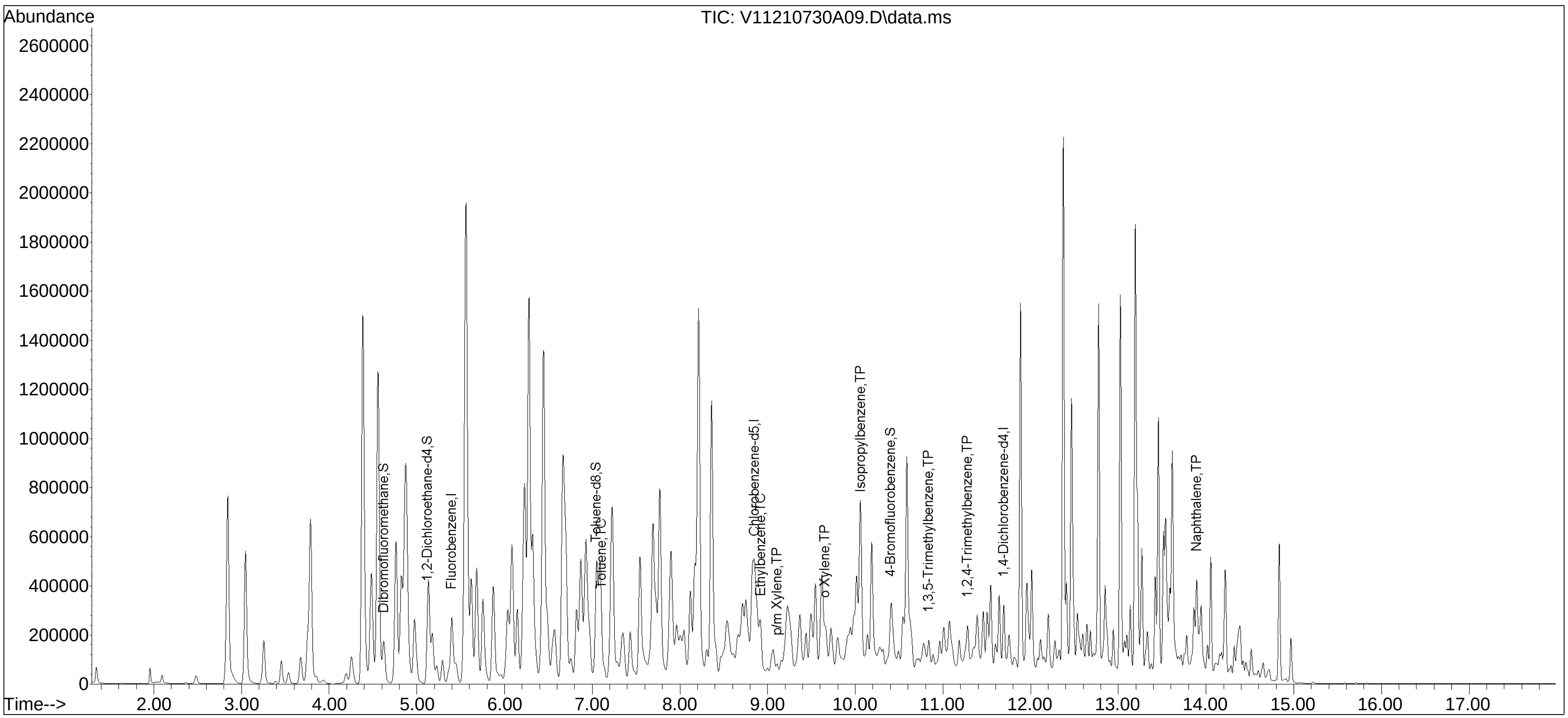


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A09.D
Acq On   : 30 Jul 2021 08:44 am
Operator : VOA111:MV
Sample   : L2140301-05,31H,5.40,5,0.100,,A
Misc   : WG1530505,ICAL18049
ALS Vial : 9   Sample Multiplier: 1

Quant Time: Jul 30 09:44:15 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A18.D
Acq On    : 30 Jul 2021  12:29 pm
Operator  : VOA111:JC
Sample    : L2140301-07,31,6.05,5,,B
Misc      : WG1530504,ICAL18049
ALS Vial  : 18   Sample Multiplier: 1

Quant Time: Aug 02 06:26:55 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•
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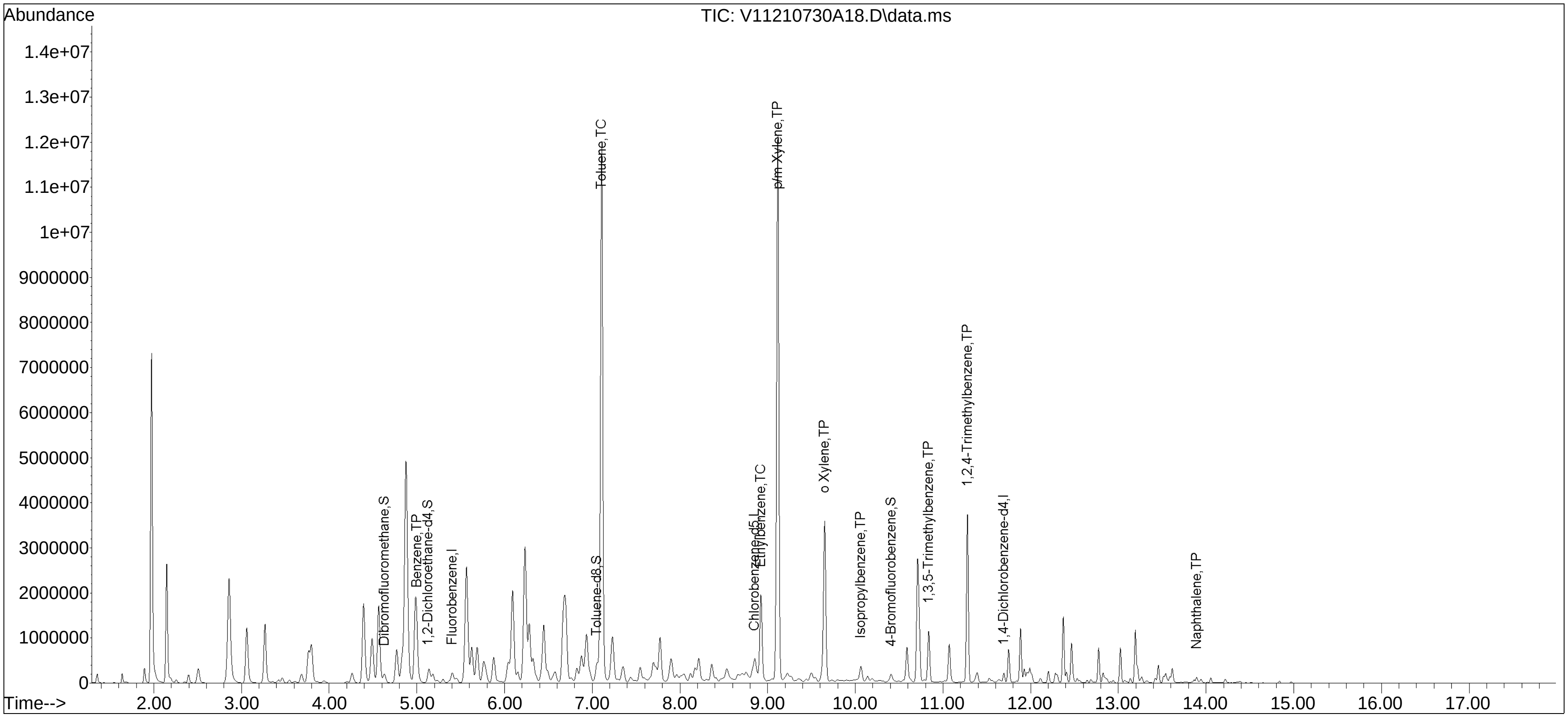

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210802A\
Data File : V11210802A06.D
Acq On    : 02 Aug 2021  10:48 am
Operator  : VOA111:JC
Sample    : L2140301-08,31,5.06,5,,C
Misc      : WG1530896,ICAL18049
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Aug 03 08:50:38 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•
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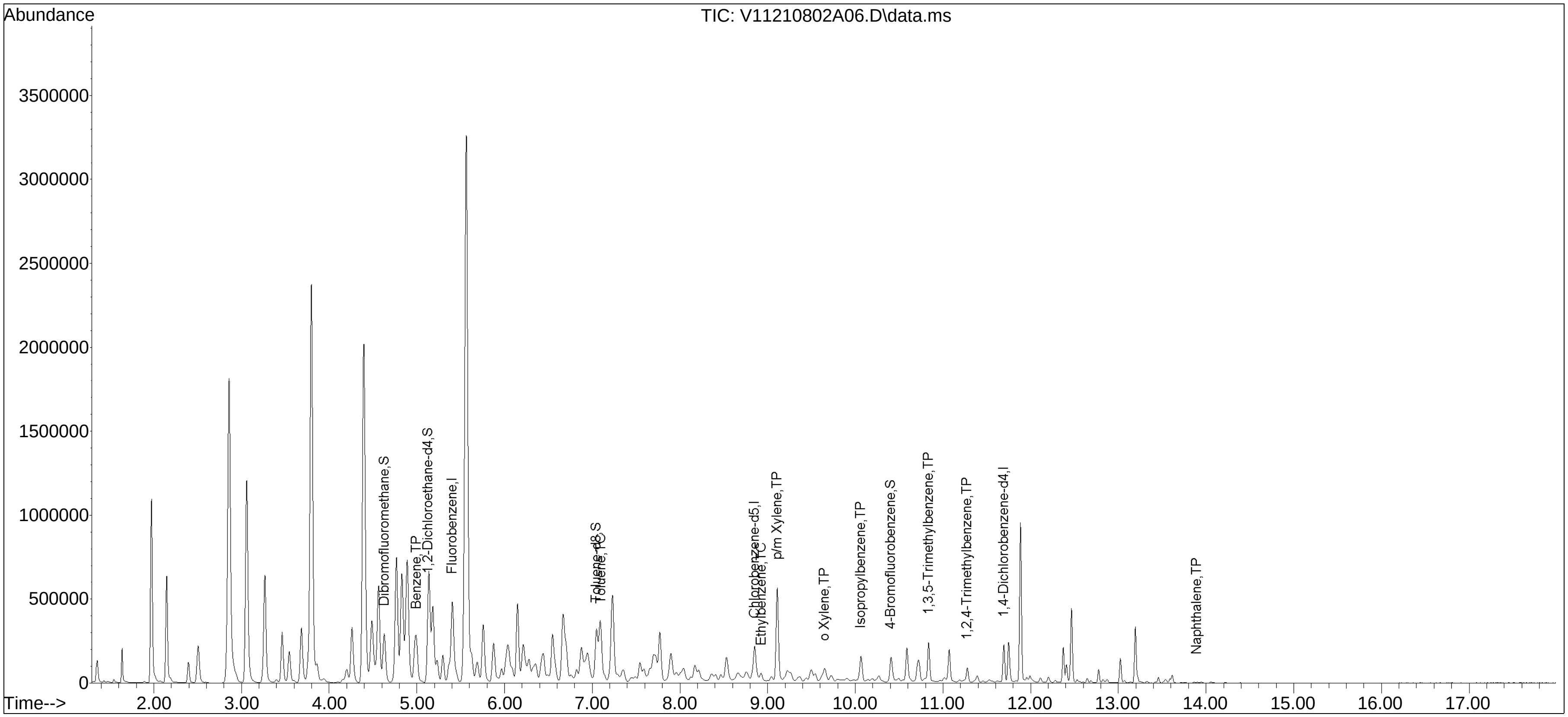

Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A08.D
Acq On    : 30 Jul 2021  08:18 am
Operator  : VOA111:MV
Sample    : L2140301-09D,31H,6.02,5,0.050,,A
Misc      : WG1530505,ICAL18049
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Aug 02 10:49:29 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•
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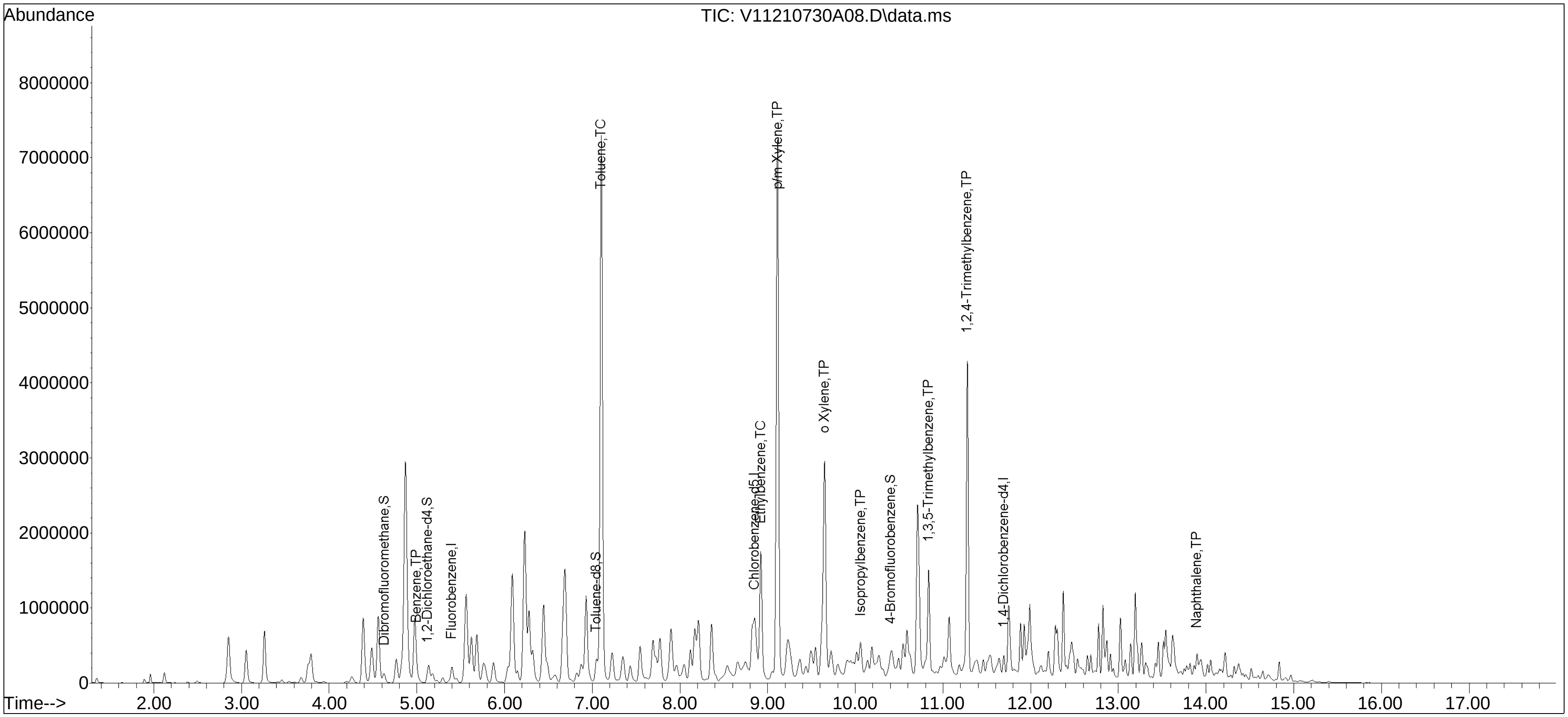
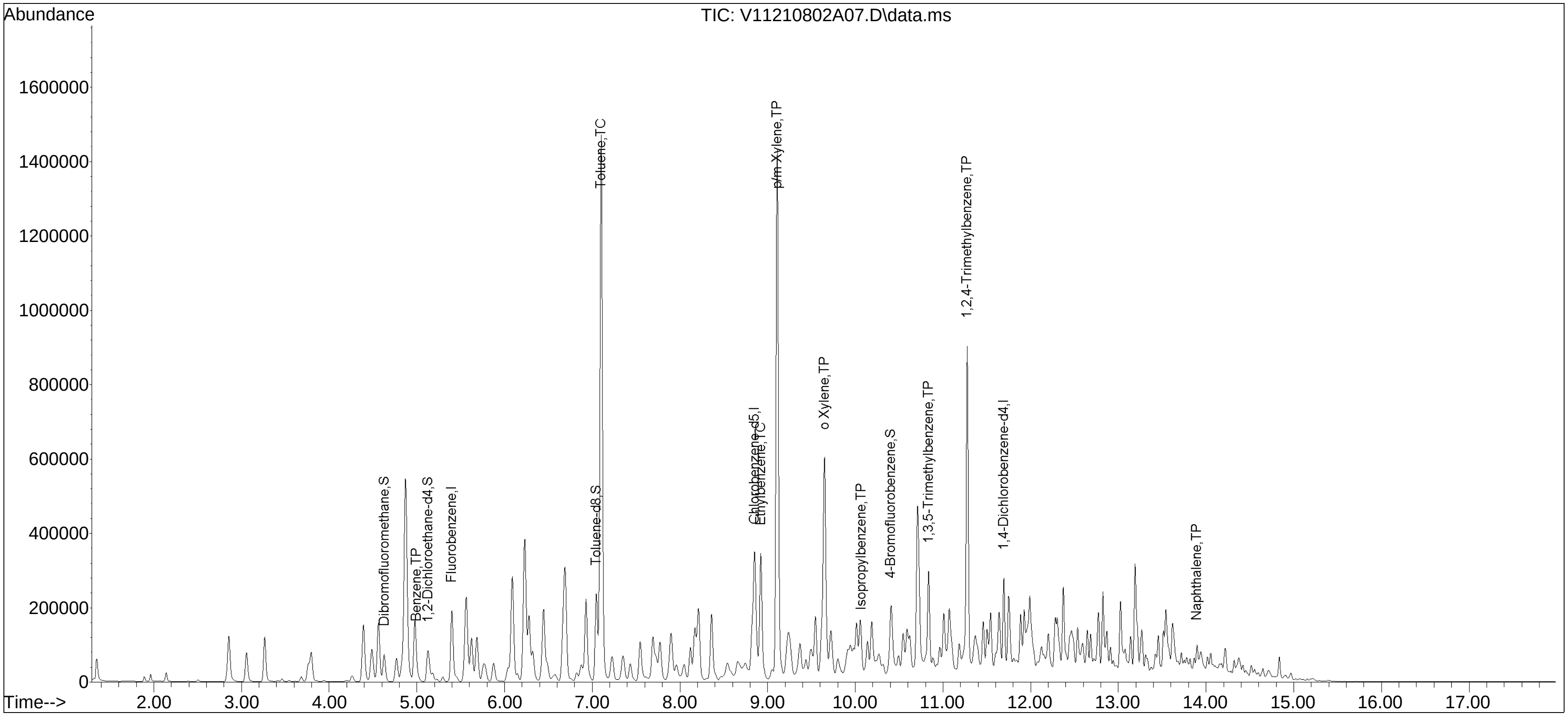


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210802A\
Data File : V11210802A07.D
Acq On : 02 Aug 2021 11:13 am
Operator : VOA111:JC
Sample : L2140301-09D2,31H,6.02,5,0.010,,,A
Misc : WG1530505,ICAL18049
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Aug 03 08:40:36 2021
Quant Method : I:\VOLATILES\VOA111\2021\210802A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list02A\V11210802A01.D•

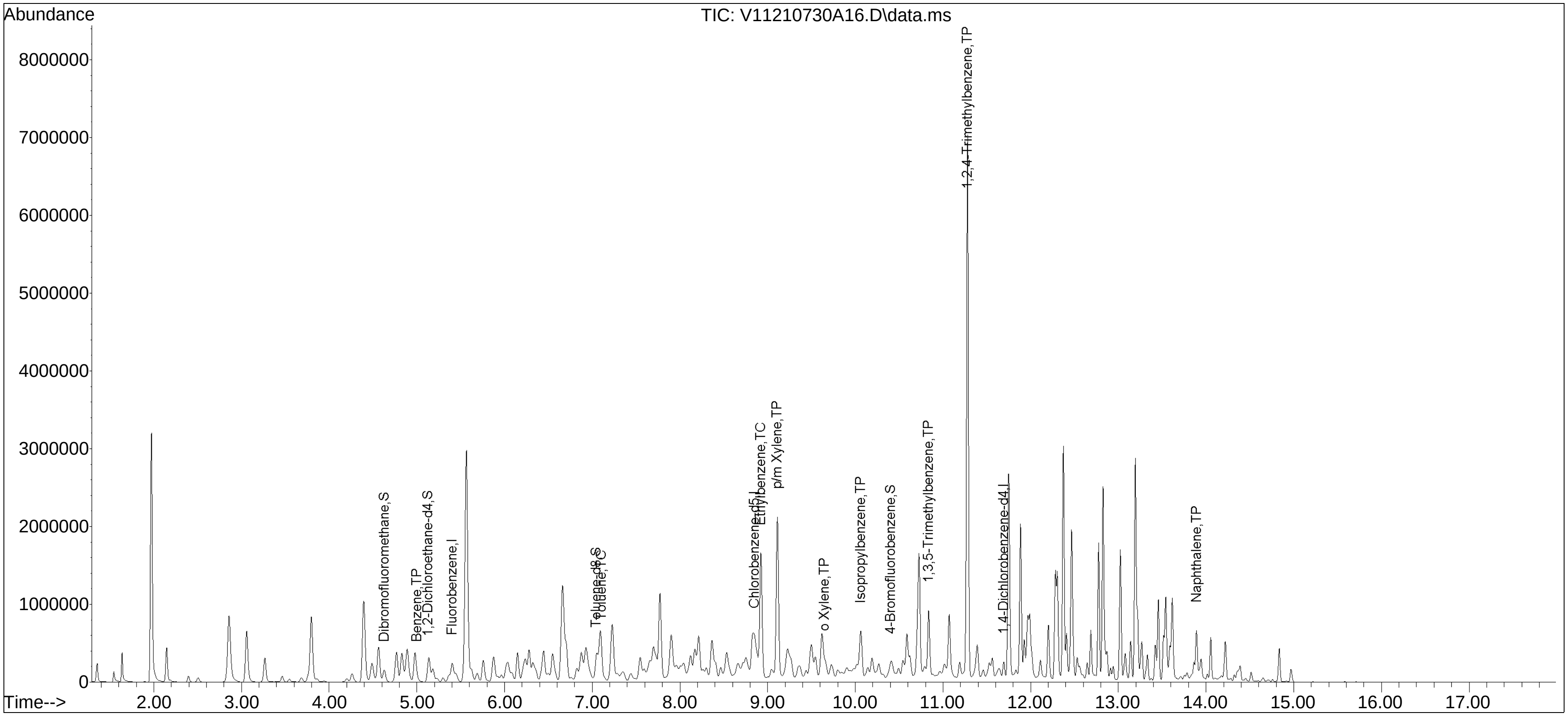


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A16.D
Acq On : 30 Jul 2021 11:38 am
Operator : VOA111:JC
Sample : L2140301-10,31,5.52,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Aug 02 06:26:18 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•

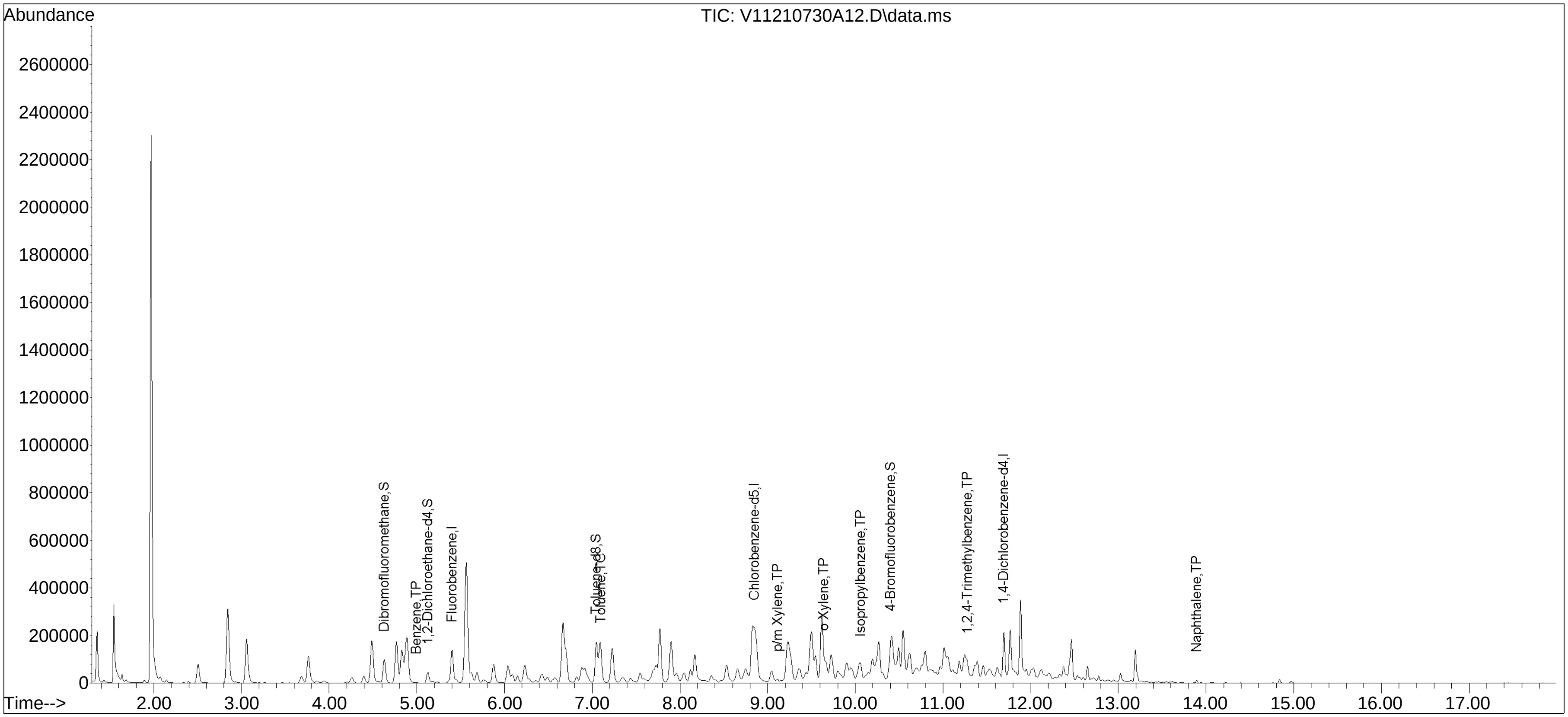


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2021\210730A\
Data File : V11210730A12.D
Acq On : 30 Jul 2021 09:58 am
Operator : VOA111:JC
Sample : L2140301-11,31,5.52,5,,B
Misc : WG1530504,ICAL18049
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Aug 02 06:07:44 2021
Quant Method : I:\VOLATILES\VOA111\2021\210730A\V111_210609A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jun 09 18:48:01 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list30A\V11210730A01.D•



SGS

Dayton, NJ

08/06/21

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

Alpha Analytical Laboratories, Inc.

Alpha Analytical, PA

L2140301

SGS Job Number: JD29089

Sampling Date: 07/27/21

Report to:

Alpha Analytical Laboratories, Inc.
Eight Walkup Drive
Westborough, MA 01581
subreports@alphalab.com; cromero@alphalab.com

ATTN: Cynthia Romero

Total number of pages in report: **45**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Mike Earp

Client Service contact: Michelle Jenkins 732-329-0200

Certifications: NJ(12129), NY(10983), CA, CT, FL, IL, IN, KS, KY, LA, MA, MD, ME, MN, NC, OH VAP (CL0056), AK (UST-103), AZ (AZ0786), PA, RI, SC, TX, UT, VA, WV, DoD ELAP (ANAB L2248)

SGS North America Inc. • 2235 Route 130 • Dayton, NJ 08810 • tel: 732-329-0200 • fax: 732-329-3499

Sections:

1
2
3
4
5

Table of Contents

-1-

1

SGS North America Inc.

Sample Summary

Alpha Analytical Laboratories, Inc.

Job No: JD29089

Alpha Analytical, PA
Project No: L2140301

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
JD29089-1	07/27/21	10:05		07/29/21	SO	Soil	PB37-17-SS01
JD29089-2	07/27/21	10:10		07/29/21	SO	Soil	PB37-16-SS01
JD29089-3	07/27/21	11:10		07/29/21	SO	Soil	PB37-09-SS01
JD29089-4	07/27/21	11:30		07/29/21	SO	Soil	PB37-11-SS01
JD29089-5	07/27/21	11:45		07/29/21	SO	Soil	PB37-10-SS01
JD29089-6	07/27/21	11:55		07/29/21	SO	Soil	PB37-15-SS01
JD29089-7	07/27/21	12:20		07/29/21	SO	Soil	PB37-12-SS01
JD29089-8	07/27/21	12:30		07/29/21	SO	Soil	PB37-06-SS01
JD29089-9	07/27/21	13:50		07/29/21	SO	Soil	PB37-03-SS01
JD29089-10	07/27/21	13:55		07/29/21	SO	Soil	PB37-02-SS01
JD29089-11	07/27/21	10:05		07/29/21	SO	Soil	PB37-01-SS01
JD29089-12	07/27/21	10:05		07/29/21	SO	Soil	PB37-05-SS01
JD29089-13	07/27/21	15:00		07/29/21	AQ	Field Blank Soil	FB-210727

Soil samples reported on a dry weight basis unless otherwise indicated on result page.

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD29089-1	**PB37-17-SS01**					
Lead		1850	12		mg/kg	SW846 6010D
JD29089-2	**PB37-16-SS01**					
Lead		14.3	2.4		mg/kg	SW846 6010D
JD29089-3	**PB37-09-SS01**					
Lead		8.7	2.2		mg/kg	SW846 6010D
JD29089-4	**PB37-11-SS01**					
Lead		2740	12		mg/kg	SW846 6010D
JD29089-5	**PB37-10-SS01**					
Lead		5.8	2.3		mg/kg	SW846 6010D
JD29089-6	**PB37-15-SS01**					
Lead		647	2.8		mg/kg	SW846 6010D
JD29089-7	**PB37-12-SS01**					
Lead		119	2.6		mg/kg	SW846 6010D
JD29089-8	**PB37-06-SS01**					
Lead		9.4	2.3		mg/kg	SW846 6010D
JD29089-9	**PB37-03-SS01**					
Lead		61.2	2.2		mg/kg	SW846 6010D
JD29089-10	**PB37-02-SS01**					
Lead		131	1.6		mg/kg	SW846 6010D
JD29089-11	**PB37-01-SS01**					
Lead		449	2.4		mg/kg	SW846 6010D

Summary of Hits

Job Number: JD29089
Account: Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA
Collected: 07/27/21

Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
JD29089-12	**PB37-05-SS01**					
Lead		85.0	2.4		mg/kg	SW846 6010D
JD29089-13	**FB-210727**					

No hits reported in this sample.

Sample Results

Report of Analysis

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-17-SS01			
Lab Sample ID:	JD29089-1		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	80.2
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	1850	12	mg/kg	5	08/04/21	08/05/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50942
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-16-SS01		
Lab Sample ID:	JD29089-2	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	81.4
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	14.3	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-09-SS01		
Lab Sample ID:	JD29089-3	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	90.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	8.7	2.2	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-11-SS01			
Lab Sample ID:	JD29089-4		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	82.9
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	2740	12	mg/kg	5	08/04/21	08/05/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50942
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-10-SS01		
Lab Sample ID:	JD29089-5	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	90.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	5.8	2.3	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-15-SS01			
Lab Sample ID:	JD29089-6		**Date Sampled:**	07/27/21
Matrix:	SO - Soil		**Date Received:**	07/29/21
			Percent Solids:	72.8
Project:	Alpha Analytical, PA			

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	647	2.8	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-12-SS01		
Lab Sample ID:	JD29089-7	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	80.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	119	2.6	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-06-SS01		
Lab Sample ID:	JD29089-8	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	83.9
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By		Method	Prep Method
Lead	9.4	2.3	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-03-SS01		
Lab Sample ID:	JD29089-9	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	94.6
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	61.2	2.2	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-02-SS01		
Lab Sample ID:	JD29089-10	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	80.8
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	131	1.6	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-01-SS01		
Lab Sample ID:	JD29089-11	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	81.3
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	449	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	PB37-05-SS01		
Lab Sample ID:	JD29089-12	**Date Sampled:**	07/27/21
Matrix:	SO - Soil	**Date Received:**	07/29/21
		Percent Solids:	87.2
Project:	Alpha Analytical, PA		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	85.0	2.4	mg/kg	1	08/04/21	08/04/21	ND	SW846 6010D [1]	SW846 3050B [2]

(1) Instrument QC Batch: MA50940
(2) Prep QC Batch: MP27852

RL = Reporting Limit

SGS North America Inc.

Report of Analysis

Client Sample ID:	FB-210727		
Lab Sample ID:	JD29089-13	**Date Sampled:**	07/27/21
Matrix:	AQ - Field Blank Soil	**Date Received:**	07/29/21
		Percent Solids:	n/a
Project:	Alpha Analytical, PA		

Total Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Lead	< 3.0	3.0	ug/l	1	08/02/21	08/02/21	ND	SW846 6010D [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA50924
(2) Prep QC Batch: MP27798

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

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ALPHA ANALYTICAL

SO FB

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD29089

Alpha Job Number L2140301

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019	Project Location: PA Project Manager: Nadine Yakes	State/Federal Program: Regulatory Criteria:
Phone: 201.812.9037 Email: nyakes@alphalab.com	**Turnaround & Deliverables Information** Due Date: Deliverables:	

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2140301

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
1	PB37-17-SS01	07-27-21 10:05	SOIL	Total Lead	E85
2	PB37-16-SS01	07-27-21 10:10	SOIL	Total Lead	T2
3	PB37-09-SS01	07-27-21 11:10	SOIL	Total Lead	
4	PB37-11-SS01	07-27-21 11:30	SOIL	Total Lead	A36
5	PB37-10-SS01	07-27-21 11:45	SOIL	Total Lead	
6	PB37-15-SS01	07-27-21 11:55	SOIL	Total Lead	
7	PB37-12-SS01	07-27-21 12:20	SOIL	Total Lead	
8	PB37-06-SS01	07-27-21 12:30	SOIL	Total Lead	
9	PB37-03-SS01	07-27-21 13:50	SOIL	Total Lead	

INITIAL ASESSMENT 2A AR

LABEL VERIFICATION

Relinquished By:	Date/Time:	Received By:	Date/Time:
Kim L Bailey	7/28/21 ~~1700~~		
		Michael Teruane	7/28/21 0800
Michael Teruane	7/29/21 0800	Chris Kersh	7/29/21 8:02

Form No: AL_subcoc

2.3C

JD29089: Chain of Custody
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ALPHA ANALYTICAL

Subcontract Chain of Custody

SGS- North America
2235 US-130
Dayton, NJ 08810

JD29089

Alpha Job Number
L2140301

Client Information	Project Information	Regulatory Requirements/Report Limits
Client: Alpha Analytical Labs Address: Eight Walkup Drive Westborough, MA 01581-1019 Phone: 201.812.9037 Email: nyakes@alphalab.com	Project Location: PA Project Manager: Nadine Yakes **Turnaround & Deliverables Information** Due Date: Deliverables:	State/Federal Program: Regulatory Criteria:

Project Specific Requirements and/or Report Requirements

Reference following Alpha Job Number on final report/deliverables: L2140301

Report to include Method Blank, LCS/LCSD:

Additional Comments: Send all results/reports to subreports@alphalab.com

Lab ID	Client ID	Collection Date/Time	Sample Matrix	Analysis	Batch QC
10	PB37-02-SS01	07-27-21 13:55	SOIL	Total Lead	
11	PB37-01-SS01	07-27-21 10:05	SOIL	Total Lead	
12	PB37-05-SS01	07-27-21 10:05	SOIL	Total Lead	

	Relinquished By:	Date/Time:	Received By:	Date/Time:
	Kim L. Bailey	7/28/21 ~~1700~~		
			Michael Turner	7/28/21 0630
	Michael Turner	7/29/21 0800	[illegible]	7/29/21 8:02
Form No: AL_subcoc				

2.3C

JD29089: Chain of Custody
Page 2 of 4

SGS Sample Receipt Summary

Job Number: JD29089 **Client:** ALPHA ANALYTICAL **Project:** L2140301

Date / Time Received: 7/29/2021 8:02:00 AM **Delivery Method:** **Airbill #'s:**

Cooler Temps (Raw Measured) °C: Cooler 1: (2.3);

Cooler Temps (Corrected) °C: Cooler 1: (2.3);

Cooler Security	Y	N		Y	N
1. Custody Seals Present:	☑	☐	3. COC Present:	☑	☐
2. Custody Seals Intact:	☑	☐	4. Smpl Dates/Time OK	☑	☐

Cooler Temperature	Y	N
1. Temp criteria achieved:	☑	☐
2. Cooler temp verification:		
3. Cooler media:	Ice (Bag)	
4. No. Coolers:	1	

Quality Control Preservation	Y	N	N/A
1. Trip Blank present / cooler:	☐	☐	☑
2. Trip Blank listed on COC:	☐	☐	☑
3. Samples preserved properly:	☑	☐	
4. VOCs headspace free:	☐	☐	☑

Sample Integrity - Documentation	Y	N
1. Sample labels present on bottles:	☑	☐
2. Container labeling complete:	☑	☐
3. Sample container label / COC agree:	☑	☐

Sample Integrity - Condition	Y	N
1. Sample recvd within HT:	☑	☐
2. All containers accounted for:	☑	☐
3. Condition of sample:	Intact	

Sample Integrity - Instructions	Y	N	N/A
1. Analysis requested is clear:	☑	☐	
2. Bottles received for unspecified tests	☐	☑	
3. Sufficient volume recvd for analysis:	☑	☐	
4. Compositing instructions clear:	☐	☐	☑
5. Filtering instructions clear:	☐	☐	☑

Test Strip Lot #s: pH 1-12: 212820 pH 12+: 203117A Other: (Specify)

Comments: Received an additional sample. It is a ~300mL HNO3 preserved water sample with client ID "FB-210727" and alpha ID "L2140301-13F". Collection date and time are 7/27 15:00. It is logged in as -13.

SM089-02 Rev. Date 12/1/16

Responded to by: Michelle Response Date: 7/29

-13, please add and run for PB per Nadine Yakes

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JD29089: Chain of Custody
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Dayton, NJ

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	16	46		
Antimony	6.0	2.5	4.7		
Arsenic	3.0	2	2.8		
Barium	200	.4	13		
Beryllium	1.0	.1	.5		
Bismuth	20	3.6	4		
Boron	100	1.9	63		
Cadmium	3.0	.4	1		
Calcium	5000	5.6	99		
Cerium	100				
Chromium	10	.5	2		
Cobalt	50	.5	2.6		
Copper	10	1	5.9		
Iron	100	11	32		
Lead	3.0	1.2	1.8	0.60	<3.0
Lithium	50	2.3	7.3		
Magnesium	5000	65	140		
Manganese	15	.2	1.4		
Molybdenum	20	.4	3.6		
Nickel	10	.3	1.7		
Phosphorus	50	4.1	18		
Potassium	10000	55	200		
Selenium	10	3.5	4.9		
Silicon	200	1.6	100		
Silver	10	1.1	1.9		
Sodium	10000	11	570		
Strontium	10	.1	1		
Sulfur	50	4.4	45		
Thallium	10	2.5	1.8		
Tin	10	1	3.7		
Titanium	10	.4	2.5		
Tungsten	50	2.8	40		
Vanadium	50	.6	1.8		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	RL	IDL	MDL	MB raw	final
Zinc	20	.1	6.9		
Zirconium	10	.4	4.1		

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	anr				
Barium	anr				
Beryllium	anr				
Bismuth					
Boron	anr				
Cadmium	anr				
Calcium					
Cerium					
Chromium	anr				
Cobalt					
Copper	anr				
Iron	anr				
Lead	1.3	1940	2000	96.9	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum	anr				
Nickel	anr				
Phosphorus					
Potassium					
Selenium	anr				
Silicon					
Silver	anr				
Sodium	anr				
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					

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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MS	Spikelot MPSPK2	% Rec	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Bismuth						
Boron	anr					
Cadmium	anr					
Calcium						
Cerium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	1.3	1940	2000	96.9	0.0	20
Lithium						
Magnesium						
Manganese						
Molybdenum	anr					
Nickel	anr					
Phosphorus						
Potassium						
Selenium	anr					
Silicon						
Silver	anr					
Sodium	anr					
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						

5.1.2
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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zinc	anr				
Zirconium					

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron	anr			
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1980	2000	99.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc	anr			

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798 Methods: SW846 6010D
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Bismuth				
Boron	anr			
Cadmium	anr			
Calcium				
Cerium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	1.30	0.00	100.0(a)	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum	anr			
Nickel	anr			
Phosphorus				
Potassium				
Selenium	anr			
Silicon				
Silver	anr			
Sodium	anr			
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27798
Matrix Type: AQUEOUS

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/02/21

Metal	JD29051-1 Original	SDL 1:5	%DIF	QC Limits
Zinc	anr			
Zirconium				

Associated samples MP27798: JD29089-13

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	RL	IDL	MDL	MB raw	final
Aluminum	50	1.7	8.1		
Antimony	2.0	.17	.41		
Arsenic	2.0	.21	.28		
Barium	20	.08	1.9		
Beryllium	0.20	.03	.08		
Bismuth	2.0	.23	.52		
Boron	10	.23	1.5		
Cadmium	0.50	.03	.07		
Calcium	500	.66	44		
Chromium	1.0	.03	.37		
Cobalt	5.0	.04	.28		
Copper	2.5	.08	.84		
Iron	50	.53	19		
Lead	2.0	.11	.41	0.020	<2.0
Lithium	5.0	.48	.92		
Magnesium	500	3.2	14		
Manganese	1.5	.01	.41		
Molybdenum	2.0	.06	.32		
Nickel	4.0	.04	.35		
Phosphorus	20	.12	3.3		
Potassium	1000	7.7	32		
Selenium	2.0	.32	.65		
Silicon	20	.17	11		
Silver	0.50	.1	.17		
Sodium	1000	3.4	78		
Strontium	5.0	.03	.18		
Sulfur	10	.3	9.4		
Thallium	1.0	.18	.58		
Tin	20	.08	3.8		
Titanium	1.0	.05	.34		
Tungsten	5.0	.26	1.8		
Vanadium	5.0	.06	.19		
Zinc	5.0	.01	2.3		

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	RL	IDL	MDL	MB raw	final
Zirconium	2.0	.03	.23		

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic					
Barium					
Beryllium					
Bismuth					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead	2740	2460	246	-113.7(a	75-125
Lithium					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silicon					
Silver					
Sodium					
Strontium					
Sulfur					
Thallium					
Tin					
Titanium					
Tungsten					
Vanadium					
Zinc					

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MS	Spikelot MPSPK2	% Rec	QC Limits
Zirconium					

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original	MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic						
Barium						
Beryllium						
Bismuth						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead	2740	3120	241	157.5(a)	23.7 (b)	20
Lithium						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silicon						
Silver						
Sodium						
Strontium						
Sulfur						
Thallium						
Tin						
Titanium						
Tungsten						
Vanadium						
Zinc						

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	JD29089-4 Original MSD	Spikelot MPSPK2	% Rec	MSD RPD	QC Limit
Zirconium					

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested
(a) Spike amount low relative to the sample amount. Refer to lab control or spike blank for recovery information.
(b) High rpd due to possible sample nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	194	200	97.0	80-120
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: mg/kg

Prep Date: 08/04/21

Metal	BSP Result	Spikelot MPSPK2	% Rec	QC Limits
Zirconium				

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

Metal	JD29089-4 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic				
Barium				
Beryllium				
Bismuth				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead	23400	21500	8.1	0-10
Lithium				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silicon				
Silver				
Sodium				
Strontium				
Sulfur				
Thallium				
Tin				
Titanium				
Tungsten				
Vanadium				
Zinc				

SERIAL DILUTION RESULTS SUMMARY

Login Number: JD29089
Account: ALPHAMAW - Alpha Analytical Laboratories, Inc.
Project: Alpha Analytical, PA

QC Batch ID: MP27852
Matrix Type: SOLID

Methods: SW846 6010D
Units: ug/l

Prep Date: 08/04/21

Metal	JD29089-4 Original	SDL 5:25	%DIF	QC Limits
Zirconium				

Associated samples MP27852: JD29089-1, JD29089-2, JD29089-3, JD29089-4, JD29089-5, JD29089-6, JD29089-7, JD29089-8, JD29089-9, JD29089-10, JD29089-11, JD29089-12

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

ANALYTICAL REPORT

Lab Number:	L2153851
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	10/18/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2153851-01	PB-204-01-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:45	10/04/21
L2153851-02	PB-204-02-SS01	SOIL	PHILADELPHIA, PA	10/04/21 11:55	10/04/21
L2153851-03	PB-204-03-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:10	10/04/21
L2153851-04	PB-204-04-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:25	10/04/21
L2153851-05	PB-204-05-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:35	10/04/21
L2153851-06	PB-204-06-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:40	10/04/21
L2153851-07	PB-204-07-SS01	SOIL	PHILADELPHIA, PA	10/04/21 12:50	10/04/21
L2153851-08	PB-204-08-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:00	10/04/21
L2153851-09	PB-204-09-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:10	10/04/21
L2153851-10	PB-204-10-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:15	10/04/21
L2153851-11	PB-204-11-SS01	SOIL	PHILADELPHIA, PA	10/04/21 13:55	10/04/21
L2153851-12	PB-204-12-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:15	10/04/21
L2153851-13	PB-204-13-SS01	SOIL	PHILADELPHIA, PA	10/04/21 14:30	10/04/21
L2153851-14	FB-211004	WATER	PHILADELPHIA, PA	10/04/21 14:50	10/04/21
L2153851-15	TB-211004	WATER	PHILADELPHIA, PA	10/04/21 00:00	10/04/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

October 18, 2021: This final report includes the results of all requested analyses.

October 11, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2153851-01D, -03D, and -12D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2153851-02, -04, and -05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

The following surrogate recoveries are outside the acceptance criteria; however, the samples were not re-analyzed due to coelution with an obvious interference. Copies of the chromatograms are included as an attachment to this report:

L2153851-01D: toluene-d8 (183%) and 4-bromofluorobenzene (177%)

L2153851-02: 4-bromofluorobenzene (140%)

L2153851-03D: toluene-d8 (135%)

L2153851-04: 4-bromofluorobenzene (131%)

L2153851-05: 1,2-dichloroethane-d4 (164%), 4-bromofluorobenzene (160%), and dibromofluoromethane (67%)

L2153851-07 Low Level: 4-bromofluorobenzene (139%)

L2153851-08: 1,2-dichloroethane-d4 (143%)

L2153851-09: toluene-d8 (158%)

L2153851-10: 1,2-dichloroethane-d4 (1220%), toluene-d8 (186%), and 4-bromofluorobenzene (148%)

L2153851-12D: toluene-d8 (136%)

L2153851-13: 1,2-dichloroethane-d4 (143%), toluene-d8 (200%), and 4-bromofluorobenzene (133%)

Case Narrative (continued)

L2153851-07: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.
L2153851-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (42%) due to interference with the Internal Standard.
L2153851-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.
L2153851-11: The internal standard (IS) response for fluorobenzene (205%) and the surrogate recoveries for 1,2-dichloroethane-d4 (63%), 4-bromofluorobenzene (226%), and dibromofluoromethane (34%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies. Further re-analysis could not be performed due to the existing vials being compromised.

Semivolatile Organics by SIM
L2153851-01D: The sample has elevated detection limits due to the dilution required by the sample matrix.
L2153851-06D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%), and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

Total Metals
L2153851-05: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

Case Narrative (continued)

The WG1554856-3 MS recovery for lead (27%), performed on L2153851-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1554856-4 Laboratory Duplicate RPD for lead (53%), performed on L2153851-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 10/18/21

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-01 D	Date Collected:	10/04/21 11:45
Client ID:	PB-204-01-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 14:26
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.089	J	mg/kg	0.55	0.056	4
Benzene	0.46		mg/kg	0.14	0.046	4
1,2-Dichloroethane	ND		mg/kg	0.28	0.071	4
Toluene	0.39		mg/kg	0.28	0.15	4
1,2-Dibromoethane	ND		mg/kg	0.14	0.081	4
Ethylbenzene	0.52		mg/kg	0.28	0.039	4
p/m-Xylene	0.81		mg/kg	0.55	0.15	4
o-Xylene	0.19	J	mg/kg	0.28	0.080	4
Xylenes, Total	1.0	J	mg/kg	0.28	0.080	4
Isopropylbenzene	38.		mg/kg	0.28	0.030	4
1,3,5-Trimethylbenzene	0.11	J	mg/kg	0.55	0.053	4
1,2,4-Trimethylbenzene	0.83		mg/kg	0.55	0.092	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	**183**	Q	70-130
4-Bromofluorobenzene	**177**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-02	Date Collected:	10/04/21 11:55
Client ID:	PB-204-02-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 08:39
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	ND		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	ND		mg/kg	0.067	0.0094	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.067	0.019	1
Xylenes, Total	ND		mg/kg	0.067	0.019	1
Isopropylbenzene	3.1		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.046	J	mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-03 D	Date Collected:	10/04/21 12:10
Client ID:	PB-204-03-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 15:16
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	4
Benzene	0.12		mg/kg	0.12	0.042	4
1,2-Dichloroethane	ND		mg/kg	0.25	0.064	4
Toluene	0.24	J	mg/kg	0.25	0.14	4
1,2-Dibromoethane	ND		mg/kg	0.12	0.073	4
Ethylbenzene	0.13	J	mg/kg	0.25	0.035	4
p/m-Xylene	0.20	J	mg/kg	0.50	0.14	4
o-Xylene	0.097	J	mg/kg	0.25	0.073	4
Xylenes, Total	0.30	J	mg/kg	0.25	0.073	4
Isopropylbenzene	7.2		mg/kg	0.25	0.027	4
1,3,5-Trimethylbenzene	0.13	J	mg/kg	0.50	0.048	4
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.50	0.084	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	125		70-130
Dibromofluoromethane	82		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
Client ID: PB-204-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:25
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 09:05
Analyst: MV
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.013	1
Benzene	0.12		mg/kg	0.031	0.010	1
1,2-Dichloroethane	0.043	J	mg/kg	0.063	0.016	1
Toluene	0.065		mg/kg	0.063	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.21		mg/kg	0.063	0.0088	1
p/m-Xylene	0.21		mg/kg	0.12	0.035	1
o-Xylene	0.028	J	mg/kg	0.063	0.018	1
Xylenes, Total	0.24	J	mg/kg	0.063	0.018	1
Isopropylbenzene	2.8		mg/kg	0.063	0.0068	1
1,3,5-Trimethylbenzene	0.76		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.084	J	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**131**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
Client ID: PB-204-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:35
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 09:31
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.75		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.59		mg/kg	0.069	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.75		mg/kg	0.069	0.0098	1
p/m-Xylene	4.0		mg/kg	0.14	0.039	1
o-Xylene	0.41		mg/kg	0.069	0.020	1
Xylenes, Total	4.4		mg/kg	0.069	0.020	1
Isopropylbenzene	5.6		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	7.7		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	2.4		mg/kg	0.14	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**164**	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**160**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D2
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 10:36
Analyst: MV
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.10	J	mg/kg	0.26	0.027	2
Benzene	2.3		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.072	2
1,2-Dibromoethane	0.043	J	mg/kg	0.066	0.039	2
Ethylbenzene	9.6		mg/kg	0.13	0.019	2
p/m-Xylene	4.1		mg/kg	0.26	0.074	2
o-Xylene	0.080	J	mg/kg	0.13	0.038	2
Xylenes, Total	4.2	J	mg/kg	0.13	0.038	2
Isopropylbenzene	6.7		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.67		mg/kg	0.26	0.026	2
1,2,4-Trimethylbenzene	49.	E	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06 D
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 16:32
Analyst: NLK
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	47.		mg/kg	0.53	0.088	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 16:57
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	ND		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	ND		mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	ND		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.033	1
o-Xylene	ND		mg/kg	0.060	0.017	1
Xylenes, Total	ND		mg/kg	0.060	0.017	1
Isopropylbenzene	0.19		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.022	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-07	Date Collected:	10/04/21 12:50
Client ID:	PB-204-07-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:48
Analyst: NLK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0027		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	0.0022		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.0084		mg/kg	0.00094	0.00013	1
p/m-Xylene	0.0038		mg/kg	0.0019	0.00052	1
o-Xylene	0.0026		mg/kg	0.00094	0.00027	1
Xylenes, Total	0.0064		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.56	E	mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.0085		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	124		70-130
4-Bromofluorobenzene	**139**	Q	70-130
Dibromofluoromethane	**42**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-08
Client ID: PB-204-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 11:01
Analyst: MV
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0		mg/kg	0.11	0.011	1
Benzene	0.16		mg/kg	0.028	0.0095	1
1,2-Dichloroethane	ND		mg/kg	0.057	0.015	1
Toluene	0.063		mg/kg	0.057	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.017	1
Ethylbenzene	0.42		mg/kg	0.057	0.0080	1
p/m-Xylene	0.42		mg/kg	0.11	0.032	1
o-Xylene	0.018	J	mg/kg	0.057	0.017	1
Xylenes, Total	0.44	J	mg/kg	0.057	0.017	1
Isopropylbenzene	2.6		mg/kg	0.057	0.0062	1
1,3,5-Trimethylbenzene	7.6		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	5.3		mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**143**	Q	70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	83		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851

Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-09	Date Collected:	10/04/21 13:10
Client ID:	PB-204-09-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 12:42
Analyst: MV
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.12	0.012	1
Benzene	0.058		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.046	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.018	1
Ethylbenzene	0.11		mg/kg	0.060	0.0084	1
p/m-Xylene	ND		mg/kg	0.12	0.034	1
o-Xylene	0.020	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.020	J	mg/kg	0.060	0.017	1
Isopropylbenzene	2.4		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.14		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Client ID: PB-204-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 18:13
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.069		mg/kg	0.0019	0.00019	1
Benzene	0.24		mg/kg	0.00047	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00093	0.00024	1
Toluene	0.097		mg/kg	0.00093	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	0.085		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.52		mg/kg	0.0019	0.00052	1
o-Xylene	0.068		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.59		mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.043		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.10		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.061		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**1220**	Q	70-130
Toluene-d8	**186**	Q	70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-11	Date Collected:	10/04/21 13:55
Client ID:	PB-204-11-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 18:39
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.42	E	mg/kg	0.0020	0.00020	1
Benzene	0.023		mg/kg	0.00050	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0057		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.012		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.019		mg/kg	0.0020	0.00056	1
o-Xylene	0.0085		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.028		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.53	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0016	J	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0087		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**63**	Q	70-130
Toluene-d8	125		70-130
4-Bromofluorobenzene	**226**	Q	70-130
Dibromofluoromethane	**34**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11 D
Client ID: PB-204-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 18:37
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.6		mg/kg	0.52	0.052	4
Benzene	0.23		mg/kg	0.13	0.043	4
1,2-Dichloroethane	ND		mg/kg	0.26	0.067	4
Toluene	0.20	J	mg/kg	0.26	0.14	4
1,2-Dibromoethane	0.080	J	mg/kg	0.13	0.076	4
Ethylbenzene	0.16	J	mg/kg	0.26	0.037	4
p/m-Xylene	0.27	J	mg/kg	0.52	0.14	4
o-Xylene	0.11	J	mg/kg	0.26	0.076	4
Xylenes, Total	0.38	J	mg/kg	0.26	0.076	4
Isopropylbenzene	5.1		mg/kg	0.26	0.028	4
1,3,5-Trimethylbenzene	0.065	J	mg/kg	0.52	0.050	4
1,2,4-Trimethylbenzene	0.31	J	mg/kg	0.52	0.087	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-12 D	Date Collected:	10/04/21 14:15
Client ID:	PB-204-12-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/09/21 19:02
Analyst: NLK
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40	J	mg/kg	0.95	0.095	4
Benzene	1.8		mg/kg	0.24	0.079	4
1,2-Dichloroethane	ND		mg/kg	0.47	0.12	4
Toluene	4.0		mg/kg	0.47	0.26	4
1,2-Dibromoethane	ND		mg/kg	0.24	0.14	4
Ethylbenzene	1.7		mg/kg	0.47	0.067	4
p/m-Xylene	4.6		mg/kg	0.95	0.26	4
o-Xylene	0.57		mg/kg	0.47	0.14	4
Xylenes, Total	5.2		mg/kg	0.47	0.14	4
Isopropylbenzene	19.		mg/kg	0.47	0.052	4
1,3,5-Trimethylbenzene	0.76	J	mg/kg	0.95	0.091	4
1,2,4-Trimethylbenzene	2.0		mg/kg	0.95	0.16	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	**136**	Q	70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
Client ID: PB-204-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 14:30
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 13:07
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.014	1
Benzene	0.019	J	mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.061	J	mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.19		mg/kg	0.067	0.0095	1
p/m-Xylene	0.44		mg/kg	0.13	0.038	1
o-Xylene	0.078		mg/kg	0.067	0.020	1
Xylenes, Total	0.52		mg/kg	0.067	0.020	1
Isopropylbenzene	2.7		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	1.4		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.37		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**143**	Q	70-130
Toluene-d8	**200**	Q	70-130
4-Bromofluorobenzene	**133**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
Client ID: FB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/06/21 18:48
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851

Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
Client ID: FB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:21
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-15
Client ID: TB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 00:00
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/06/21 18:54
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-15	Date Collected:	10/04/21 00:00
Client ID:	TB-211004	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/06/21 17:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/06/21 16:28

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 14-15 Batch: WG1555315-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:12
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 14-15 Batch: WG1556690-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:17
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06,08-09,13 Batch: WG1556767-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 11:04
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06-07,11-12 Batch: WG1556767-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	112		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04-05 Batch: WG1556894-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 14:48
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10-11 Batch: WG1556923-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2153851

Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 14-15 Batch: WG1555315-2									
1,2-Dibromoethane	104		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 14-15 Batch: WG1556690-3 WG1556690-4								
Methyl tert butyl ether	87		93		63-130	7		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	97		99		70-130	2		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	105		105		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		103		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY

Project Number: 200.00135.005.03

Lab Number: L2153851

Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06-07,11-12 Batch: WG1556767-3 WG1556767-4								
Methyl tert butyl ether	82		88		66-130	7		30
Benzene	99		98		70-130	1		30
1,2-Dichloroethane	86		90		70-130	5		30
Toluene	97		93		70-130	4		30
1,2-Dibromoethane	91		94		70-130	3		30
Ethylbenzene	94		95		70-130	1		30
p/m-Xylene	107		109		70-130	2		30
o-Xylene	97		99		70-130	2		30
Isopropylbenzene	88		89		70-130	1		30
1,3,5-Trimethylbenzene	89		88		70-130	1		30
1,2,4-Trimethylbenzene	86		86		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		88		70-130
Toluene-d8	100		97		70-130
4-Bromofluorobenzene	86		88		70-130
Dibromofluoromethane	96		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06,08-09,13 Batch: WG1556767-8 WG1556767-9								
Methyl tert butyl ether	80		80		66-130	0		30
Benzene	96		95		70-130	1		30
1,2-Dichloroethane	84		84		70-130	0		30
Toluene	89		93		70-130	4		30
1,2-Dibromoethane	80		90		70-130	12		30
Ethylbenzene	92		92		70-130	0		30
p/m-Xylene	102		106		70-130	4		30
o-Xylene	91		93		70-130	2		30
Isopropylbenzene	90		87		70-130	3		30
1,3,5-Trimethylbenzene	83		84		70-130	1		30
1,2,4-Trimethylbenzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		87		70-130
Toluene-d8	97		101		70-130
4-Bromofluorobenzene	91		88		70-130
Dibromofluoromethane	102		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04-05 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		104		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10-11 Batch: WG1556923-3 WG1556923-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	96		97		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-01 D
Client ID: PB-204-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:45
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/09/21 22:15
Analyst: DV
Percent Solids: 81%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.52		mg/kg	0.081	0.014	10
Fluorene	0.58		mg/kg	0.081	0.0097	10
Phenanthrene	0.88		mg/kg	0.081	0.0069	10
Anthracene	0.067	J	mg/kg	0.081	0.0065	10
Pyrene	0.18		mg/kg	0.081	0.0056	10
Benzo(a)anthracene	0.098		mg/kg	0.081	0.0077	10
Chrysene	0.11		mg/kg	0.081	0.0060	10
Benzo(b)fluoranthene	0.14		mg/kg	0.081	0.0077	10
Benzo(a)pyrene	0.097		mg/kg	0.081	0.0097	10
Indeno(1,2,3-cd)pyrene	0.096		mg/kg	0.081	0.0097	10
Benzo(ghi)perylene	0.10		mg/kg	0.081	0.0069	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**123**	Q	23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	65		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-02	Date Collected:	10/04/21 11:55
Client ID:	PB-204-02-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 01:28		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.024		mg/kg	0.0082	0.0015	1
Fluorene	0.018		mg/kg	0.0082	0.00099	1
Phenanthrene	0.021		mg/kg	0.0082	0.00070	1
Anthracene	0.0051	J	mg/kg	0.0082	0.00066	1
Pyrene	0.012		mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0068	J	mg/kg	0.0082	0.00078	1
Chrysene	0.0053	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.0056	J	mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.0040	J	mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	0.0027	J	mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	0.0025	J	mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	80		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-03	Date Collected:	10/04/21 12:10
Client ID:	PB-204-03-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 01:45		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.18		mg/kg	0.0081	0.0014	1
Fluorene	0.092		mg/kg	0.0081	0.00097	1
Phenanthrene	0.13		mg/kg	0.0081	0.00069	1
Anthracene	0.027		mg/kg	0.0081	0.00065	1
Pyrene	0.056		mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.030		mg/kg	0.0081	0.00077	1
Chrysene	0.026		mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.036		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.029		mg/kg	0.0081	0.00097	1
Indeno(1,2,3-cd)pyrene	0.022		mg/kg	0.0081	0.00097	1
Benzo(ghi)perylene	0.024		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	45		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04
Client ID: PB-204-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:25
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 02:01
Analyst: DV
Percent Solids: 82%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.067		mg/kg	0.0078	0.0014	1
Fluorene	0.019		mg/kg	0.0078	0.00094	1
Phenanthrene	0.021		mg/kg	0.0078	0.00067	1
Anthracene	0.0048	J	mg/kg	0.0078	0.00063	1
Pyrene	0.0093		mg/kg	0.0078	0.00055	1
Benzo(a)anthracene	0.0028	J	mg/kg	0.0078	0.00075	1
Chrysene	0.0029	J	mg/kg	0.0078	0.00059	1
Benzo(b)fluoranthene	0.0024	J	mg/kg	0.0078	0.00075	1
Benzo(a)pyrene	0.0014	J	mg/kg	0.0078	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0015	J	mg/kg	0.0078	0.00094	1
Benzo(ghi)perylene	0.0023	J	mg/kg	0.0078	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	53		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
Client ID: PB-204-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:35
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 02:17
Analyst: DV
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.068		mg/kg	0.0081	0.0015	1
Fluorene	0.0079	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.013		mg/kg	0.0081	0.00069	1
Anthracene	0.0019	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0031	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0014	J	mg/kg	0.0081	0.00077	1
Chrysene	0.00098	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.00098	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	ND		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.00069	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	53		30-120
4-Terphenyl-d14	51		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-06 D	Date Collected:	10/04/21 12:40
Client ID:	PB-204-06-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/09/21 22:32		
Analyst:	DV		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	31.		mg/kg	0.42	0.076	50
Fluorene	0.34	J	mg/kg	0.42	0.051	50
Phenanthrene	0.64		mg/kg	0.42	0.036	50
Anthracene	0.083	J	mg/kg	0.42	0.034	50
Pyrene	0.19	J	mg/kg	0.42	0.030	50
Benzo(a)anthracene	0.074	J	mg/kg	0.42	0.040	50
Chrysene	0.055	J	mg/kg	0.42	0.032	50
Benzo(b)fluoranthene	0.083	J	mg/kg	0.42	0.040	50
Benzo(a)pyrene	0.062	J	mg/kg	0.42	0.051	50
Indeno(1,2,3-cd)pyrene	0.085	J	mg/kg	0.42	0.051	50
Benzo(ghi)perylene	0.089	J	mg/kg	0.42	0.036	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 02:50
Analyst: DV
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.043		mg/kg	0.0079	0.0014	1
Fluorene	0.0078	J	mg/kg	0.0079	0.00094	1
Phenanthrene	0.011		mg/kg	0.0079	0.00067	1
Anthracene	0.0024	J	mg/kg	0.0079	0.00063	1
Pyrene	0.0070	J	mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0043	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0057	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0046	J	mg/kg	0.0079	0.00094	1
Indeno(1,2,3-cd)pyrene	0.0044	J	mg/kg	0.0079	0.00094	1
Benzo(ghi)perylene	0.0040	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	55		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-08	Date Collected:	10/04/21 13:00
Client ID:	PB-204-08-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 03:06		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.012		mg/kg	0.0081	0.0015	1
Fluorene	0.018		mg/kg	0.0081	0.00098	1
Phenanthrene	0.024		mg/kg	0.0081	0.00069	1
Anthracene	0.0034	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0071	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0033	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0028	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.0030	J	mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.0024	J	mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0018	J	mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0018	J	mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	65		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09
Client ID: PB-204-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:10
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:22
Analyst: DV
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.026		mg/kg	0.0079	0.0014	1
Fluorene	0.019		mg/kg	0.0079	0.00095	1
Phenanthrene	0.029		mg/kg	0.0079	0.00067	1
Anthracene	0.0047	J	mg/kg	0.0079	0.00063	1
Pyrene	0.010		mg/kg	0.0079	0.00055	1
Benzo(a)anthracene	0.0046	J	mg/kg	0.0079	0.00075	1
Chrysene	0.0034	J	mg/kg	0.0079	0.00059	1
Benzo(b)fluoranthene	0.0026	J	mg/kg	0.0079	0.00075	1
Benzo(a)pyrene	0.0021	J	mg/kg	0.0079	0.00095	1
Indeno(1,2,3-cd)pyrene	0.0012	J	mg/kg	0.0079	0.00095	1
Benzo(ghi)perylene	0.0012	J	mg/kg	0.0079	0.00067	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	53		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-10	Date Collected:	10/04/21 13:15
Client ID:	PB-204-10-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D-SIM	Extraction Date:	10/06/21 00:05
Analytical Date:	10/07/21 03:39		
Analyst:	DV		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.0046	J	mg/kg	0.0081	0.0015	1
Fluorene	0.0022	J	mg/kg	0.0081	0.00098	1
Phenanthrene	0.0056	J	mg/kg	0.0081	0.00069	1
Anthracene	0.0015	J	mg/kg	0.0081	0.00065	1
Pyrene	0.0059	J	mg/kg	0.0081	0.00057	1
Benzo(a)anthracene	0.0063	J	mg/kg	0.0081	0.00077	1
Chrysene	0.0049	J	mg/kg	0.0081	0.00061	1
Benzo(b)fluoranthene	0.011		mg/kg	0.0081	0.00077	1
Benzo(a)pyrene	0.010		mg/kg	0.0081	0.00098	1
Indeno(1,2,3-cd)pyrene	0.0099		mg/kg	0.0081	0.00098	1
Benzo(ghi)perylene	0.0083		mg/kg	0.0081	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
Client ID: PB-204-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 13:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 03:55
Analyst: DV
Percent Solids: 79%
Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.092		mg/kg	0.0082	0.0015	1
Fluorene	0.10		mg/kg	0.0082	0.00098	1
Phenanthrene	0.30		mg/kg	0.0082	0.00070	1
Anthracene	0.083		mg/kg	0.0082	0.00066	1
Pyrene	0.26		mg/kg	0.0082	0.00057	1
Benzo(a)anthracene	0.15		mg/kg	0.0082	0.00078	1
Chrysene	0.12		mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	0.17		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	0.13		mg/kg	0.0082	0.00098	1
Indeno(1,2,3-cd)pyrene	0.092		mg/kg	0.0082	0.00098	1
Benzo(ghi)perylene	0.079		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	47		30-120
4-Terphenyl-d14	41		18-120

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12
Client ID: PB-204-12-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 04:11
Analyst: DV
Percent Solids: 76%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.62		mg/kg	0.0085	0.0015	1
Fluorene	0.093		mg/kg	0.0085	0.0010	1
Phenanthrene	0.087		mg/kg	0.0085	0.00072	1
Anthracene	0.016		mg/kg	0.0085	0.00068	1
Pyrene	0.039		mg/kg	0.0085	0.00060	1
Benzo(a)anthracene	0.010		mg/kg	0.0085	0.00081	1
Chrysene	0.013		mg/kg	0.0085	0.00064	1
Benzo(b)fluoranthene	0.0096		mg/kg	0.0085	0.00081	1
Benzo(a)pyrene	0.0064	J	mg/kg	0.0085	0.0010	1
Indeno(1,2,3-cd)pyrene	0.0053	J	mg/kg	0.0085	0.0010	1
Benzo(ghi)perylene	0.012		mg/kg	0.0085	0.00072	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	37		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
Client ID: PB-204-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:30
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D-SIM
Analytical Date: 10/07/21 04:28
Analyst: DV
Percent Solids: 80%

Extraction Method: EPA 3546
Extraction Date: 10/06/21 00:05

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.020		mg/kg	0.0082	0.0015	1
Fluorene	0.036		mg/kg	0.0082	0.00099	1
Phenanthrene	0.057		mg/kg	0.0082	0.00070	1
Anthracene	0.0039	J	mg/kg	0.0082	0.00066	1
Pyrene	0.0043	J	mg/kg	0.0082	0.00058	1
Benzo(a)anthracene	0.0012	J	mg/kg	0.0082	0.00078	1
Chrysene	0.00074	J	mg/kg	0.0082	0.00062	1
Benzo(b)fluoranthene	ND		mg/kg	0.0082	0.00078	1
Benzo(a)pyrene	ND		mg/kg	0.0082	0.00099	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0082	0.00099	1
Benzo(ghi)perylene	ND		mg/kg	0.0082	0.00070	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	57		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14
Client ID: FB-211004
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:33
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.07	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	79		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3546
Analytical Date:	10/07/21 00:56	Extraction Date:	10/06/21 00:05
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-13 Batch: WG1554916-1					
Naphthalene	ND		mg/kg	0.0066	0.0012
Fluorene	ND		mg/kg	0.0066	0.00080
Phenanthrene	ND		mg/kg	0.0066	0.00056
Anthracene	ND		mg/kg	0.0066	0.00053
Pyrene	ND		mg/kg	0.0066	0.00046
Benzo(a)anthracene	ND		mg/kg	0.0066	0.00063
Chrysene	ND		mg/kg	0.0066	0.00050
Benzo(b)fluoranthene	ND		mg/kg	0.0066	0.00063
Benzo(a)pyrene	ND		mg/kg	0.0066	0.00080
Indeno(1,2,3-cd)pyrene	ND		mg/kg	0.0066	0.00080
Benzo(ghi)perylene	ND		mg/kg	0.0066	0.00056

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	58		25-120
Phenol-d6	65		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	55		30-120
2,4,6-Tribromophenol	78		10-136
4-Terphenyl-d14	56		18-120

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:12
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 14 Batch: WG1556643-1					
Naphthalene	0.07	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	0.01	J	ug/l	0.10	0.01
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-13 Batch: WG1554916-2 WG1554916-3								
Naphthalene	61		58		40-140	5		50
Fluorene	67		61		40-140	9		50
Phenanthrene	62		56		40-140	10		50
Anthracene	66		61		40-140	8		50
Pyrene	68		62		35-142	9		50
Benzo(a)anthracene	69		62		40-140	11		50
Chrysene	62		57		40-140	8		50
Benzo(b)fluoranthene	68		62		40-140	9		50
Benzo(a)pyrene	69		63		40-140	9		50
Indeno(1,2,3-cd)pyrene	78		70		40-140	11		50
Benzo(ghi)perylene	67		61		40-140	9		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	61		58		25-120
Phenol-d6	70		65		10-120
Nitrobenzene-d5	65		61		23-120
2-Fluorobiphenyl	58		54		30-120
2,4,6-Tribromophenol	89		81		10-136
4-Terphenyl-d14	62		57		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 14 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Indeno(1,2,3-cd)pyrene	77		71		40-140	8		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149

METALS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-01	Date Collected:	10/04/21 11:45
Client ID:	PB-204-01-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	540		mg/kg	12.2	0.654	5	10/05/21 19:51	10/12/21 12:41	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-02	Date Collected:	10/04/21 11:55
Client ID:	PB-204-02-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.75		mg/kg	2.39	0.128	1	10/05/21 19:51	10/12/21 11:39	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-03	Date Collected:	10/04/21 12:10
Client ID:	PB-204-03-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.6		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:43	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-04	Date Collected:	10/04/21 12:25
Client ID:	PB-204-04-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.64		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 11:47	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY

Lab Number: L2153851

Project Number: 200.00135.005.03

Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05

Date Collected: 10/04/21 12:35

Client ID: PB-204-05-SS01

Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.38		mg/kg	4.71	0.252	2	10/05/21 19:51	10/13/21 19:04	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06
Date Collected: 10/04/21 12:40
Client ID: PB-204-06-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	94.9		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 11:55	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07 Date Collected: 10/04/21 12:50
Client ID: PB-204-07-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	33.4		mg/kg	2.36	0.127	1	10/05/21 19:51	10/12/21 11:59	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-08	Date Collected:	10/04/21 13:00
Client ID:	PB-204-08-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.27		mg/kg	2.35	0.126	1	10/05/21 19:51	10/12/21 12:03	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-09	Date Collected:	10/04/21 13:10
Client ID:	PB-204-09-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.42		mg/kg	4.79	0.257	2	10/05/21 19:51	10/13/21 19:09	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Date Collected: 10/04/21 13:15
Client ID: PB-204-10-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.70		mg/kg	2.42	0.130	1	10/05/21 19:51	10/12/21 12:20	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11
Date Collected: 10/04/21 13:55
Client ID: PB-204-11-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	91.2		mg/kg	2.38	0.128	1	10/05/21 19:51	10/12/21 12:24	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-12	Date Collected:	10/04/21 14:15
Client ID:	PB-204-12-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	103		mg/kg	2.61	0.140	1	10/05/21 19:51	10/12/21 12:29	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13 Date Collected: 10/04/21 14:30
Client ID: PB-204-13-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.54		mg/kg	2.48	0.133	1	10/05/21 19:51	10/12/21 12:33	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851

Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-14 Date Collected: 10/04/21 14:50

Client ID: FB-211004 Date Received: 10/04/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:22	10/07/21 21:30	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 14 Batch: WG1554465-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:22	10/07/21 18:17	1,6020B	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-13 Batch: WG1554856-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	10/05/21 19:51	10/11/21 23:56	1,6010D	BV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 Batch: WG1554465-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-13 Batch: WG1554856-2 SRM Lot Number: D109-540								
Lead, Total	85		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 14 QC Batch ID: WG1554465-3 WG1554465-4 QC Sample: L2154063-04 Client ID: MS Sample												
Lead, Total	0.7171J	530	536.0	101		541.7	102		75-125	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-3 QC Sample: L2153851-01 Client ID: PB-204-01-SS01												
Lead, Total	540	51.8	554	**27**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-13 QC Batch ID: WG1554856-4 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Lead, Total	540	934	mg/kg	**53**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-01	Date Collected:	10/04/21 11:45
Client ID:	PB-204-01-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-02
Client ID: PB-204-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 11:55
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-03
Date Collected: 10/04/21 12:10
Client ID: PB-204-03-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.9		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-04 Date Collected: 10/04/21 12:25
Client ID: PB-204-04-SS01 Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-05
Client ID: PB-204-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:35
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-06
Client ID: PB-204-06-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/04/21 12:40
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2153851
Project Number: 200.00135.005.03 **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-07
Client ID: PB-204-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 12:50
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2153851
Project Number:	200.00135.005.03	**Report Date:**	10/18/21

SAMPLE RESULTS

Lab ID:	L2153851-08	Date Collected:	10/04/21 13:00
Client ID:	PB-204-08-SS01	Date Received:	10/04/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-09 | Date Collected: 10/04/21 13:10
Client ID: PB-204-09-SS01 | Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-10
Client ID: PB-204-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 13:15
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2153851
Project Number: 200.00135.005.03 | **Report Date:** 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-11 | Date Collected: 10/04/21 13:55
Client ID: PB-204-11-SS01 | Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-12
Date Collected: 10/04/21 14:15
Client ID: PB-204-12-SS01
Date Received: 10/04/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.2		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2153851
Project Number: 200.00135.005.03
Report Date: 10/18/21

SAMPLE RESULTS

Lab ID: L2153851-13
Client ID: PB-204-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/04/21 14:30
Date Received: 10/04/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/05/21 07:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2153851
Report Date: 10/18/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1554411-1 QC Sample: L2153851-01 Client ID: PB-204-01-SS01						
Solids, Total	80.9	81.4	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-01A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-01B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-01D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-01E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-01F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-02A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-02B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-02D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-02E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-02F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-03A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-03B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-03D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-03E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-03F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-04A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-04B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-04D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-04E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-04F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-05A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-05B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-05E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-05F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-06A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260HLW(14)
L2153851-06B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-06D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-06E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-06F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-07A	Vial MeOH preserved	A	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-07B	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07C	Vial water preserved	A	NA		2.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-07D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.3	Y	Absent		PB-TI(180)
L2153851-07E	Glass 120ml/4oz unpreserved	A	NA		2.3	Y	Absent		PA-8270SIM(14)
L2153851-07F	Plastic 120ml unpreserved	A	NA		2.3	Y	Absent		TS(7)
L2153851-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-08B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-08D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-08E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-08F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-09A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-09B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-09C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-09D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-09E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-09F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-10A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-10B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-10D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-10E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-10F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-11A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2153851-11B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260H(14),PA-8260HLW(14)
L2153851-11D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-11E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-11F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-12A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-12B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-12D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-12E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-12F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2153851-13A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2153851-13B	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13C	Vial water preserved	B	NA		3.3	Y	Absent	05-OCT-21 06:30	PA-8260HLW(14)
L2153851-13D	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2153851-13E	Glass 120ml/4oz unpreserved	B	NA		3.3	Y	Absent		PA-8270SIM(14)
L2153851-13F	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2153851-14A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-14C	Vial HCl preserved	B	NA		3.3	Y	Absent		8011(14)
L2153851-14D	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14E	Amber 250ml unpreserved	B	7	7	3.3	Y	Absent		PA-8270SIM-LVI(7)
L2153851-14F	Plastic 250ml HNO3 preserved	B	<2	<2	3.3	Y	Absent		PB-6020T-PPB(180)
L2153851-15A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2153851-15C	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)
L2153851-15D	Vial Na2S2O3 preserved	A	NA		2.3	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: *DU Report with 'J' Qualifiers*

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 10/5/21

ALPHA Job #: L2153851

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@RansomEnv.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report Only Project-Specific Analyte List
See Attached. Also send to: EDD@TerraPhase.com
Jiefry@HillcoGlobal.com

ANALYSIS: PADEP Shortlist 1-6

SAMPLE HANDLING
Filtration ________
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-6	Sample Specific Comments	TOTAL # BOTTLES
53851-01	PB-204-01-SS01	10/4	1145	S	TS	X	>15,000 PID	6
-02	PB-204-02-SS01	↓	1155	↓	↓	X	↓	↓
-03	PB-204-03-SS01	↓	1210	↓	↓	X	↓	↓
-04	PB-204-04-SS01	↓	1225	↓	↓	X	↓	↓
-05	PB-204-05-SS01	↓	1235	↓	↓	X	↓	↓
-06	PB-204-06-SS01	↓	1240	↓	↓	X	↓	↓
-07	PB-204-07-SS01	↓	1250	↓	↓	X	↓	↓
-08	PB-204-08-SS01	↓	1300	↓	↓	X	↓	↓
-09	PB-204-09-SS01	↓	1310	↓	↓	X	↓	↓
-10	PB-204-10-SS01	↓	1315	↓	↓	X	↓	↓

Container Type	G
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	10/4 1620	[illegible signature] AAL	10/4 1620
[illegible signature] AAL	10/4 1720	[illegible signature]	10-4-1721
[illegible signature]	10-4 2030	[illegible signature] AAL	10/4/21 2030
[illegible signature] AAL	10-4-21 2355	[illegible signature]	10/5/21 2355

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 10/5/21

ALPHA Job #: L2153851

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave, Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv...

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report Only Project-Specific Analyte List
See Attached. Also send to: EDD@terraphase.com
jjersey@hillcglobal.com

ANALYSIS: Padep Shortlist 1-6 | Padep Shortlist 1-6 (Voc only)

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Padep Shortlist 1-6	Padep Shortlist 1-6 (Voc only)	Sample Specific Comments	TOTAL # BOTTLES
53851 -11	PB-204-11-SS01	10/4	1355	S	TS	X		>15,000 PID	6
-12	PB-204-12-SS01		1415	S	TS	X		↓	6
-13	PB-204-13-SS01		1430	S	TS	X			6
-14	FB-211004		1450	W	TS	X			6
-15	TB-211004			W			X		

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/4 1620	[signature] AAL	10/4 1620
[signature] AAL	10/4/21 1730	[signature]	10-4 1730
[signature]	10-4 2030	[signature] AAL	10/4/21 2030
[signature] AAL	10-4-21 2355	[signature] AAL	10/4/21 2355
		[signature]	10/5/21

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

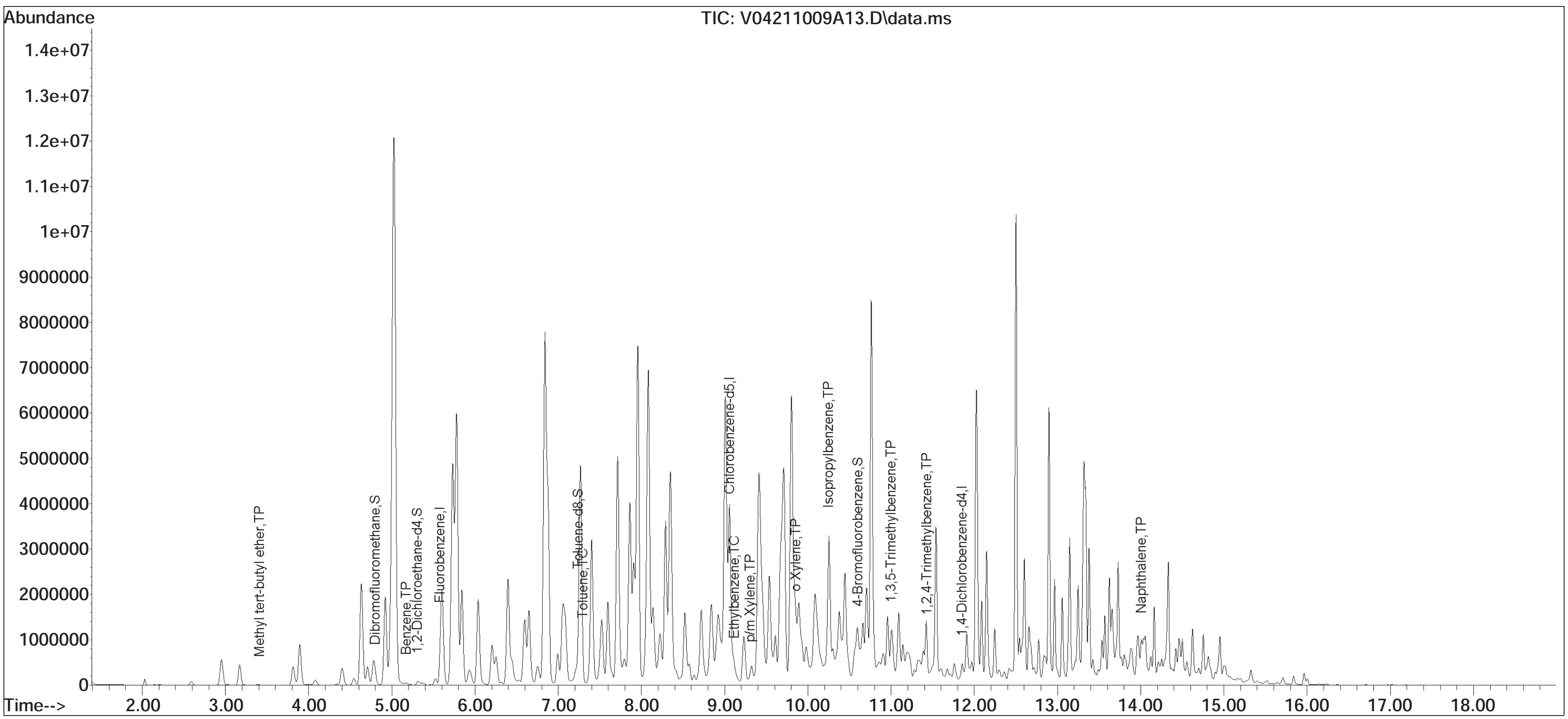
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A13.D
Acq On : 9 Oct 2021 2:26 pm
Operator : VOA104:NLK
Sample : L2153851-01D,31H,5.39,5,0.025,,A
Misc : WG1556767,ICAL18128
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 10 11:35:41 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

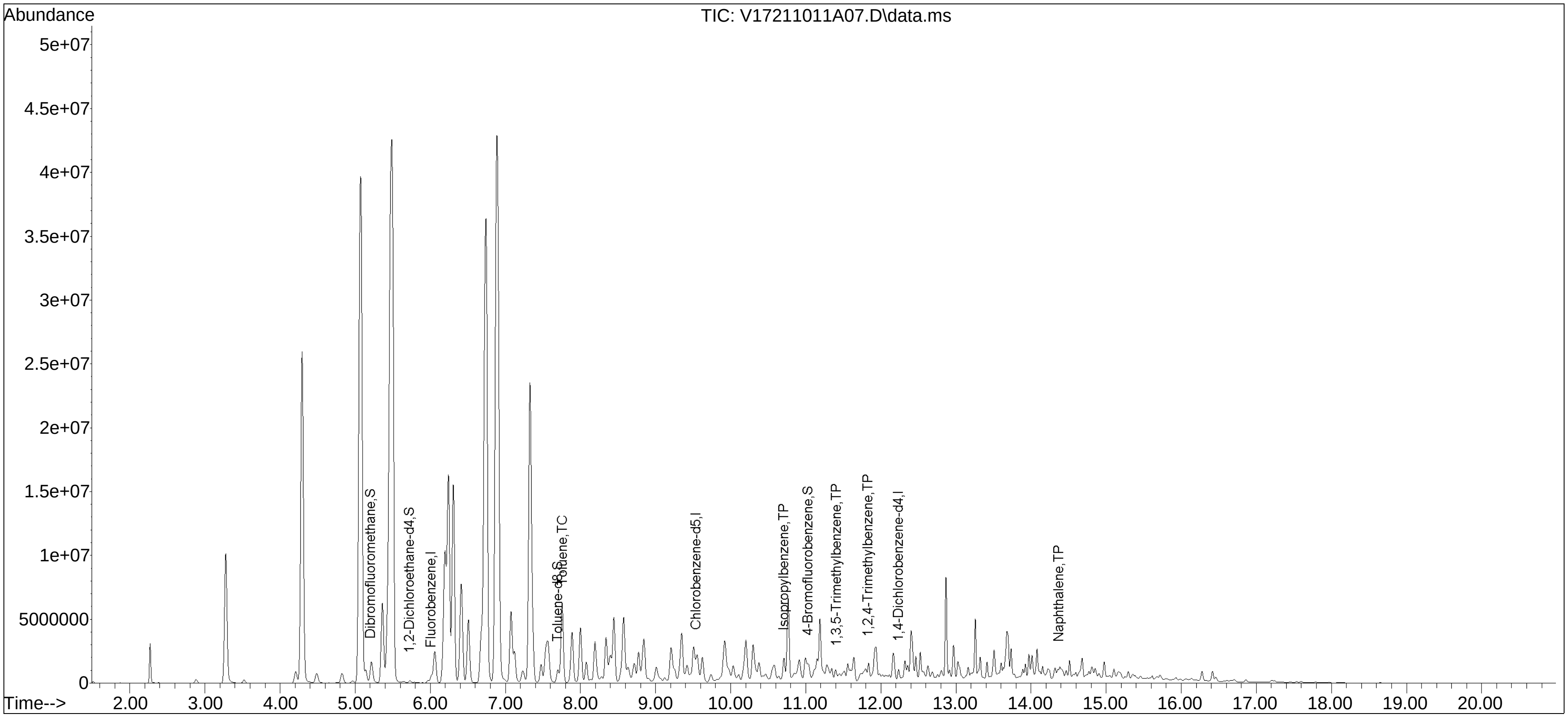


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A07.D
Acq On : 11 Oct 2021 08:39 am
Operator : VOA117:MV
Sample : l2153851-02,31H,5.63,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 11 12:54:29 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

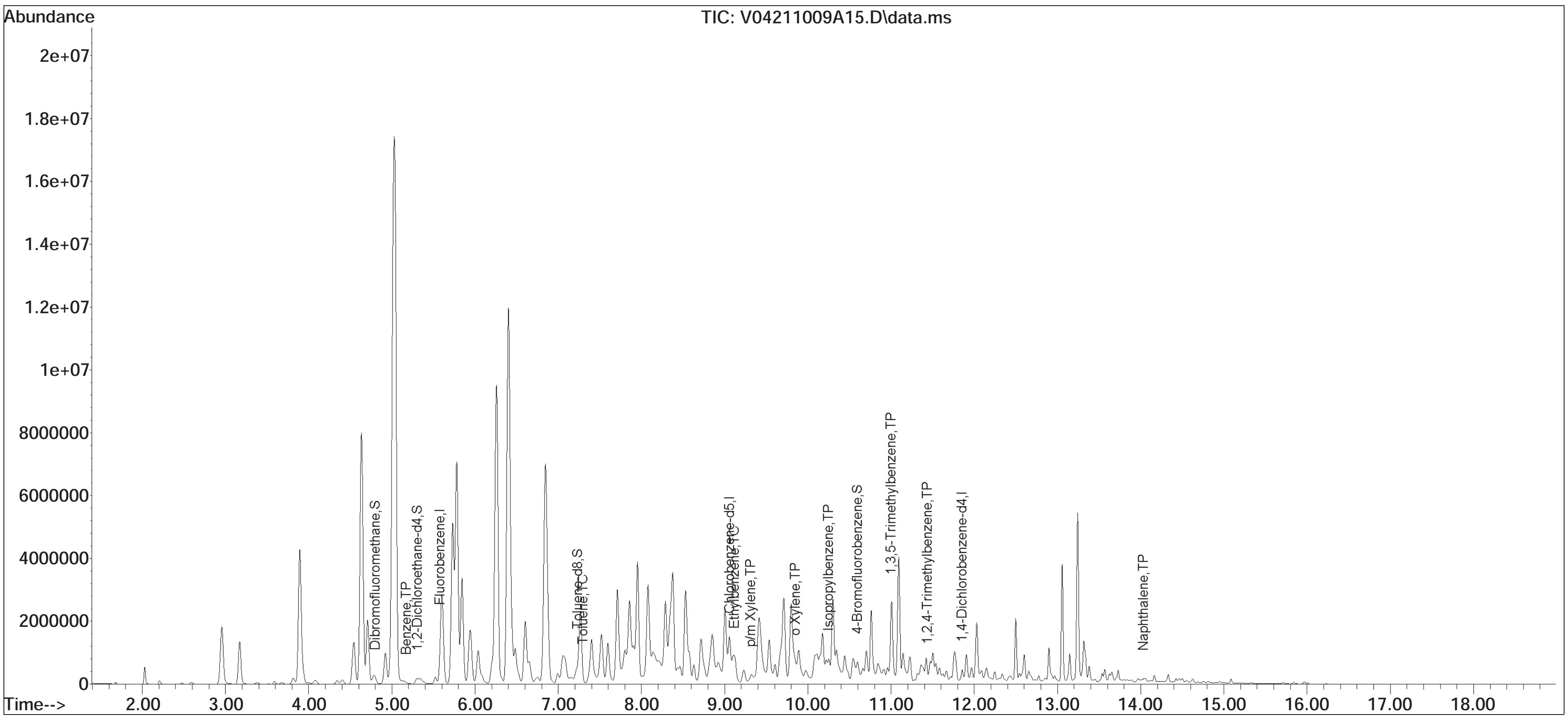


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A15.D
Acq On : 9 Oct 2021 3:16 pm
Operator : VOA104:NLK
Sample : L2153851-03D,31H,6.09,5,0.025,,A
Misc : WG1556767,ICAL18128
ALS Vial : 15 Sample Multiplier: 1

Quant Time: Oct 10 11:36:37 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

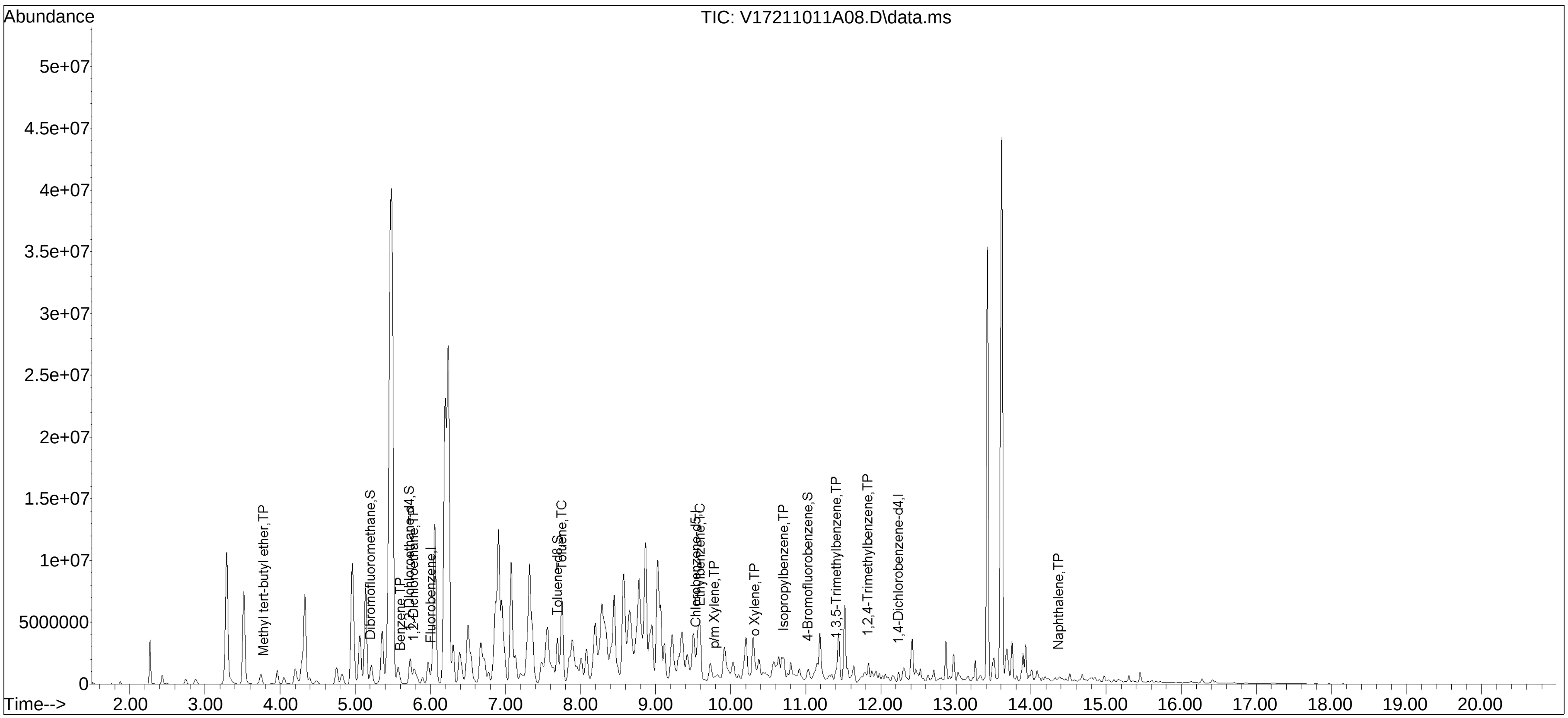


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A08.D
Acq On : 11 Oct 2021 09:05 am
Operator : VOA117:MV
Sample : l2153851-04,31H,5.86,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 11 12:54:44 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

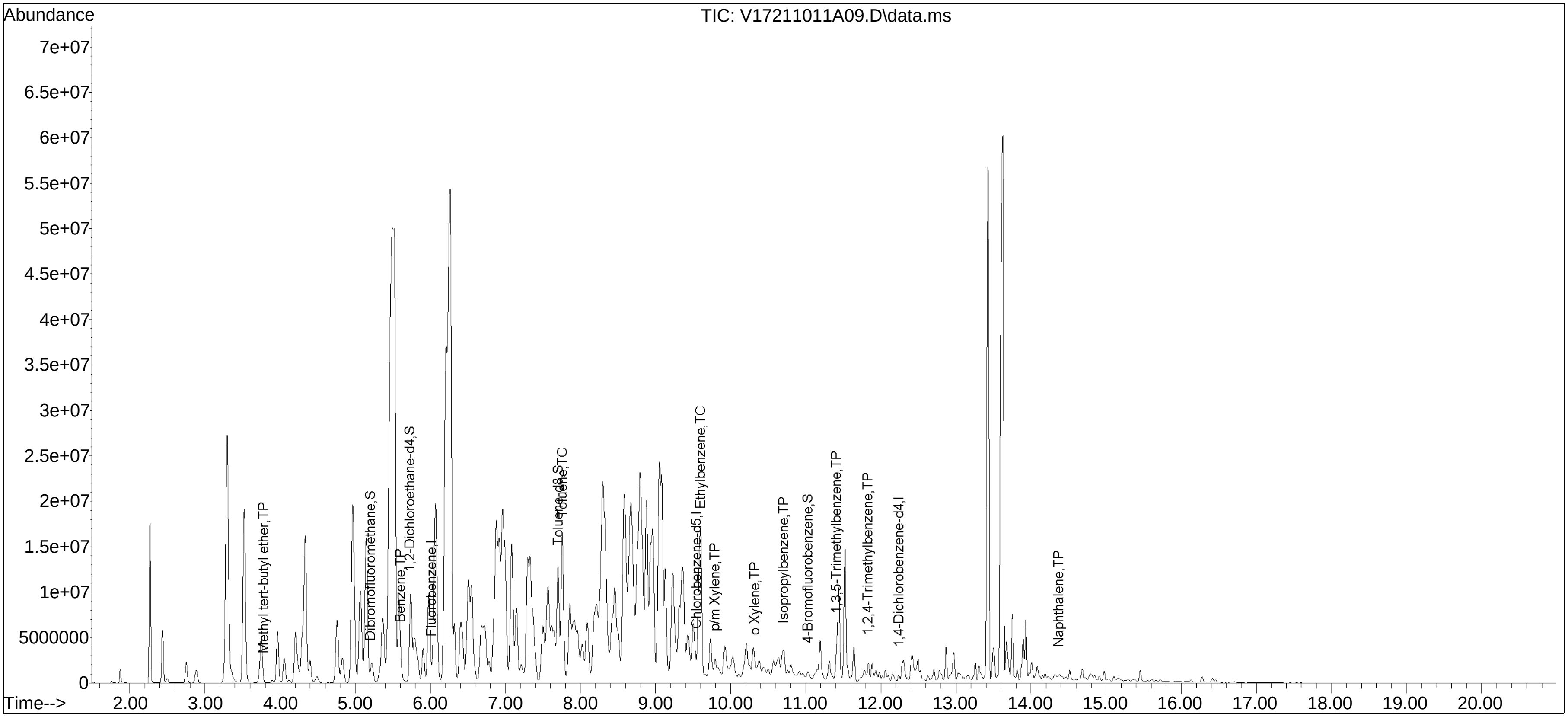


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211011A\
Data File : V17211011A09.D
Acq On : 11 Oct 2021 09:31 am
Operator : VOA117:MV
Sample : l2153851-05,31H,5.36,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Oct 11 12:55:10 2021
Quant Method : I:\VOLATILES\VOA117\2021\211011A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V17211011A01.D•

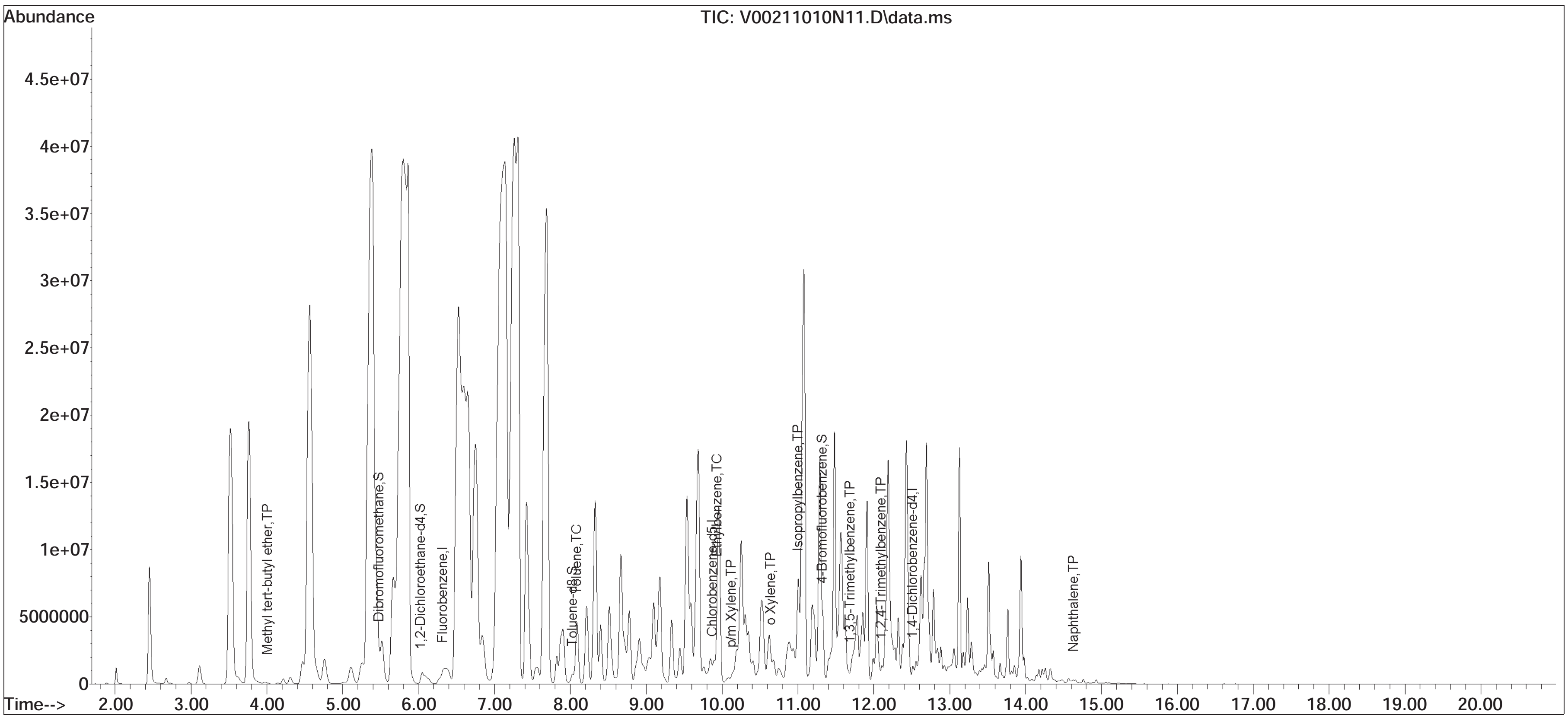


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N11.D
Acq On : 10 Oct 2021 5:48 pm
Operator : VOA100:NLK
Sample : l2153851-07,31,6.41,5,,b
Misc : WG1556923,ICAL18132
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Oct 11 08:05:22 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

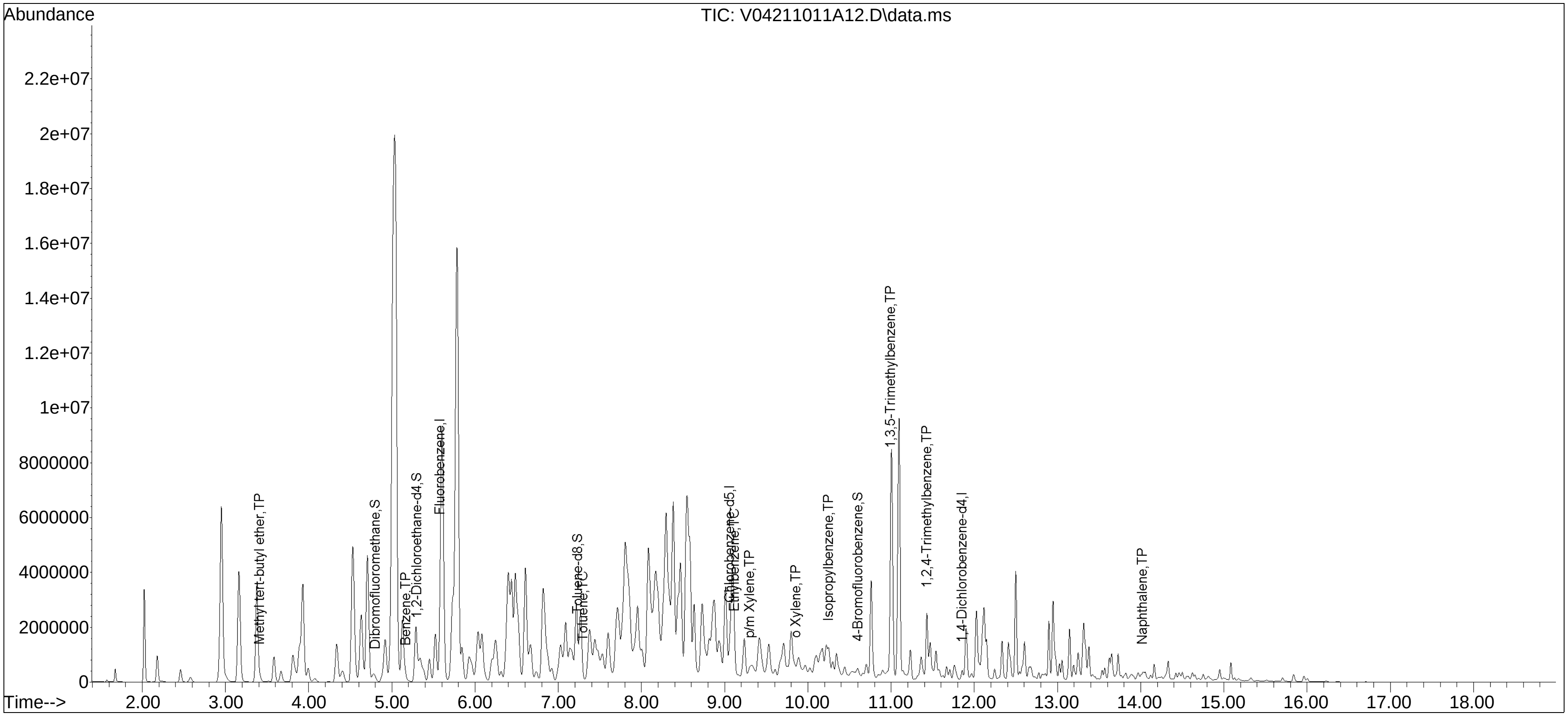


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A12.D
Acq On : 11 Oct 2021 11:01 am
Operator : VOA104:MV
Sample : L2153851-08,31H,6.76,5,0.100,,A
Misc : WG1556767,ICAL18128
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Oct 11 13:14:25 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A16.D
Acq On    : 11 Oct 2021  12:42 pm
Operator  : VOA104:MV
Sample    : L2153851-09,31H,6.01,5,0.100,,A
Misc      : WG1556767,ICAL18128
ALS Vial  : 16   Sample Multiplier: 1

Quant Time: Oct 11 13:16:36 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•
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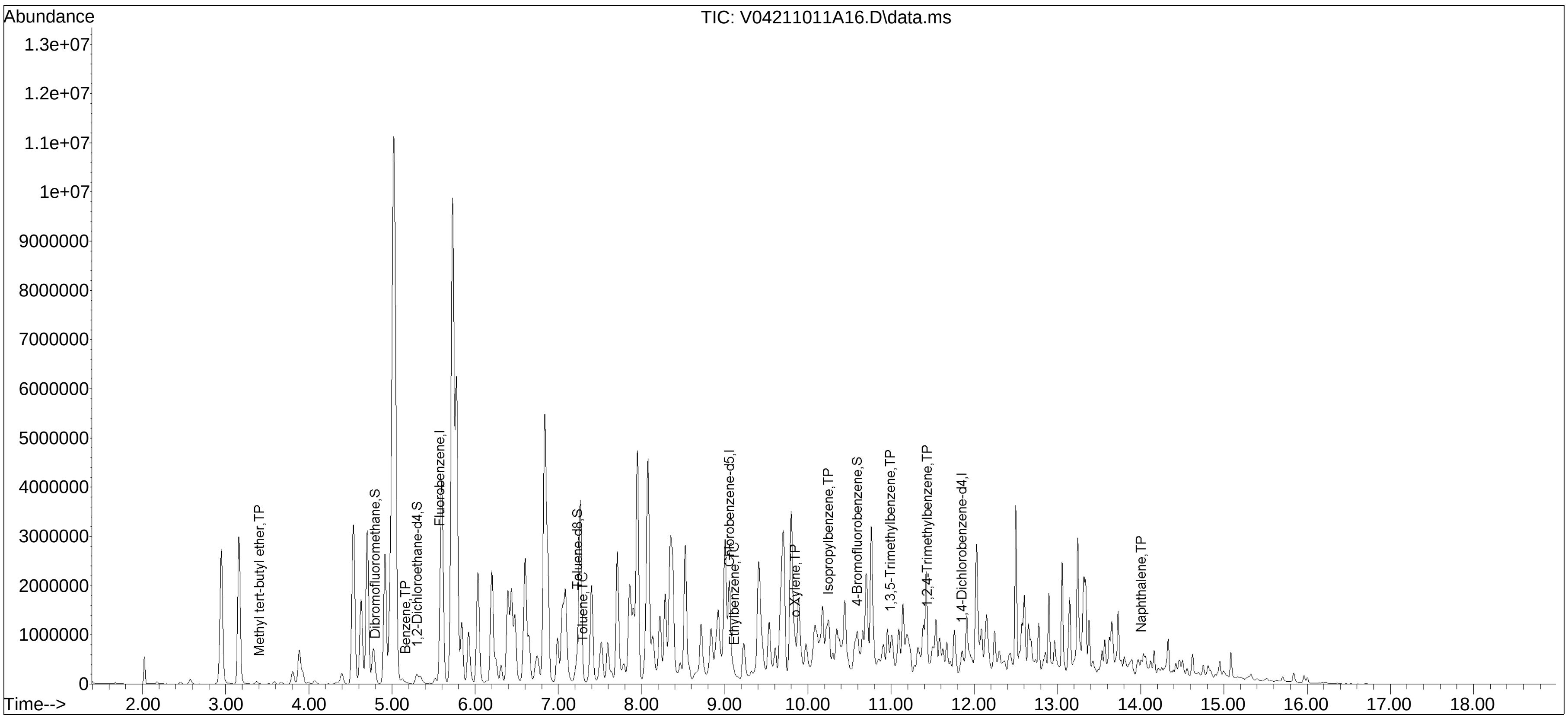

Quantitation Report   (QT Reviewed)

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Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N12.D
Acq On    : 10 Oct 2021   6:13 pm
Operator  : VOA100:NLK
Sample    : l2153851-10,31,6.60,5,,b
Misc      : WG1556923,ICAL18132
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Oct 11 08:05:58 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•
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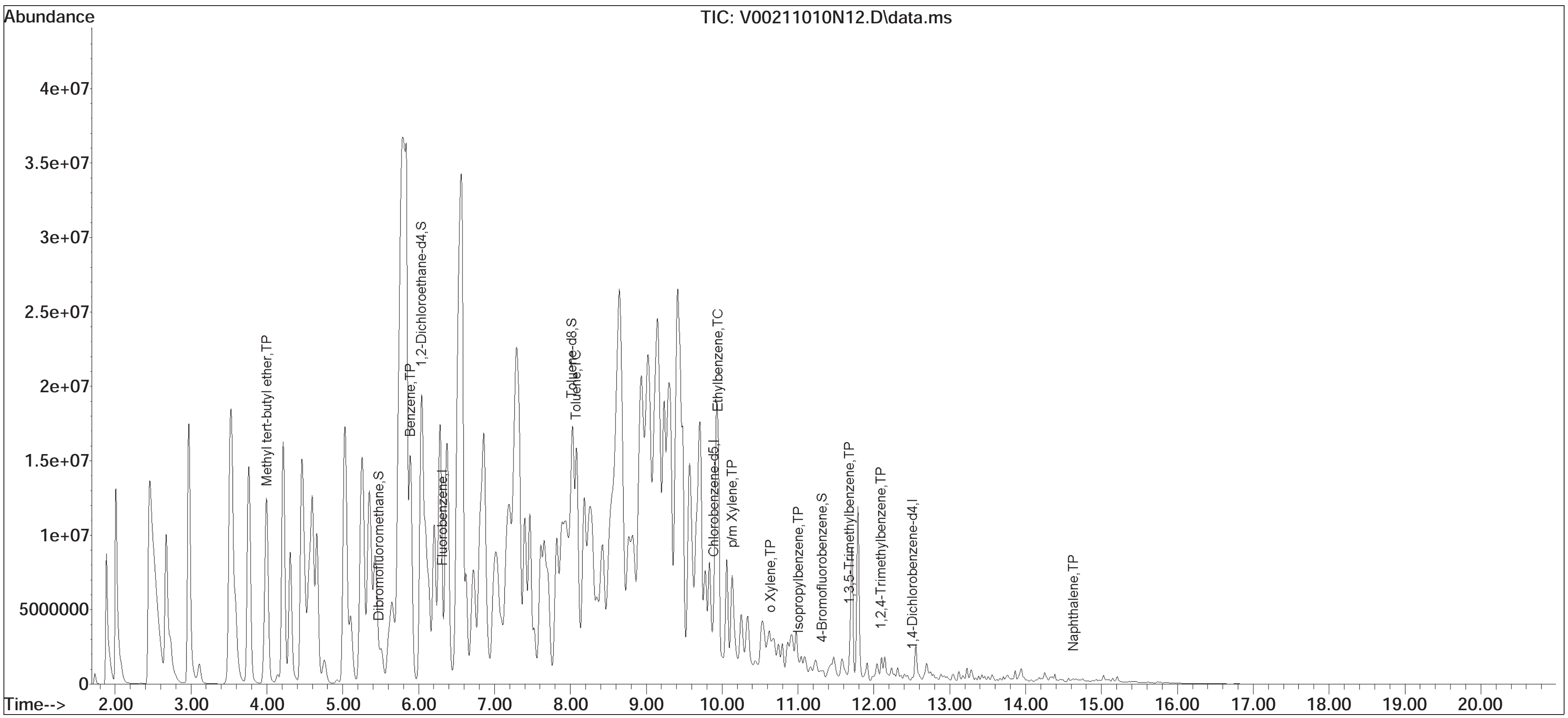
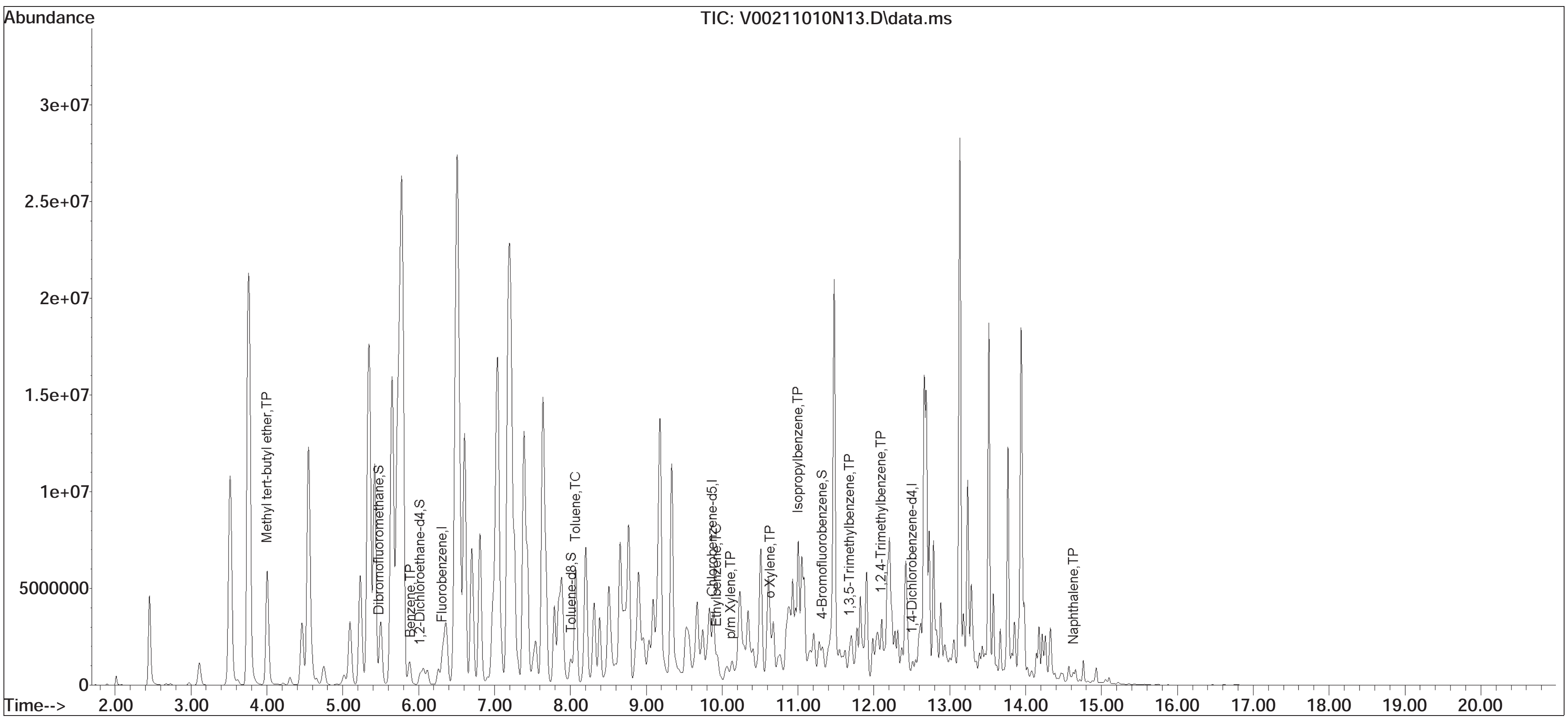


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA100\2021\211010N\
Data File : V00211010N13.D
Acq On : 10 Oct 2021 6:39 pm
Operator : VOA100:NLK
Sample : l2153851-11,31,6.31,5,,b
Misc : WG1556923,ICAL18132
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Oct 11 08:06:56 2021
Quant Method : I:\VOLATILES\VOA100\2021\211010N\V100_210708N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Jul 09 13:15:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V00211010N01.D•

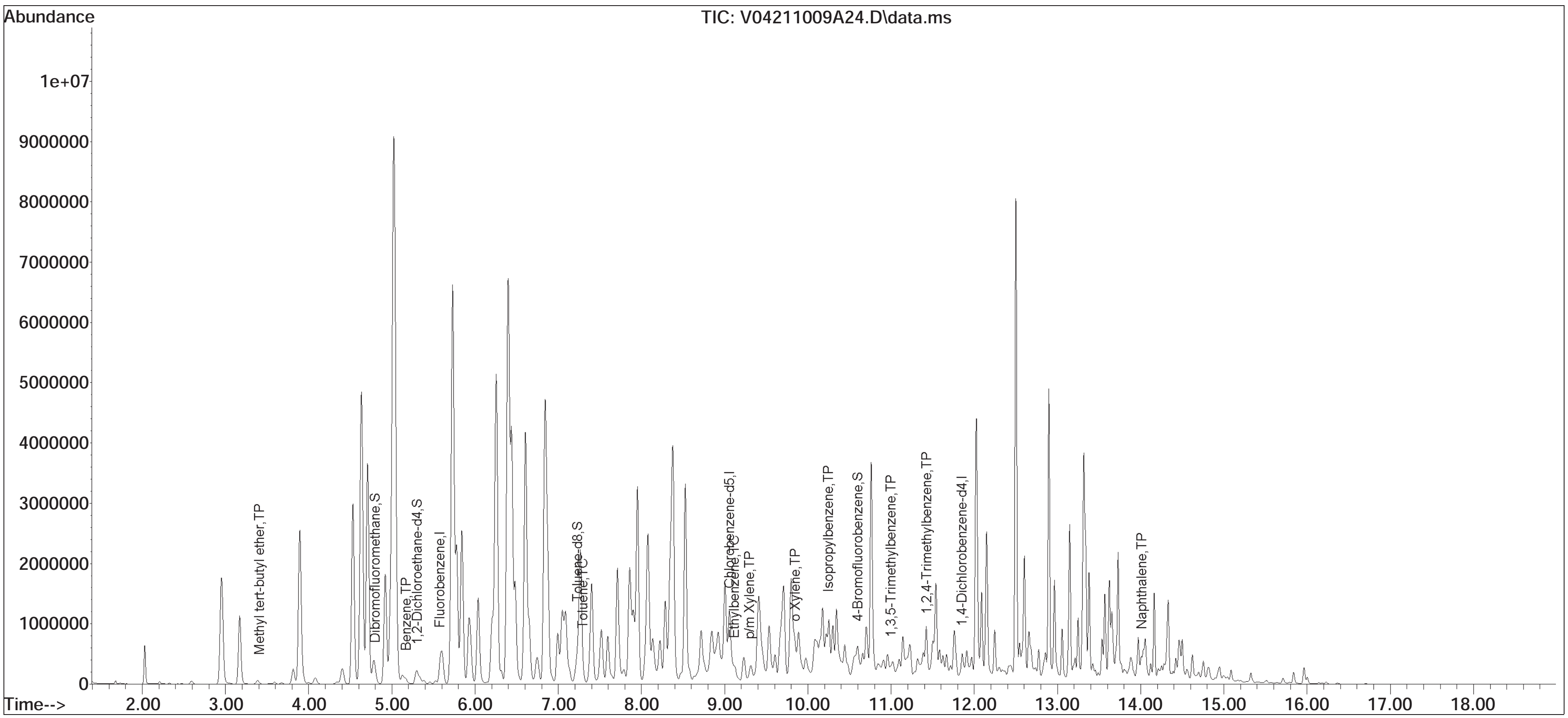


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211009A\
Data File : V04211009A24.D
Acq On : 9 Oct 2021 7:02 pm
Operator : VOA104:NLK
Sample : L2153851-12D,31H,3.19,5,0.025,,A
Misc : WG1556767,ICAL18128
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 10 11:43:41 2021
Quant Method : I:\VOLATILES\VOA104\2021\211009A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V04211009A01.D•

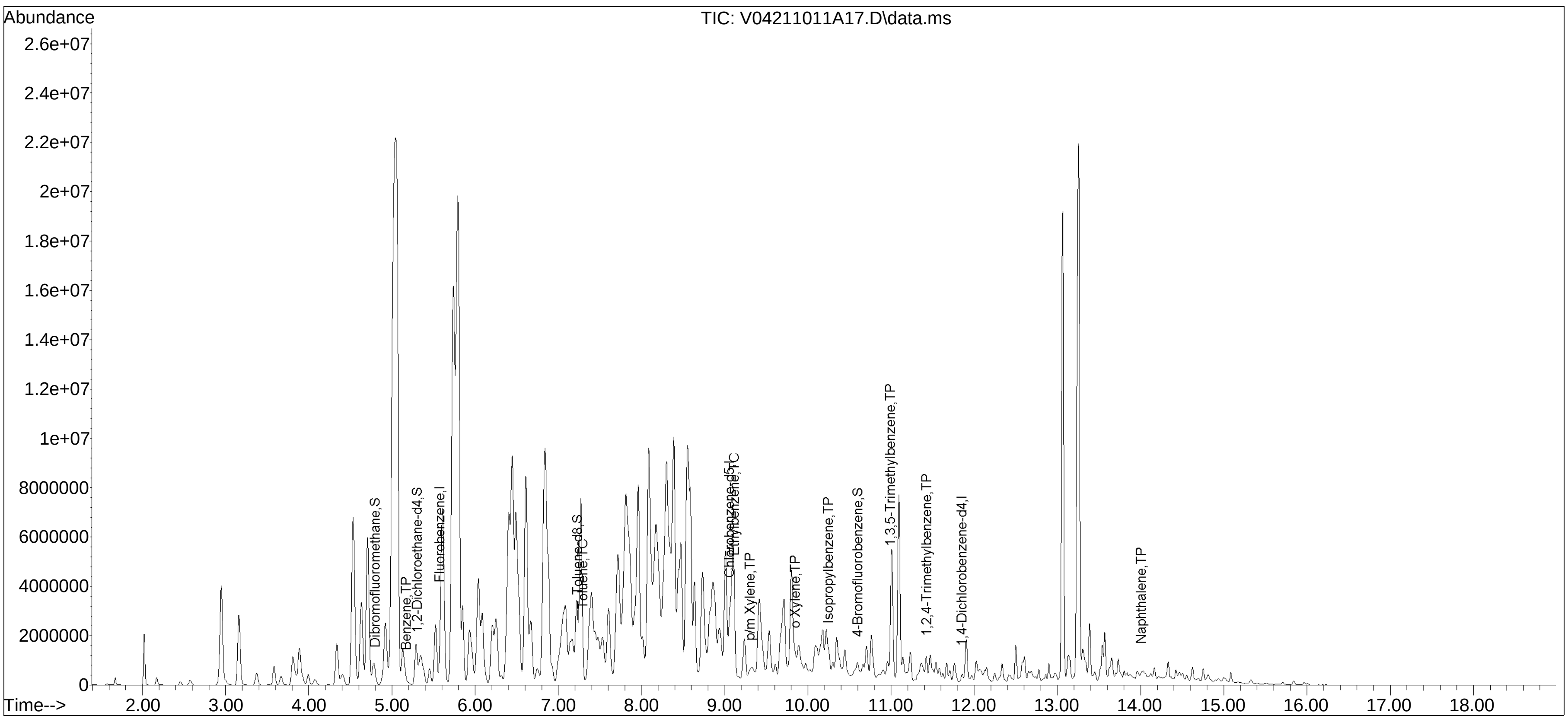


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2021\211011A\
Data File : V04211011A17.D
Acq On : 11 Oct 2021 1:07 pm
Operator : VOA104:KJD
Sample : L2153851-13,31H,5.74,5,0.100,,A
Misc : WG1556767,ICAL18128
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Oct 11 14:30:38 2021
Quant Method : I:\VOLATILES\VOA104\2021\211011A\V104_210707N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Jul 08 11:04:08 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V04211011A01.D•



ANALYTICAL REPORT

Lab Number:	L2154149
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY
Project Number:	200.00135.005.03
Report Date:	10/19/21

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2154149-01	PB-36-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:25	10/05/21
L2154149-02	PB-36-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 09:40	10/05/21
L2154149-03	PB-36-03-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:00	10/05/21
L2154149-04	PB-36-05-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:25	10/05/21
L2154149-05	PB-36-06-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:35	10/05/21
L2154149-06	PB-36-07-SS01	SOIL	PHILADELPHIA, PA	10/05/21 10:50	10/05/21
L2154149-07	PB-36-08-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:15	10/05/21
L2154149-08	PB-36-10-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:25	10/05/21
L2154149-09	PB-36-12-SS01	SOIL	PHILADELPHIA, PA	10/05/21 11:50	10/05/21
L2154149-10	PB-36-13-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:05	10/05/21
L2154149-11	PB-36-15-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:15	10/05/21
L2154149-12	PB-36-16-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:30	10/05/21
L2154149-13	PB-36-17-SS01	SOIL	PHILADELPHIA, PA	10/05/21 12:50	10/05/21
L2154149-14	PB-36-18-SS01	SOIL	PHILADELPHIA, PA	10/05/21 13:00	10/05/21
L2154149-15	PB-144-01-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:30	10/05/21
L2154149-16	PB-144-02-SS01	SOIL	PHILADELPHIA, PA	10/05/21 14:45	10/05/21
L2154149-17	DUP-19	SOIL	PHILADELPHIA, PA	10/05/21 00:00	10/05/21
L2154149-18	FB-211005-1	WATER	PHILADELPHIA, PA	10/05/21 12:40	10/05/21
L2154149-19	FB-211005-2	WATER	PHILADELPHIA, PA	10/05/21 15:00	10/05/21
L2154149-20	TB-211005	WATER	PHILADELPHIA, PA	10/05/21 00:00	10/05/21

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

October 19, 2021: This final report includes the results of all requested analyses.

October 12, 2021: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2154149-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (200%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (349%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (437%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2154149-07: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (67%) due to interference with the Internal Standard.

L2154149-08D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2154149-08D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2154149-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (151%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-12 and -14: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2154149-12: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (140%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2154149-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

PAHs
L2154149-16D: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix, and due to the analytical dilution required by the sample matrix.

Total Metals
The WG1555222-3 MS recovery, performed on L2154149-01, is outside the acceptance criteria for lead (57%). A post digestion spike was performed and yielded an unacceptable recovery for lead (61%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.
The WG1555222-4 Laboratory Duplicate RPD for lead (35%), performed on L2154149-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Case Narrative (continued)

The WG1555222-6 serial dilution analysis, associated with L2154149-01, had a %D above the acceptance criteria for lead (33%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 10/19/21

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-01	Date Collected:	10/05/21 09:25
Client ID:	PB-36-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	10/10/21 16:13
Analyst:	NLK
Percent Solids:	80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	0.77		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.081	0.021	1
Toluene	0.20		mg/kg	0.081	0.044	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.024	1
Ethylbenzene	0.89		mg/kg	0.081	0.011	1
p/m-Xylene	0.58		mg/kg	0.16	0.045	1
o-Xylene	0.18		mg/kg	0.081	0.024	1
Xylenes, Total	0.76		mg/kg	0.081	0.024	1
Isopropylbenzene	13.		mg/kg	0.081	0.0088	1
1,3,5-Trimethylbenzene	0.42		mg/kg	0.16	0.016	1
1,2,4-Trimethylbenzene	0.38		mg/kg	0.16	0.027	1
Naphthalene	1.4		mg/kg	0.32	0.053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	**200**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-02	Date Collected:	10/05/21 09:40
Client ID:	PB-36-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:05
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.066		mg/kg	0.034	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.069	0.018	1
Toluene	0.052	J	mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	4.4		mg/kg	0.069	0.0097	1
p/m-Xylene	0.15		mg/kg	0.14	0.038	1
o-Xylene	0.11		mg/kg	0.069	0.020	1
Xylenes, Total	0.26		mg/kg	0.069	0.020	1
Isopropylbenzene	2.4		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	3.7		mg/kg	0.14	0.023	1
Naphthalene	ND		mg/kg	0.28	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	81		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03 D2
Client ID: PB-36-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:47
Analyst: MV
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	670		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03 D | Date Collected: 10/05/21 10:00
Client ID: PB-36-03-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:31
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.5	0.25	20
Benzene	35.		mg/kg	0.63	0.21	20
1,2-Dichloroethane	ND		mg/kg	1.3	0.32	20
Toluene	180		mg/kg	1.3	0.68	20
1,2-Dibromoethane	ND		mg/kg	0.63	0.37	20
Ethylbenzene	160		mg/kg	1.3	0.18	20
p/m-Xylene	710		mg/kg	2.5	0.71	20
o-Xylene	290		mg/kg	1.3	0.37	20
Xylenes, Total	1000		mg/kg	1.3	0.37	20
Isopropylbenzene	21.		mg/kg	1.3	0.14	20
1,3,5-Trimethylbenzene	180		mg/kg	2.5	0.24	20
1,2,4-Trimethylbenzene	560	E	mg/kg	2.5	0.42	20
Naphthalene	66.		mg/kg	5.0	0.82	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	93		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04 Date Collected: 10/05/21 10:25
Client ID: PB-36-05-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:47
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00097	0.00025	1
Toluene	ND		mg/kg	0.00097	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00097	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	ND		mg/kg	0.00097	0.00028	1
Xylenes, Total	ND		mg/kg	0.00097	0.00028	1
Isopropylbenzene	0.00071	J	mg/kg	0.00097	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.0033	J	mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**349**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-05	Date Collected:	10/05/21 10:35
Client ID:	PB-36-06-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 14:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.10		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.19		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.60		mg/kg	0.072	0.010	1
p/m-Xylene	0.83		mg/kg	0.14	0.040	1
o-Xylene	0.35		mg/kg	0.072	0.021	1
Xylenes, Total	1.2		mg/kg	0.072	0.021	1
Isopropylbenzene	11.		mg/kg	0.072	0.0079	1
1,3,5-Trimethylbenzene	0.27		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	1.2		mg/kg	0.14	0.024	1
Naphthalene	0.62		mg/kg	0.29	0.047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06 D2
Client ID: PB-36-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 10:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 14:12
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	3.4	0.34	25
Benzene	2.7		mg/kg	0.84	0.28	25
1,2-Dichloroethane	ND		mg/kg	1.7	0.43	25
Toluene	2.1		mg/kg	1.7	0.92	25
1,2-Dibromoethane	ND		mg/kg	0.84	0.49	25
Ethylbenzene	260		mg/kg	1.7	0.24	25
p/m-Xylene	1100	E	mg/kg	3.4	0.94	25
o-Xylene	160		mg/kg	1.7	0.49	25
Isopropylbenzene	16.		mg/kg	1.7	0.18	25
1,3,5-Trimethylbenzene	260		mg/kg	3.4	0.32	25
1,2,4-Trimethylbenzene	760	E	mg/kg	3.4	0.56	25
Naphthalene	87.		mg/kg	6.7	1.1	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-06 D	Date Collected:	10/05/21 10:50
Client ID:	PB-36-07-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 01:10
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	920		mg/kg	6.7	1.9	50
Xylenes, Total	1100		mg/kg	1.7	0.49	50
1,2,4-Trimethylbenzene	640		mg/kg	6.7	1.1	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07
Client ID: PB-36-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 11:15
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 21:22
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00040	J	mg/kg	0.0020	0.00020	1
Benzene	0.0014		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0027		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.00057	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.0028		mg/kg	0.0020	0.00057	1
o-Xylene	0.0030		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.0058		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.19		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00044	J	mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00034	1
Naphthalene	0.0027	J	mg/kg	0.0041	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	**437**	Q	70-130
Dibromofluoromethane	**67**	Q	70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08 D
Client ID: PB-36-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 11:25
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 22:33
Analyst: NLK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.61	0.061	5
Benzene	0.52		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.078	5
Toluene	0.22	J	mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.089	5
Ethylbenzene	2.9		mg/kg	0.30	0.043	5
p/m-Xylene	0.87		mg/kg	0.61	0.17	5
o-Xylene	0.38		mg/kg	0.30	0.088	5
Xylenes, Total	1.2		mg/kg	0.30	0.088	5
Isopropylbenzene	1.1		mg/kg	0.30	0.033	5
1,3,5-Trimethylbenzene	0.091	J	mg/kg	0.61	0.058	5
1,2,4-Trimethylbenzene	0.14	J	mg/kg	0.61	0.10	5
Naphthalene	1.1	J	mg/kg	1.2	0.20	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09
Client ID: PB-36-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 11:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 20:53
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0025		mg/kg	0.0018	0.00018	1
Benzene	0.015		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.0013		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.0016		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.0050		mg/kg	0.0018	0.00050	1
o-Xylene	0.0022		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.0072		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.0036		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.0047		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.019		mg/kg	0.0018	0.00030	1
Naphthalene	0.0039		mg/kg	0.0036	0.00058	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10
Client ID: PB-36-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 12:05
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 21:18
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00094	0.00024	1
Toluene	ND		mg/kg	0.00094	0.00051	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00027	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	0.00065	J	mg/kg	0.00094	0.00027	1
Xylenes, Total	0.00065	J	mg/kg	0.00094	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1
Naphthalene	ND		mg/kg	0.0038	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	109		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-11	Date Collected:	10/05/21 12:15
Client ID:	PB-36-15-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 21:47
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00096	0.00025	1
Toluene	ND		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00096	0.00014	1
p/m-Xylene	ND		mg/kg	0.0019	0.00054	1
o-Xylene	0.00074	J	mg/kg	0.00096	0.00028	1
Xylenes, Total	0.00074	J	mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.00036	J	mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1
Naphthalene	0.00085	J	mg/kg	0.0038	0.00062	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**151**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12
Client ID: PB-36-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 12:30
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:23
Analyst: NLK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.030	J	mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	0.022	J	mg/kg	0.065	0.0092	1
p/m-Xylene	0.060	J	mg/kg	0.13	0.036	1
o-Xylene	0.058	J	mg/kg	0.065	0.019	1
Xylenes, Total	0.12	J	mg/kg	0.065	0.019	1
Isopropylbenzene	0.044	J	mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.051	J	mg/kg	0.13	0.022	1
Naphthalene	0.12	J	mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**140**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-13	Date Collected:	10/05/21 12:50
Client ID:	PB-36-17-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 21:43
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00019	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00063	1
o-Xylene	0.00082	J	mg/kg	0.0011	0.00033	1
Xylenes, Total	0.00082	J	mg/kg	0.0011	0.00033	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00038	1
Naphthalene	ND		mg/kg	0.0045	0.00073	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	124		70-130
Dibromofluoromethane	105		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-14	Date Collected:	10/05/21 13:00
Client ID:	PB-36-18-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/11/21 22:12
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.064	0.016	1
Toluene	ND		mg/kg	0.064	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	0.017	J	mg/kg	0.064	0.0090	1
p/m-Xylene	0.051	J	mg/kg	0.13	0.036	1
o-Xylene	0.053	J	mg/kg	0.064	0.018	1
Xylenes, Total	0.10	J	mg/kg	0.064	0.018	1
Isopropylbenzene	0.0071	J	mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	0.021	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.061	J	mg/kg	0.13	0.021	1
Naphthalene	0.081	J	mg/kg	0.26	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	**164**	Q	70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-15	Date Collected:	10/05/21 14:30
Client ID:	PB-144-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 22:57
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00027	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	ND		mg/kg	0.0010	0.00030	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-16	Date Collected:	10/05/21 14:45
Client ID:	PB-144-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:17
Analyst: NLK
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	ND		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00027	1
Ethylbenzene	ND		mg/kg	0.00091	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00051	1
o-Xylene	ND		mg/kg	0.00091	0.00026	1
Xylenes, Total	ND		mg/kg	0.00091	0.00026	1
Isopropylbenzene	ND		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-17	Date Collected:	10/05/21 00:00
Client ID:	DUP-19	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 10/10/21 23:38
Analyst: NLK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00018	1
Benzene	ND		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	ND		mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1
Naphthalene	ND		mg/kg	0.0037	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	102		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Client ID: FB-211005-1
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 12:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/08/21 12:34
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Client ID: FB-211005-1
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 12:29
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-19	Date Collected:	10/05/21 15:00
Client ID:	FB-211005-2	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	10/08/21 10:54
Analytical Date:	10/08/21 12:40		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
Client ID: FB-211005-2
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 15:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 12:50
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-20
Client ID: TB-211005
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 10/08/21 12:46
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-20	Date Collected:	10/05/21 00:00
Client ID:	TB-211005	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 10/09/21 13:10
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 10/08/21 12:15
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 10/08/21 10:54

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 18-20 Batch: WG1556099-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 08:50
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1556893-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1556894-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 08:50
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-03 Batch: WG1556894-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 07:21
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05-06 Batch: WG1556922-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 14:48
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 06 Batch: WG1556922-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	0.041	J	mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/09/21 10:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 18-20 Batch: WG1557030-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 09-10,13 Batch: WG1557082-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	0.00080	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00080	J	mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 15:29
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08,12 Batch: WG1557083-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	104		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/10/21 17:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-17 Batch: WG1557127-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,11 Batch: WG1557470-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	0.00081	J	mg/kg	0.0010	0.00029
Xylenes, Total	0.00081	J	mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 10/11/21 20:57
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1557472-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	0.040	J	mg/kg	0.050	0.014
Xylenes, Total	0.040	J	mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	103		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 18-20 Batch: WG1556099-2									
1,2-Dibromoethane	114		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1556893-3 WG1556893-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-03 Batch: WG1556894-3 WG1556894-4								
Methyl tert butyl ether	100		103		66-130	3		30
Benzene	109		105		70-130	4		30
1,2-Dichloroethane	98		97		70-130	1		30
Toluene	111		106		70-130	5		30
1,2-Dibromoethane	96		97		70-130	1		30
Ethylbenzene	114		110		70-130	4		30
p/m-Xylene	118		113		70-130	4		30
o-Xylene	116		112		70-130	4		30
Isopropylbenzene	122		112		70-130	9		30
1,3,5-Trimethylbenzene	121		112		70-130	8		30
1,2,4-Trimethylbenzene	121		112		70-130	8		30
Naphthalene	108		110		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		94		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1556894-8 WG1556894-9								
Methyl tert butyl ether	92		95		66-130	3		30
Benzene	96		92		70-130	4		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	98		92		70-130	6		30
1,2-Dibromoethane	85		87		70-130	2		30
Ethylbenzene	101		96		70-130	5		30
p/m-Xylene	103		98		70-130	5		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	108		101		70-130	7		30
1,3,5-Trimethylbenzene	105		100		70-130	5		30
1,2,4-Trimethylbenzene	106		100		70-130	6		30
Naphthalene	94		97		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	103		104		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 06 Batch: WG1556922-3 WG1556922-4								
Methyl tert butyl ether	83		84		66-130	1		30
Benzene	92		91		70-130	1		30
1,2-Dichloroethane	96		98		70-130	2		30
Toluene	94		93		70-130	1		30
1,2-Dibromoethane	91		92		70-130	1		30
Ethylbenzene	95		94		70-130	1		30
p/m-Xylene	98		97		70-130	1		30
o-Xylene	97		97		70-130	0		30
Isopropylbenzene	103		102		70-130	1		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		101		70-130	0		30
Naphthalene	96		101		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		100		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	96		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05-06 Batch: WG1556922-8 WG1556922-9								
Methyl tert butyl ether	80		76		66-130	5		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	95		92		70-130	3		30
Toluene	91		87		70-130	4		30
1,2-Dibromoethane	90		86		70-130	5		30
Ethylbenzene	94		89		70-130	5		30
p/m-Xylene	95		90		70-130	5		30
o-Xylene	93		90		70-130	3		30
Isopropylbenzene	101		96		70-130	5		30
1,3,5-Trimethylbenzene	100		94		70-130	6		30
1,2,4-Trimethylbenzene	99		95		70-130	4		30
Naphthalene	96		93		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		102		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		101		70-130
Dibromofluoromethane	95		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 18-20 Batch: WG1557030-3 WG1557030-4								
Methyl tert butyl ether	77		76		63-130	1		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	93		93		70-130	0		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		104		70-130
Toluene-d8	104		106		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	102		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 09-10,13 Batch: WG1557082-3 WG1557082-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	105		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08,12 Batch: WG1557083-3 WG1557083-4								
Methyl tert butyl ether	103		109		66-130	6		30
Benzene	93		95		70-130	2		30
1,2-Dichloroethane	102		108		70-130	6		30
Toluene	89		86		70-130	3		30
1,2-Dibromoethane	95		101		70-130	6		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	100		97		70-130	3		30
o-Xylene	88		86		70-130	2		30
Isopropylbenzene	101		98		70-130	3		30
1,3,5-Trimethylbenzene	102		98		70-130	4		30
1,2,4-Trimethylbenzene	105		102		70-130	3		30
Naphthalene	93		100		70-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		116		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	104		105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-17 Batch: WG1557127-3 WG1557127-4								
Methyl tert butyl ether	85		91		66-130	7		30
Benzene	93		92		70-130	1		30
1,2-Dichloroethane	87		88		70-130	1		30
Toluene	94		92		70-130	2		30
1,2-Dibromoethane	94		97		70-130	3		30
Ethylbenzene	95		93		70-130	2		30
p/m-Xylene	92		90		70-130	2		30
o-Xylene	91		90		70-130	1		30
Isopropylbenzene	98		94		70-130	4		30
1,3,5-Trimethylbenzene	97		92		70-130	5		30
1,2,4-Trimethylbenzene	96		92		70-130	4		30
Naphthalene	85		88		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		92		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	100		96		70-130
Dibromofluoromethane	92		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,11 Batch: WG1557470-3 WG1557470-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1557472-3 WG1557472-4								
Methyl tert butyl ether	107		98		66-130	9		30
Benzene	95		82		70-130	15		30
1,2-Dichloroethane	106		95		70-130	11		30
Toluene	90		76		70-130	17		30
1,2-Dibromoethane	103		94		70-130	9		30
Ethylbenzene	101		84		70-130	18		30
p/m-Xylene	101		85		70-130	17		30
o-Xylene	89		76		70-130	16		30
Isopropylbenzene	101		86		70-130	16		30
1,3,5-Trimethylbenzene	102		88		70-130	15		30
1,2,4-Trimethylbenzene	104		93		70-130	11		30
Naphthalene	102		94		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		109		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	107		109		70-130
Dibromofluoromethane	104		104		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-15	Date Collected:	10/05/21 14:30
Client ID:	PB-144-01-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	10/07/21 12:52
Analytical Date:	10/08/21 18:29		
Analyst:	SLR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	200	25.	1
Benzo(a)anthracene	ND		ug/kg	120	23.	1
Benzo(a)pyrene	ND		ug/kg	160	49.	1
Benzo(b)fluoranthene	ND		ug/kg	120	34.	1
Chrysene	ND		ug/kg	120	21.	1
Anthracene	ND		ug/kg	120	39.	1
Benzo(ghi)perylene	ND		ug/kg	160	24.	1
Fluorene	ND		ug/kg	200	20.	1
Phenanthrene	ND		ug/kg	120	25.	1
Pyrene	ND		ug/kg	120	20.	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	84		18-120

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-16 D	Date Collected:	10/05/21 14:45
Client ID:	PB-144-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	10/07/21 12:52
Analytical Date:	10/08/21 18:52		
Analyst:	SLR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		ug/kg	2600	320	5
Benzo(a)anthracene	17000		ug/kg	1600	300	5
Benzo(a)pyrene	12000		ug/kg	2100	650	5
Benzo(b)fluoranthene	4700		ug/kg	1600	450	5
Chrysene	20000		ug/kg	1600	280	5
Anthracene	1100	J	ug/kg	1600	520	5
Benzo(ghi)perylene	5000		ug/kg	2100	310	5
Fluorene	1100	J	ug/kg	2600	260	5
Phenanthrene	1700		ug/kg	1600	320	5
Pyrene	41000		ug/kg	1600	260	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	81		18-120

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Date Collected: 10/05/21 12:40
Client ID: FB-211005-1
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Extraction Method: EPA 3510C
Analytical Method: 1,8270D-SIM
Extraction Date: 10/10/21 07:46
Analytical Date: 10/12/21 01:06
Analyst: ALS

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	52		21-120
Phenol-d6	41		10-120
Nitrobenzene-d5	62		23-120
2-Fluorobiphenyl	71		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	82		41-149

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
Client ID: FB-211005-2
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 15:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 10/12/21 01:25
Analyst: ALS
Extraction Method: EPA 3510C
Extraction Date: 10/10/21 07:46

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.05	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.01	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	39		21-120
Phenol-d6	37		10-120
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	74		15-120
2,4,6-Tribromophenol	45		10-120
4-Terphenyl-d14	75		41-149

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	10/07/21 22:15	Extraction Date:	10/06/21 15:13
Analyst:	JG		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1555279-1					
Naphthalene	ND		ug/kg	160	20.
Benzo(a)anthracene	ND		ug/kg	97	18.
Benzo(a)pyrene	ND		ug/kg	130	39.
Benzo(b)fluoranthene	ND		ug/kg	97	27.
Chrysene	ND		ug/kg	97	17.
Anthracene	ND		ug/kg	97	32.
Benzo(ghi)perylene	ND		ug/kg	130	19.
Fluorene	ND		ug/kg	160	16.
Phenanthrene	ND		ug/kg	97	20.
Pyrene	ND		ug/kg	97	16.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	89		25-120
Phenol-d6	93		10-120
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	91		30-120
2,4,6-Tribromophenol	87		10-136
4-Terphenyl-d14	101		18-120

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 10/11/21 16:12
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 10/09/21 17:14

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 18-19 Batch: WG1556643-1					
Naphthalene	0.07	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	0.01	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	43		21-120
Phenol-d6	38		10-120
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	54		15-120
2,4,6-Tribromophenol	58		10-120
4-Terphenyl-d14	69		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1555279-2 WG1555279-3								
Naphthalene	65		83		40-140	24		50
Benzo(a)anthracene	69		93		40-140	30		50
Benzo(a)pyrene	71		95		40-140	29		50
Benzo(b)fluoranthene	67		89		40-140	28		50
Chrysene	65		87		40-140	29		50
Anthracene	69		91		40-140	28		50
Benzo(ghi)perylene	69		92		40-140	29		50
Fluorene	69		90		40-140	26		50
Phenanthrene	67		88		40-140	27		50
Pyrene	69		91		35-142	28		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		88		25-120
Phenol-d6	72		93		10-120
Nitrobenzene-d5	68		88		23-120
2-Fluorobiphenyl	68		87		30-120
2,4,6-Tribromophenol	65		86		10-136
4-Terphenyl-d14	74		99		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 18-19 Batch: WG1556643-2 WG1556643-3								
Naphthalene	60		62		40-140	3		40
Fluorene	70		68		40-140	3		40
Phenanthrene	68		65		40-140	5		40
Anthracene	71		67		40-140	6		40
Pyrene	76		71		26-127	7		40
Benzo(a)anthracene	82		80		40-140	2		40
Chrysene	72		68		40-140	6		40
Benzo(b)fluoranthene	80		74		40-140	8		40
Benzo(a)pyrene	76		73		40-140	4		40
Benzo(ghi)perylene	75		71		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	52		54		21-120
Phenol-d6	45		46		10-120
Nitrobenzene-d5	95		98		23-120
2-Fluorobiphenyl	64		63		15-120
2,4,6-Tribromophenol	87		85		10-120
4-Terphenyl-d14	77		73		41-149

METALS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01
Date Collected: 10/05/21 09:25
Client ID: PB-36-01-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	60.4		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 00:25	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-02	Date Collected:	10/05/21 09:40
Client ID:	PB-36-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.86		mg/kg	2.36	0.126	1	10/07/21 08:00	10/07/21 23:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03
Client ID: PB-36-03-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 10:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.50		mg/kg	2.44	0.131	1	10/07/21 08:00	10/07/21 23:12	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-04	Date Collected:	10/05/21 10:25
Client ID:	PB-36-05-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.80		mg/kg	2.38	0.128	1	10/07/21 08:00	10/07/21 23:17	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-05	Date Collected:	10/05/21 10:35
Client ID:	PB-36-06-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.8		mg/kg	2.41	0.129	1	10/07/21 08:00	10/07/21 23:21	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-06	Date Collected:	10/05/21 10:50
Client ID:	PB-36-07-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.0		mg/kg	2.48	0.133	1	10/07/21 08:00	10/07/21 23:26	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-07 Date Collected: 10/05/21 11:15
Client ID: PB-36-08-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.03		mg/kg	2.47	0.132	1	10/07/21 08:00	10/08/21 00:11	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-08	Date Collected:	10/05/21 11:25
Client ID:	PB-36-10-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.22		mg/kg	2.42	0.130	1	10/07/21 08:00	10/08/21 00:16	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09
Date Collected: 10/05/21 11:50
Client ID: PB-36-12-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	45.4		mg/kg	11.6	0.623	5	10/07/21 08:00	10/11/21 20:31	EPA 3050B	1,6010D	BV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10 Date Collected: 10/05/21 12:05
Client ID: PB-36-13-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.8		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 00:58	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149

Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11 Date Collected: 10/05/21 12:15

Client ID: PB-36-15-SS01 Date Received: 10/05/21

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.32		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:02	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12 Date Collected: 10/05/21 12:30
Client ID: PB-36-16-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	87.5		mg/kg	2.29	0.123	1	10/07/21 08:00	10/08/21 01:07	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13
Date Collected: 10/05/21 12:50
Client ID: PB-36-17-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	10.7		mg/kg	2.40	0.128	1	10/07/21 08:00	10/08/21 01:12	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-14	Date Collected:	10/05/21 13:00
Client ID:	PB-36-18-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	112		mg/kg	2.36	0.126	1	10/07/21 08:00	10/08/21 01:16	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15
Date Collected: 10/05/21 14:30
Client ID: PB-144-01-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.73		mg/kg	2.30	0.124	1	10/07/21 08:00	10/08/21 01:21	EPA 3050B	1,6010D	SV

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-16	Date Collected:	10/05/21 14:45
Client ID:	PB-144-02-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	143		mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 01:26	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17
Client ID: DUP-19
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 00:00
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	26.8		mg/kg	2.35	0.126	1	10/07/21 08:00	10/08/21 01:31	EPA 3050B	1,6010D	SV

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-18
Date Collected: 10/05/21 12:40
Client ID: FB-211005-1
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 17:35	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-19
Date Collected: 10/05/21 15:00
Client ID: FB-211005-2
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 17:40	EPA 3005A	1,6020B	PS

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 18-19 Batch: WG1555180-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	10/07/21 08:08	10/07/21 15:15	1,6020B	PS

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-17 Batch: WG1555222-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	10/07/21 08:00	10/08/21 00:02	1,6010D	SV

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 18-19 Batch: WG1555180-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-17 Batch: WG1555222-2 SRM Lot Number: D109-540								
Lead, Total	92		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03
Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 18-19 QC Batch ID: WG1555180-3 QC Sample: L2154178-01 Client ID: MS Sample												
Lead, Total	7.869	530	520.1	97		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-3 QC Sample: L2154149-01 Client ID: PB-36-01-SS01												
Lead, Total	60.4	52.2	90.3	**57**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-4 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	42.2	mg/kg	**35**	Q	20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-17 QC Batch ID: WG1555222-6 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Lead, Total	60.4	80.4	mg/kg	**33**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-01
Date Collected: 10/05/21 09:25
Client ID: PB-36-01-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY

Lab Number: L2154149

Project Number: 200.00135.005.03

Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-02
Client ID: PB-36-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 09:40
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-03 Date Collected: 10/05/21 10:00
Client ID: PB-36-03-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-04 | Date Collected: 10/05/21 10:25

Client ID: PB-36-05-SS01 | Date Received: 10/05/21

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-05
Client ID: PB-36-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:35
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-06
Client ID: PB-36-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 10:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

SAMPLE RESULTS

Lab ID:	L2154149-07	Date Collected:	10/05/21 11:15
Client ID:	PB-36-08-SS01	Date Received:	10/05/21
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-08
Date Collected: 10/05/21 11:25
Client ID: PB-36-10-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-09
Date Collected: 10/05/21 11:50
Client ID: PB-36-12-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-10
Client ID: PB-36-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 10/05/21 12:05
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149
Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-11 | Date Collected: 10/05/21 12:15
Client ID: PB-36-15-SS01 | Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-12 Date Collected: 10/05/21 12:30
Client ID: PB-36-16-SS01 Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-13
Client ID: PB-36-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 12:50
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Lab Number: L2154149
Project Number: 200.00135.005.03
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-14
Date Collected: 10/05/21 13:00
Client ID: PB-36-18-SS01
Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY | **Lab Number:** L2154149

Project Number: 200.00135.005.03 | **Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-15
Client ID: PB-144-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:30
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-16
Client ID: PB-144-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 10/05/21 14:45
Date Received: 10/05/21
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.8		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Project Name: PHILADELPHIA REFINERY　　**Lab Number:** L2154149
Project Number: 200.00135.005.03　　**Report Date:** 10/19/21

SAMPLE RESULTS

Lab ID: L2154149-17　　Date Collected: 10/05/21 00:00
Client ID: DUP-19　　Date Received: 10/05/21
Sample Location: PHILADELPHIA, PA　　Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.3		%	0.100	NA	1	-	10/06/21 09:54	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-17 QC Batch ID: WG1554975-1 QC Sample: L2154149-01 Client ID: PB-36-01-SS01						
Solids, Total	79.7	80.3	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-01A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-01B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-01D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-02A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-02B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-02D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-03A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-03B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-03D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-04A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-04B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-04D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-05A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-05B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-05C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-05D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-06A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-06B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-06D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-07A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-07B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-07D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-08A	Vial MeOH preserved	B	NA		3.3	Y	Absent		PA-8260HLW(14)
L2154149-08B	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08C	Vial water preserved	B	NA		3.3	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-08D	Plastic 120ml unpreserved	B	NA		3.3	Y	Absent		TS(7)
L2154149-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.3	Y	Absent		PB-TI(180)
L2154149-09A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-09B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-09D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-09E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-10A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-10B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-10D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-10E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-11A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-11B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-11D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-11E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-12A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-12B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-12D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-12E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-13A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-13B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-13D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-14A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-14B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-14D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-14E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-15B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-15D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-15E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-15F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-16A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-16B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY
Project Number: 200.00135.005.03

Lab Number: L2154149
Report Date: 10/19/21

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2154149-16C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-16D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-16E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-16F	Glass 120ml/4oz unpreserved	A	NA		5.4	Y	Absent		8270TCL-PAH(14)
L2154149-17A	Vial MeOH preserved	A	NA		5.4	Y	Absent		PA-8260HLW(14)
L2154149-17B	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17C	Vial water preserved	A	NA		5.4	Y	Absent	06-OCT-21 06:41	PA-8260HLW(14)
L2154149-17D	Plastic 120ml unpreserved	A	NA		5.4	Y	Absent		TS(7)
L2154149-17E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		5.4	Y	Absent		PB-TI(180)
L2154149-18A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-18B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-18C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-18D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-18F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-19A	Vial HCl preserved	A	NA		5.4	Y	Absent		PA-8260(14)
L2154149-19B	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14),PA-8260(14)
L2154149-19C	Vial HCl preserved	A	NA		5.4	Y	Absent		8011(14)
L2154149-19D	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19E	Amber 250ml unpreserved	A	7	7	5.4	Y	Absent		PA-8270SIM-LVI(7)
L2154149-19F	Plastic 250ml HNO3 preserved	A	<2	<2	5.4	Y	Absent		PB-6020T-PPB(180)
L2154149-20A	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20B	Vial HCl preserved	B	NA		3.3	Y	Absent		PA-8260(14)
L2154149-20C	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)
L2154149-20D	Vial Na2S2O3 preserved	B	NA		3.3	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

Project Name:	PHILADELPHIA REFINERY	**Lab Number:**	L2154149
Project Number:	200.00135.005.03	**Report Date:**	10/19/21

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name: PHILADELPHIA REFINERY **Lab Number:** L2154149
Project Number: 200.00135.005.03 **Report Date:** 10/19/21

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 10/06/21

ALPHA Job #: L2154149

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project specific analyte list, see attached
Also send to: EDD@terraphase.com
J.Jeray@ChilcoGlobal.com

ANALYSIS: PADEP Short List 1,2

SAMPLE HANDLING
Filtration ______
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Short List 1,2	Sample Specific Comments	TOTAL # BOTTLES
54149-01	PB-36-01-5501	10/5	0925	S	TB	X		5
-02	PB-36-02-5501		0940			X		
-03	PB-36-03-5501		1000			X		
-04	PB-36-05-5501		1025			X		
-05	PB-36-06-5501		1035			X		
-06	PB-36-07-5501		1050			X		
-07	PB-36-08-5501		1115			X		
-08	PB-36-10-5501		1125			X		
-09	PB-36-12-5501		1150			X		
-10	PB-36-13-5501		1205			X		

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/5 1545	[signature]	10/5/21 1545
[signature]	10/5/21 1720	[signature]	10/5 1720
[signature]	10-5 2030	[signature] AAL	10/5/21 2030
[signature] AAL	10/5/21 2355	[signature]	10/5/21 2355

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 10/06/21

ALPHA Job #: L2154149

Client Information

Client: Ransom Consulting
Address: 2127 Hamilton Ave
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@Ransom-Env

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☑ EMAIL
☑ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report Only Project Specific Analyte List. See Attached
EDD@TERRAPHASE.com
Also Send To: jjeroy@HilcoGlobal.com

ANALYSIS: PADEP Shortlist 1,2 | PADEP Shortlist 1-5 | VOC Portion of PADEP Shortlist (1-5)

SAMPLE HANDLING
Filtration
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1,2	PADEP Shortlist 1-5	VOC Portion of PADEP Shortlist (1-5)	Sample Specific Comments	TOTAL # BOTTLES
54149-11	PB-36-15-5501	10/5	1215	S	TS	X				5
-12	PB-36-16-5501	↓	1230	S	TS	X				5
-13	PB-36-17-5501	↓	1250	S	TS	X				5
-14	PB-36-18-5501	↓	1300	S	TS	X				5
-15	PB-144-01-5501	↓	1430	S	TS		X			6
-16	PB-144-02-5501	↓	1445	S	TS		X			6
-17	DUP-19	↓		S		X				5
-18	FB-211005-1	↓	1240	W			X			6
-19	FB-211005-2	↓	1500	W			X			6
-20	TB-211005	↓						X		4

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	10/5 1545	[signature]	10/5/21 15
[signature]	10/5/21 [illegible]	[signature]	10/5/21
[signature]	10/5 2030	AAL [signature]	10/5/21 20:50
[signature] AAL 10/5/21 2355		[signature] 10/5/21 2355	[signature] 10/6/21 02:35

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

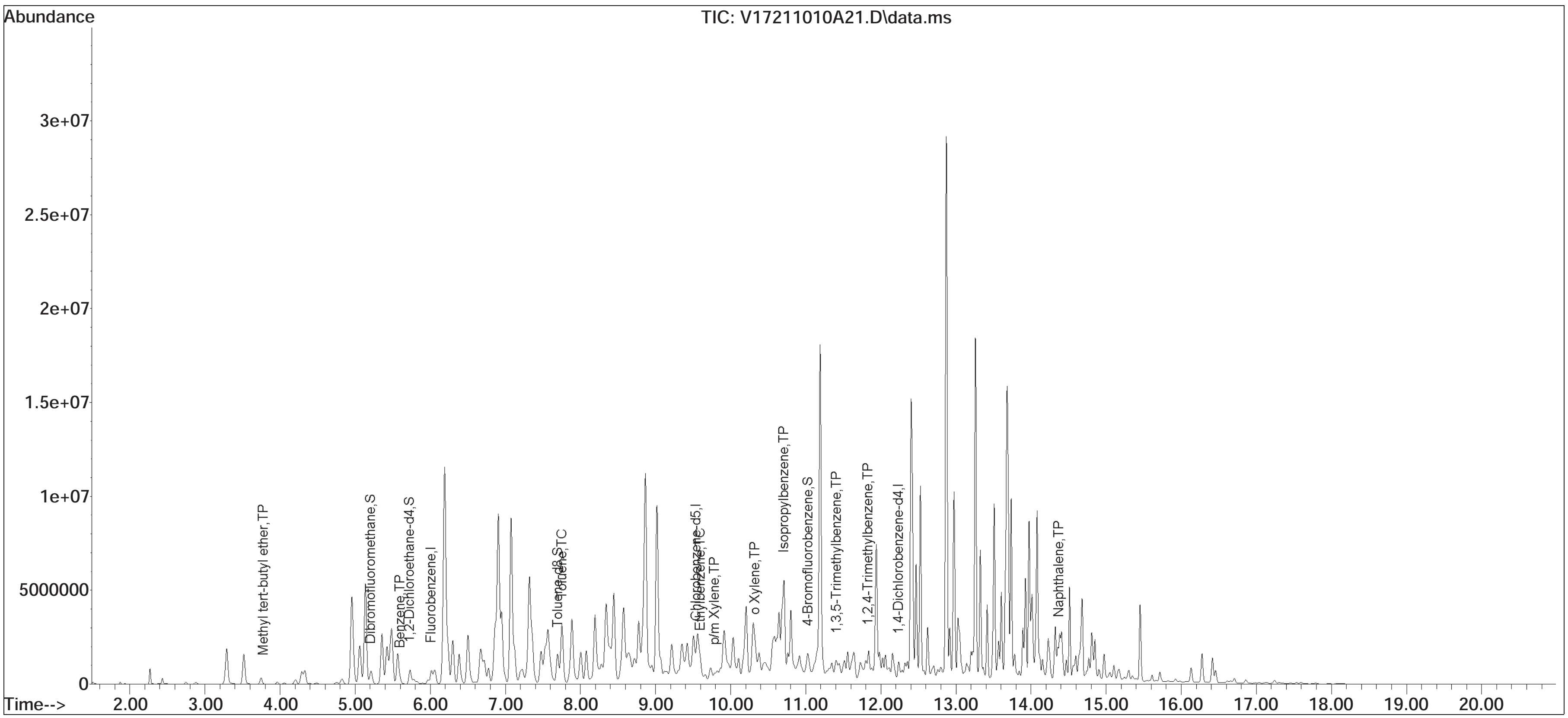
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A21.D
Acq On : 10 Oct 2021 04:13 pm
Operator : VOA117:NLK
Sample : l2154149-01,31H,4.59,5,0.100,,a
Misc : WG1556894,ICAL18358
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 11 06:26:04 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

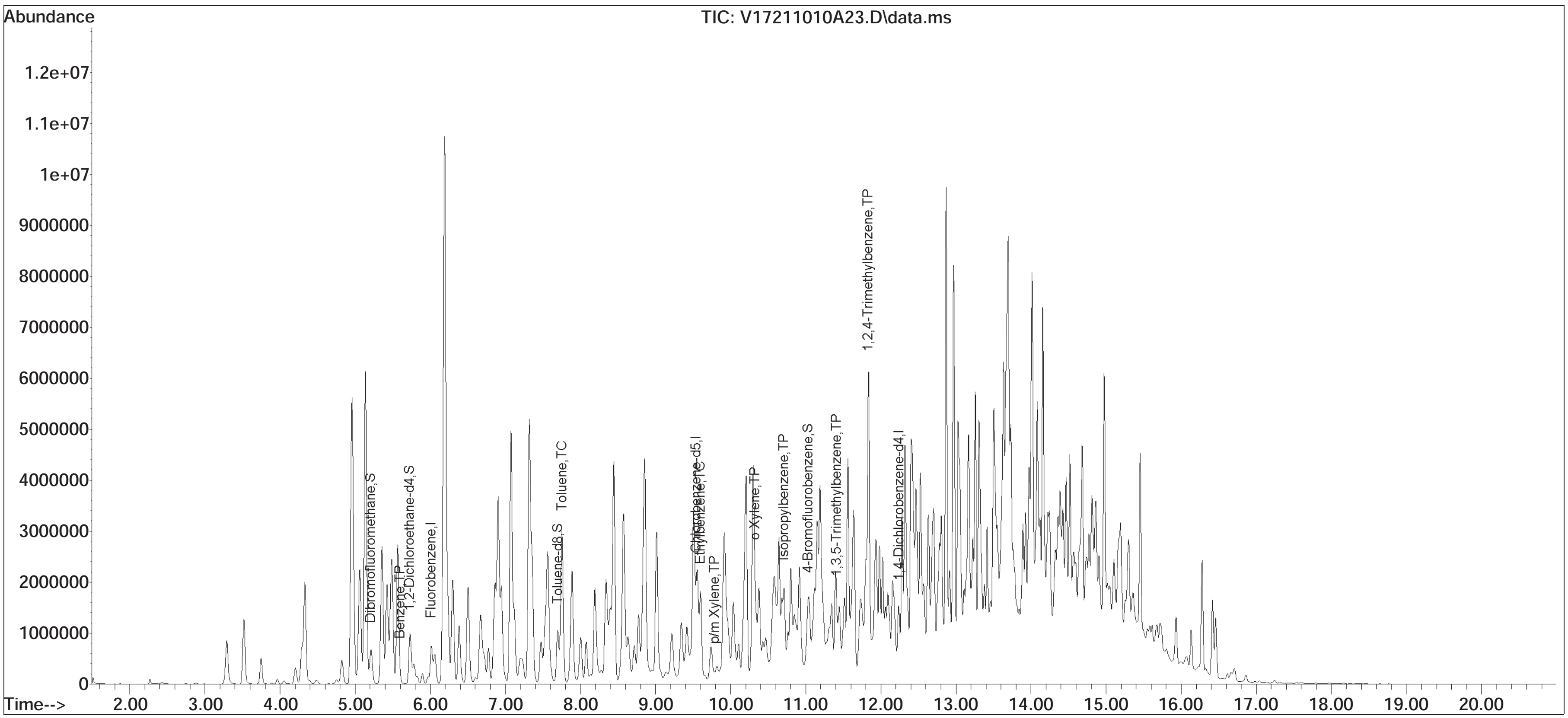


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A23.D
Acq On   : 10 Oct 2021 05:05 pm
Operator : VOA117:NLK
Sample   : l2154149-02,31H,5.29,5,0.100,,a
Misc   : WG1556894,ICAL18358
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Oct 11 07:34:36 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

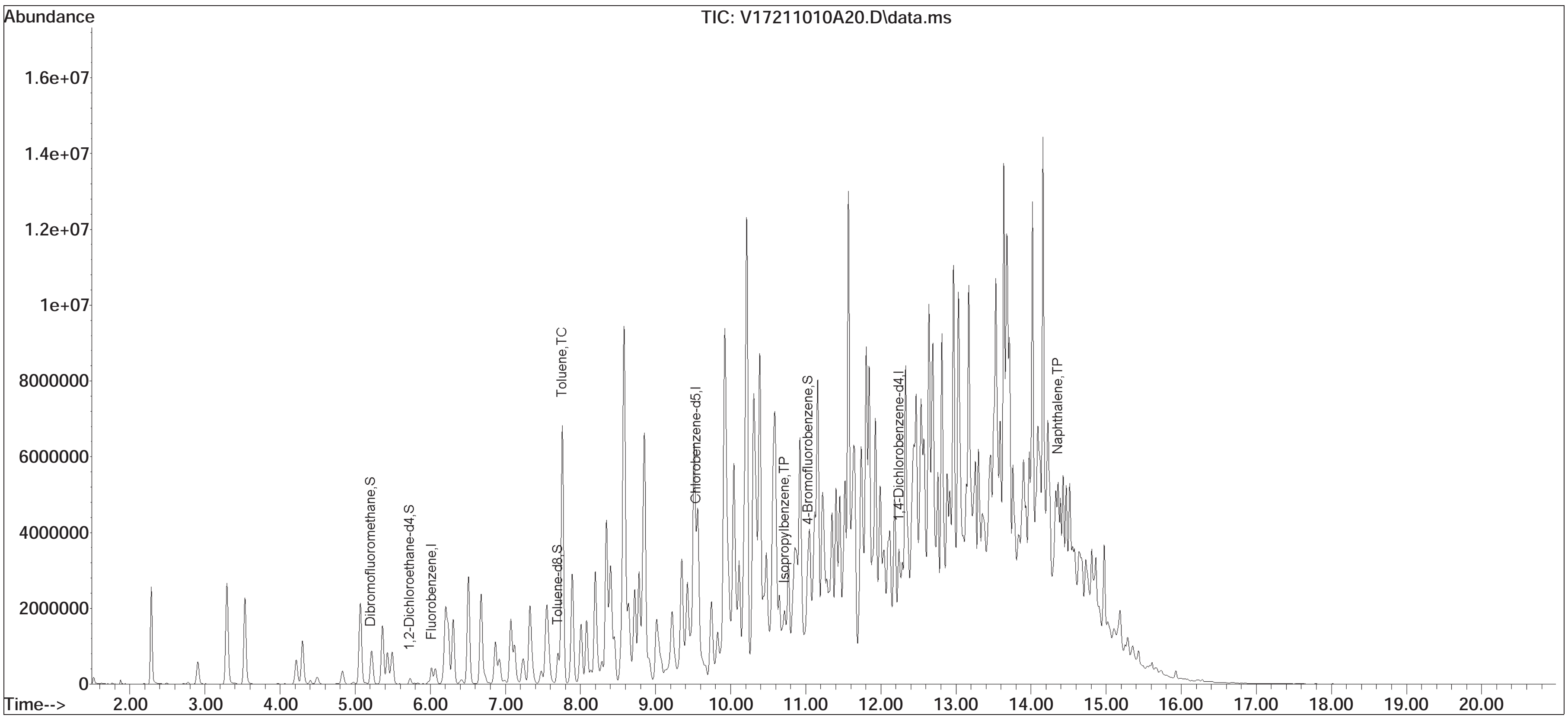


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2021\211010A\
Data File : V17211010A20.D
Acq On   : 10 Oct 2021 03:47 pm
Operator : VOA117:NLK
Sample   : l2154149-04,31,6.30,5,,b
Misc   : WG1556893,ICAL18358
ALS Vial : 20   Sample Multiplier: 1

Quant Time: Oct 11 07:28:51 2021
Quant Method : I:\VOLATILES\VOA117\2021\211010A\V117_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 07:30:19 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list10A\V17211010A01.D•

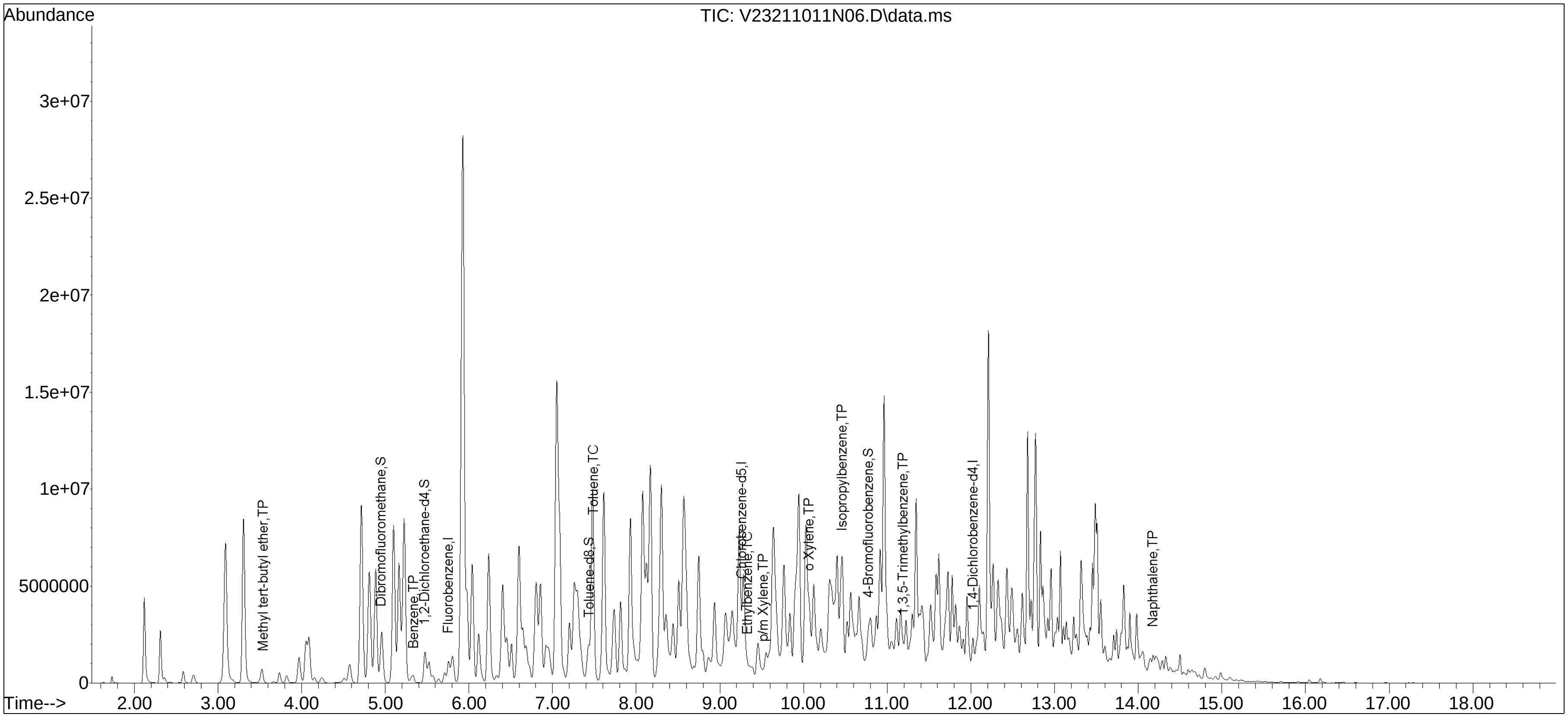


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N06.D
Acq On : 11 Oct 2021 09:22 pm
Operator : VOA123:JC
Sample : L2154149-07,31,6.16,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Oct 12 08:20:34 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•



Quantitation Report (QT Reviewed)

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Data Path : I:\VOLATILES\VOA123\2021\211010N\
Data File : V23211010N22.D
Acq On    : 10 Oct 2021  10:33 pm
Operator  : VOA123:NLK
Sample    : L2154149-08D,31H,6.27,5,0.020,,A
Misc      : WG1557083,ICAL18187
ALS Vial  : 22   Sample Multiplier: 1

Quant Time: Oct 11 11:57:37 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•
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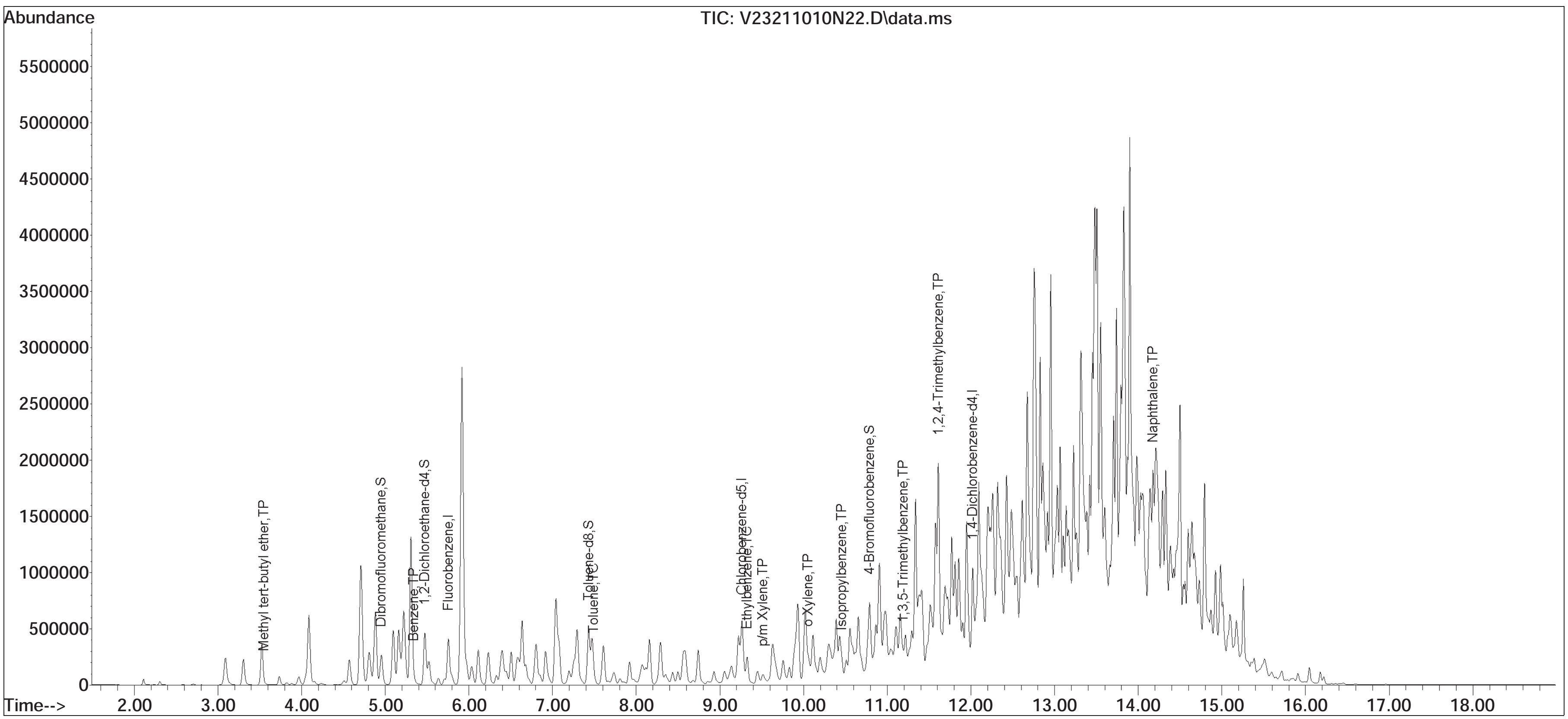
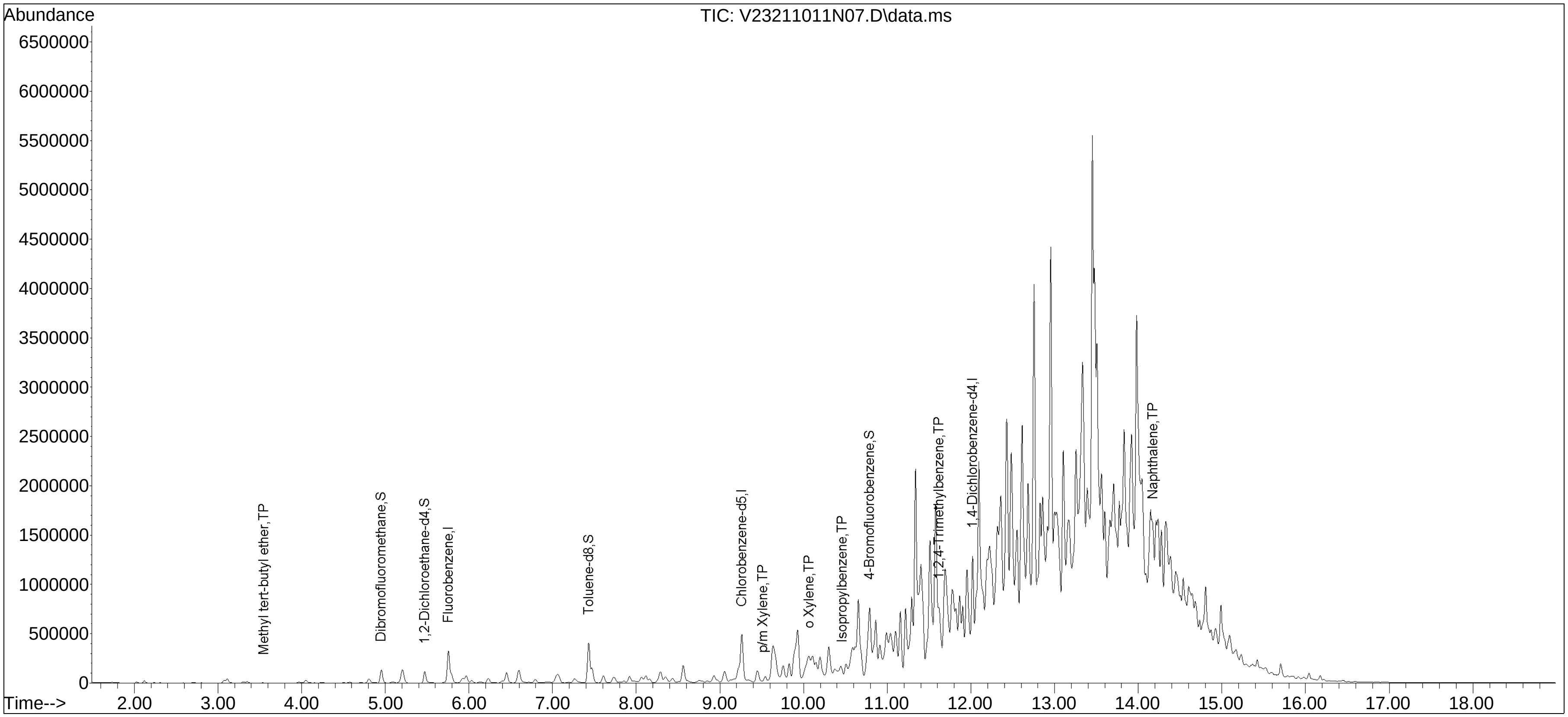


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N07.D
Acq On : 11 Oct 2021 09:47 pm
Operator : VOA123:JC
Sample : L2154149-11,31,6.30,5,,B
Misc : WG1557470,ICAL18187
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Oct 12 08:12:04 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

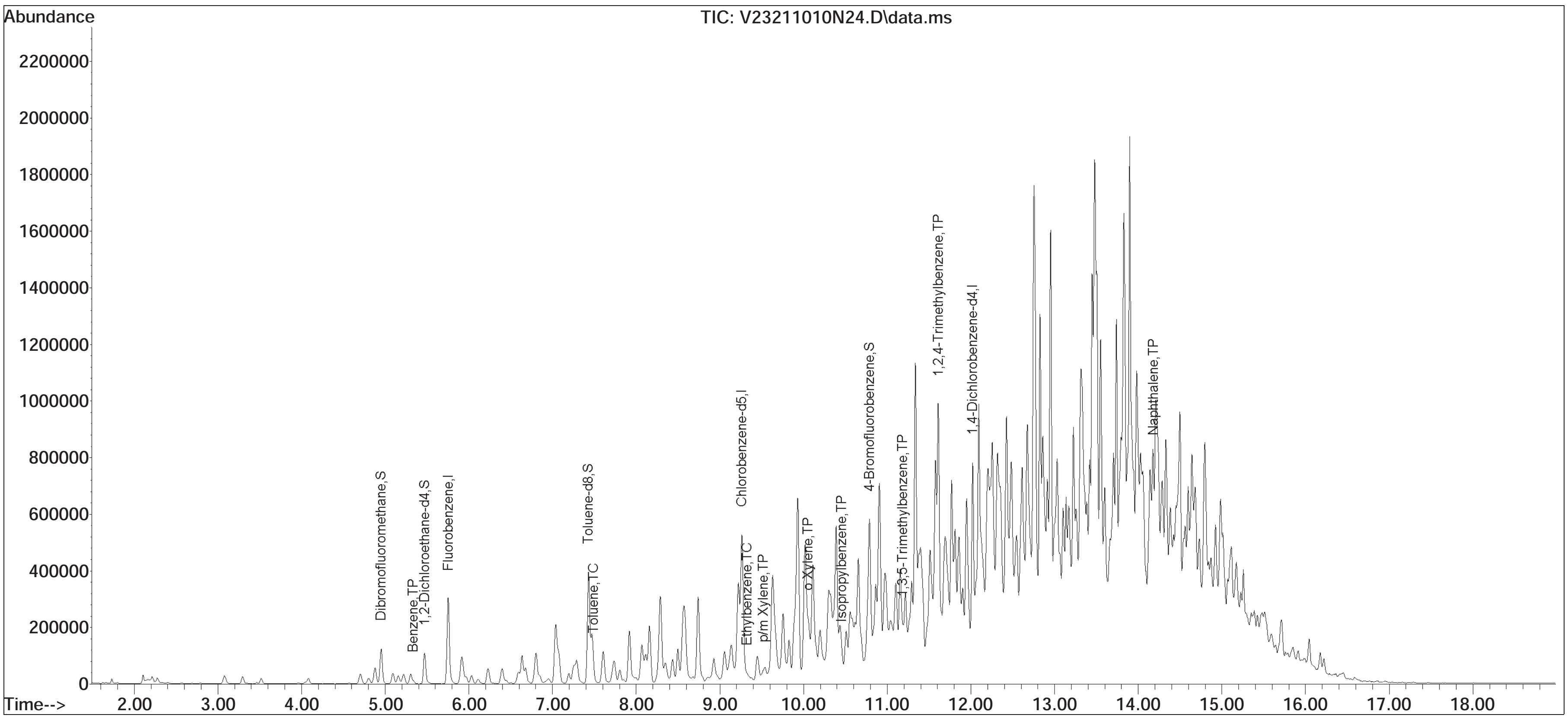


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211010N\
Data File : V23211010N24.D
Acq On : 10 Oct 2021 11:23 pm
Operator : VOA123:NLK
Sample : L2154149-12,31H,5.42,5,0.100,,A
Misc : WG1557083,ICAL18187
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Oct 11 11:43:54 2021
Quant Method : I:\VOLATILES\VOA123\2021\211010N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V23211010N01.D•

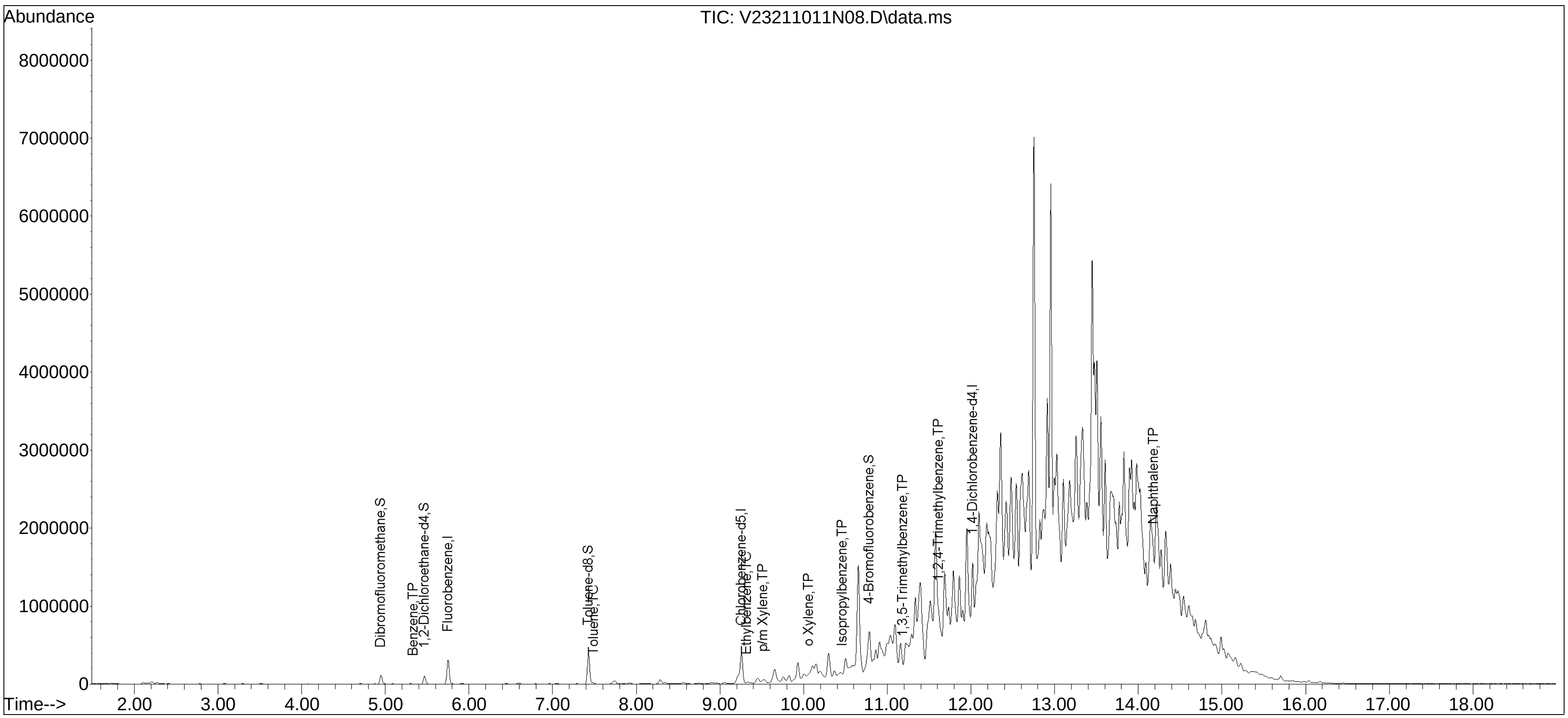


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2021\211011N\
Data File : V23211011N08.D
Acq On : 11 Oct 2021 10:12 pm
Operator : VOA123:JC
Sample : L2154149-14,31H,5.86,5,0.100,,A
Misc : WG1557472,ICAL18187
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Oct 12 08:12:08 2021
Quant Method : I:\VOLATILES\VOA123\2021\211011N\V123_210727N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jul 28 08:09:26 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11N\V23211011N02.D•

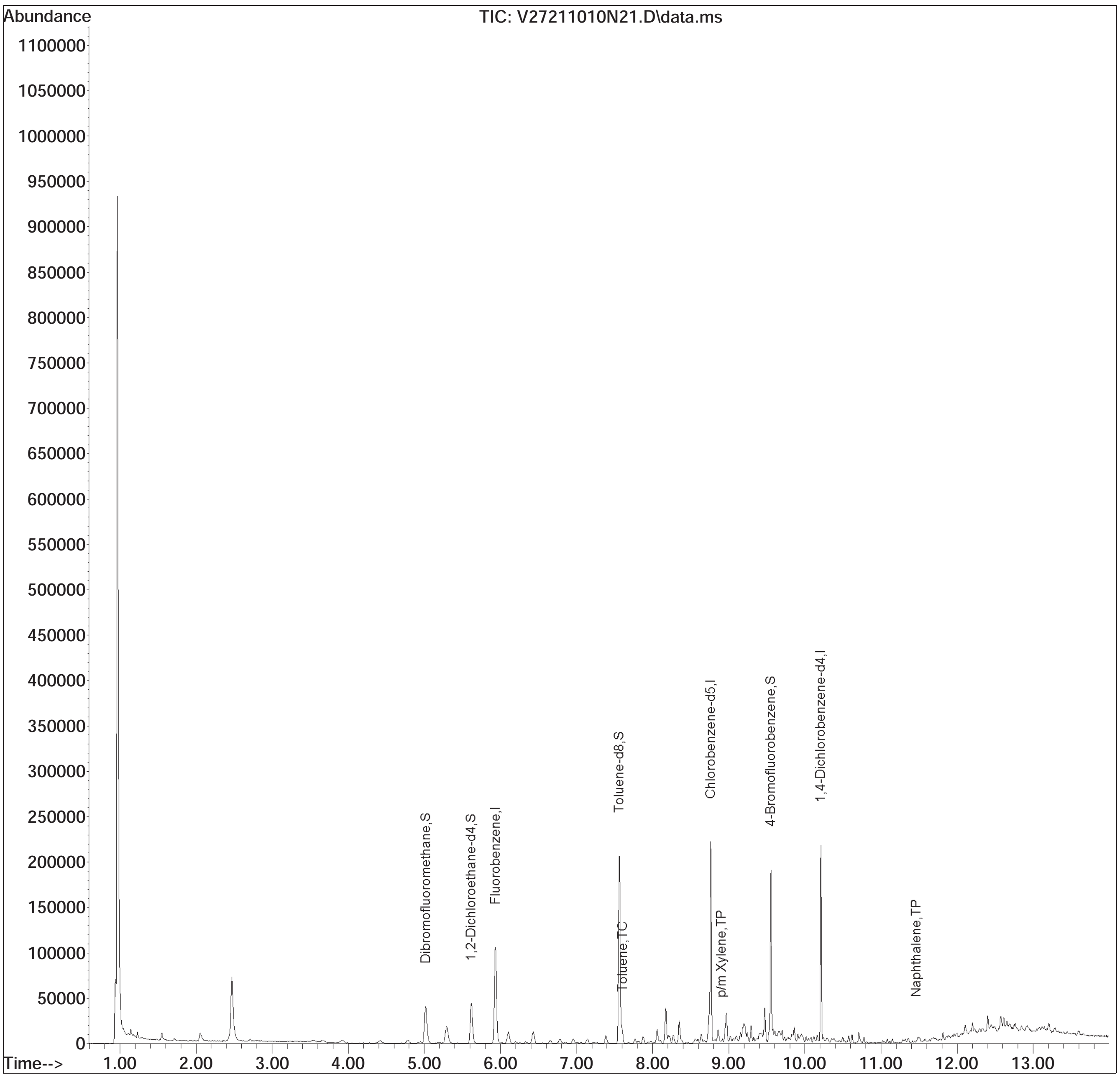


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2021\211010N\
Data File : V27211010N21.D
Acq On : 10 Oct 2021 11:17 pm
Operator : VOA127:NLK
Sample : L2154149-16,31,5.87,5,,B
Misc : WG1557127,ICAL18360
ALS Vial : 21 Sample Multiplier: 1

Quant Time: Oct 11 12:30:28 2021
Quant Method : I:\VOLATILES\VOA127\2021\211010N\V127_211005N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Oct 06 10:48:31 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list10N\V27211010N01.D•



ANALYTICAL REPORT

Lab Number:	L2206339
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206339-01	PB-204-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 10:30	02/07/22
L2206339-02	PB-204-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 10:40	02/07/22
L2206339-03	PB-204-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 11:30	02/07/22
L2206339-04	PB-204-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 11:40	02/07/22
L2206339-05	PB-204-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 11:50	02/07/22
L2206339-06	PB-204-06R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 12:20	02/07/22
L2206339-07	PB-204-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 12:25	02/07/22
L2206339-08	PB-204-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 12:30	02/07/22
L2206339-09	PB-33-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 13:00	02/07/22
L2206339-10	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2206339-11	PB-29-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/07/22 14:05	02/07/22
L2206339-12	PB-29-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:15	02/07/22
L2206339-13	PB-29-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:20	02/07/22
L2206339-14	PB-29-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/07/22 14:45	02/07/22
L2206339-15	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22
L2206339-16	FB-220207-1	WATER	PHILADELPHIA, PA	02/07/22 12:00	02/07/22
L2206339-17	FB-220207-2	WATER	PHILADELPHIA, PA	02/07/22 15:00	02/07/22
L2206339-18	TB-220207	WATER	PHILADELPHIA, PA	02/07/22 00:00	02/07/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2206339-01, -07, -09, and -14.

March 29, 2022: The Volatile Organics reporting list has been amended on L2206339-14.

February 22, 2022: This report includes the results of the Volatile Organics analysis performed on L2206339-07.

Report Submission

February 21, 2022: This final report includes the results of all requested analyses.

February 14, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206339-06 and -07: At the client's request, Naphthalene was analyzed by Method 8270D.

L2206339-16 and -17: Sample containers for Semivolatile Organics were received, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206339-01: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2206339-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (256%) and 4-bromofluorobenzene (132%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206339-01: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (65%) due to interference with the Internal Standard.

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Case Narrative (continued)

L2206339-07: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (164%) and 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206339-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals
L2206339-04 and -12: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.
The WG1602754-3 MS recovery, performed on L2206339-03, is outside the acceptance criteria for lead (178%). A post digestion spike was performed and yielded an unacceptable recovery of 61%. The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.
The WG1602754-6 serial dilution analysis, associated with L2206339-03, had a %D above the acceptance criteria for lead (22%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative

Date: 12/02/22

ORGANICS

VOLATILES

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-01	Date Collected:	02/07/22 10:30
Client ID:	PB-204-11R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 10:02
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.018	J	mg/kg	0.14	0.014	1
Benzene	0.19		mg/kg	0.034	0.011	1
Toluene	0.068	J	mg/kg	0.069	0.037	1
1,2-Dibromoethane	ND		mg/kg	0.034	0.020	1
Ethylbenzene	0.25		mg/kg	0.069	0.0097	1
p/m-Xylene	2.5		mg/kg	0.14	0.038	1
o-Xylene	0.15		mg/kg	0.069	0.020	1
Xylenes, Total	2.6		mg/kg	0.069	0.020	1
Isopropylbenzene	9.4		mg/kg	0.069	0.0075	1
1,3,5-Trimethylbenzene	0.86		mg/kg	0.14	0.013	1
1,2,4-Trimethylbenzene	0.29		mg/kg	0.14	0.023	1
Naphthalene	0.96		mg/kg	0.27	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	**256**	Q	70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	**65**	Q	70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-07	Date Collected:	02/07/22 12:25
Client ID:	PB-204-06R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:32
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.017		mg/kg	0.0019	0.00019	1
Benzene	0.036		mg/kg	0.00048	0.00016	1
Toluene	0.0091		mg/kg	0.00096	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	0.039		mg/kg	0.00096	0.00014	1
p/m-Xylene	0.11		mg/kg	0.0019	0.00054	1
o-Xylene	0.048		mg/kg	0.00096	0.00028	1
Xylenes, Total	0.16		mg/kg	0.00096	0.00028	1
Isopropylbenzene	0.039		mg/kg	0.00096	0.00010	1
1,3,5-Trimethylbenzene	0.069		mg/kg	0.0019	0.00019	1
1,2,4-Trimethylbenzene	0.18		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**164**	Q	70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-09 D
Client ID: PB-33-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/10/22 04:46
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	44.		mg/kg	1.1	0.18	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-09 D
Client ID: PB-33-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 13:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 09:21
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.21	0.021	2
Benzene	5.2		mg/kg	0.053	0.018	2
Toluene	0.19		mg/kg	0.11	0.058	2
1,2-Dibromoethane	ND		mg/kg	0.053	0.031	2
Ethylbenzene	21.		mg/kg	0.11	0.015	2
p/m-Xylene	36.		mg/kg	0.21	0.060	2
o-Xylene	0.12		mg/kg	0.11	0.031	2
Xylenes, Total	36.		mg/kg	0.11	0.031	2
Isopropylbenzene	4.1		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	17.		mg/kg	0.21	0.020	2
1,2,4-Trimethylbenzene	55.	E	mg/kg	0.21	0.036	2
Naphthalene	4.2		mg/kg	0.42	0.069	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-14 D	Date Collected:	02/07/22 14:45
Client ID:	PB-29-03R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/10/22 05:28
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	920		mg/kg	10	2.9	100
Xylenes, Total	1300		mg/kg	1.3	0.38	100
1,2,4-Trimethylbenzene	540		mg/kg	10	1.7	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-14 D
Client ID: PB-29-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:45
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 09:41
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	4.6		mg/kg	2.6	0.26	25
Benzene	110		mg/kg	0.65	0.22	25
Toluene	200		mg/kg	1.3	0.70	25
1,2-Dibromoethane	ND		mg/kg	0.65	0.38	25
Ethylbenzene	240		mg/kg	1.3	0.18	25
p/m-Xylene	1100	E	mg/kg	2.6	0.72	25
o-Xylene	350		mg/kg	1.3	0.38	25
Isopropylbenzene	26.		mg/kg	1.3	0.14	25
1,3,5-Trimethylbenzene	200		mg/kg	2.6	0.25	25
1,2,4-Trimethylbenzene	600	E	mg/kg	2.6	0.43	25
Naphthalene	79.		mg/kg	5.2	0.84	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-16
Client ID: FB-220207-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 12:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/22 12:59
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-17
Client ID: FB-220207-2
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 15:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/22 13:20
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-18
Client ID: TB-220207
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 00:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/08/22 13:40
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	107		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/08/22 08:13
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 16-18 Batch: WG1602841-5					
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	101		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 20:50
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09,14 Batch: WG1603508-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	99		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 08:38
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,09,14 Batch: WG1604734-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	108		70-130

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07 Batch: WG1607838-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03
Lab Number: L2206339
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 16-18 Batch: WG1602841-3 WG1602841-4								
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	97		100		70-130	3		20
Ethylbenzene	100		110		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		90		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	99		98		70-130
Dibromofluoromethane	101		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09,14 Batch: WG1603508-3 WG1603508-4								
Methyl tert butyl ether	84		88		66-130	5		30
Benzene	92		103		70-130	11		30
Toluene	95		108		70-130	13		30
1,2-Dibromoethane	97		111		70-130	13		30
Ethylbenzene	93		106		70-130	13		30
p/m-Xylene	97		110		70-130	13		30
o-Xylene	99		108		70-130	9		30
Isopropylbenzene	102		113		70-130	10		30
1,3,5-Trimethylbenzene	104		114		70-130	9		30
1,2,4-Trimethylbenzene	104		114		70-130	9		30
Naphthalene	97		112		70-130	14		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		81		70-130
Toluene-d8	102		104		70-130
4-Bromofluorobenzene	106		104		70-130
Dibromofluoromethane	89		87		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,09,14 Batch: WG1604734-3 WG1604734-4								
Methyl tert butyl ether	82		82		66-130	0		30
Benzene	97		103		70-130	6		30
Toluene	97		104		70-130	7		30
1,2-Dibromoethane	92		92		70-130	0		30
Ethylbenzene	99		105		70-130	6		30
p/m-Xylene	103		109		70-130	6		30
o-Xylene	102		107		70-130	5		30
Isopropylbenzene	98		109		70-130	11		30
1,3,5-Trimethylbenzene	102		114		70-130	11		30
1,2,4-Trimethylbenzene	101		110		70-130	9		30
Naphthalene	92		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07 Batch: WG1607838-3 WG1607838-4								
Methyl tert butyl ether	89		82		66-130	8		30
Benzene	101		94		70-130	7		30
Toluene	105		100		70-130	5		30
1,2-Dibromoethane	100		92		70-130	8		30
Ethylbenzene	105		100		70-130	5		30
p/m-Xylene	108		101		70-130	7		30
o-Xylene	108		99		70-130	9		30
Isopropylbenzene	114		107		70-130	6		30
1,3,5-Trimethylbenzene	111		104		70-130	7		30
1,2,4-Trimethylbenzene	106		101		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	92		88		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	103		101		70-130
Dibromofluoromethane	93		90		70-130

SEMIVOLATILES

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-06	Date Collected:	02/07/22 12:20
Client ID:	PB-204-06R-0.0-0.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:15
Analytical Date:	02/13/22 13:04		
Analyst:	CMM		
Percent Solids:	78%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	66		18-120

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-07	Date Collected:	02/07/22 12:25
Client ID:	PB-204-06R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:15
Analytical Date:	02/13/22 13:28		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	58		18-120

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-16	Date Collected:	02/07/22 12:00
Client ID:	FB-220207-1	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 11:53		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.05	J	ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	91		15-120
4-Terphenyl-d14	102		41-149

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-17	Date Collected:	02/07/22 15:00
Client ID:	FB-220207-2	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 12:10		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	64		15-120
4-Terphenyl-d14	76		41-149

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 11:30
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:15

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 11:37
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 16-17 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Number: L2206339

Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 16-17 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

METALS

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-03	Date Collected:	02/07/22 11:30
Client ID:	PB-204-01R-0.0-0.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	61.6		mg/kg	2.32	0.125	1	02/08/22 22:02	02/10/22 12:03	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE | **Lab Number:** L2206339

Project Number: 200.00135.005.03 | **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-04 | Date Collected: 02/07/22 11:40

Client ID: PB-204-01R-6.0-6.5 | Date Received: 02/07/22

Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.16	J	mg/kg	11.9	0.639	5	02/08/22 22:02	02/10/22 14:47	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-11	Date Collected:	02/07/22 14:05
Client ID:	PB-29-02R-0.0-0.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2500		mg/kg	2.34	0.125	1	02/08/22 22:02	02/10/22 13:07	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-12
Date Collected: 02/07/22 14:15
Client ID: PB-29-02R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.53	J	mg/kg	12.2	0.657	5	02/08/22 22:02	02/10/22 14:52	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-16	Date Collected:	02/07/22 12:00
Client ID:	FB-220207-1	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 11:01	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-17
Client ID: FB-220207-2
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 15:00
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 11:06	EPA 3005A	1,6020B	CD

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 16-17 Batch: WG1602709-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 04:04	02/09/22 10:30	1,6020B	CD

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,11-12 Batch: WG1602754-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/08/22 22:02	02/10/22 11:40	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 Batch: WG1602709-2								
Lead, Total	93		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 Batch: WG1602754-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 16-17 QC Batch ID: WG1602709-3 QC Sample: L2206625-01 Client ID: MS Sample												
Lead, Total	ND	530	488.4	92		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-3 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5												
Lead, Total	61.6	49	149	**178**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-4 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	63.4	mg/kg	3		20

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206339
Report Date: 12/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,11-12 QC Batch ID: WG1602754-6 QC Sample: L2206339-03 Client ID: PB-204-01R-0.0-0.5						
Lead, Total	61.6	75.0	mg/kg	**22**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-01
Client ID: PB-204-11R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 10:30
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.4		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-03
Date Collected: 02/07/22 11:30
Client ID: PB-204-01R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-04
Date Collected: 02/07/22 11:40
Client ID: PB-204-01R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.3		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-06	Date Collected:	02/07/22 12:20
Client ID:	PB-204-06R-0.0-0.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-07
Date Collected: 02/07/22 12:25
Client ID: PB-204-06R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-09
Date Collected: 02/07/22 13:00
Client ID: PB-33-05R-6.0-6.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Lab Number: L2206339
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-11
Date Collected: 02/07/22 14:05
Client ID: PB-29-02R-0.0-0.5
Date Received: 02/07/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2206339
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206339-12	Date Collected:	02/07/22 14:15
Client ID:	PB-29-02R-6.0-6.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.7		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206339-14
Client ID: PB-29-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/07/22 14:45
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.5		%	0.100	NA	1	-	02/08/22 09:40	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2206339
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09,11-12,14 QC Batch ID: WG1602482-1 QC Sample: L2206339-01 Client ID: PB-204-11R-6.0-6.5						
Solids, Total	83.4	83.1	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-01D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-02A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-02B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-02D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-03A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-03B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-04A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-04B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		PB-TI(180)
L2206339-05A	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-05B	Glass 60mL/2oz unpreserved	A	NA		2.8	Y	Absent		HOLD-METAL(180)
L2206339-06A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-06B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-06D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-06E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-07A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2206339-07B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2206339-07C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-AST CLOSURE

Project Number: 200.00135.005.03

Lab Number: L2206339

Report Date: 12/02/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-07D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-07E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		PA-PAH(14)
L2206339-08A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-08B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-08D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-08E	Glass 120ml/4oz unpreserved	A	NA		2.8	Y	Absent		HOLD-8270(14)
L2206339-09A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW(14)
L2206339-09B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-09D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		TS(7)
L2206339-10A	Vial MeOH preserved	A	NA		2.8	Y	Absent		HOLD-8260HLW(14)
L2206339-10B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-10D	Plastic 120ml unpreserved	A	NA		2.8	Y	Absent		HOLD-WETCHEM()
L2206339-11A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-11B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-12A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-12B	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		PB-TI(180)
L2206339-13A	Glass 60mL/2oz unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-13B	Glass 250ml/8oz unpreserved	B	NA		3.8	Y	Absent		HOLD-METAL(180)
L2206339-14A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW(14)
L2206339-14B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW(14)
L2206339-14D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		TS(7)
L2206339-15A	Vial MeOH preserved	B	NA		3.8	Y	Absent		HOLD-8260HLW(14)
L2206339-15B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)
L2206339-15C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206339-15D	Plastic 120ml unpreserved	B	NA		3.8	Y	Absent		HOLD-WETCHEM()
L2206339-16A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-16D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-16E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-16F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17C	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-17D	Plastic 250ml HNO3 preserved	B	<2	<2	3.8	Y	Absent		PB-6020T-PPB(180)
L2206339-17E	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-17F	Amber 1000ml unpreserved	B	7	7	3.8	Y	Absent		PA-PAHSIM(7)
L2206339-18A	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)
L2206339-18B	Vial HCl preserved	B	NA		3.8	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2206339
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 2/8/22

ALPHA Job #: L2206339

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8260)	Ethyl Benzene	1,2-DBA (Dibromo ethane)					Sample Specific Comments	Total # Bottles
06339-01	PB-204-11R-6.0-6.5	2/7	1030	S	TS	☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐		
02	PB-204-11R-14.0-14.5		1040			☐	☐	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	HOLD	
03	PB-204-01R-0.0-0.5		1130			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
04	PB-204-01R-6.0-6.5		1140			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
05	PB-204-01R-14.0-14.5		1150			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	
06	PB-204-06R-0.0-0.5		1220			☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
07	PB-204-06R-6.0-6.5		1225			☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
08	PB-204-06R-14.0-14.5		1230			☐	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐	HOLD	
09	~~PB-xxxx~~ PB-33-05R-6.0-6.5		1300			☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐		
10	PB-33-05R-14.0-14.5		1310			☐	☑	☑	☐	☐	☐	☑	☐	☐	☐	☐	☐	HOLD	
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] 1303	2/7 1515	[signature]	2/7 1515
[signature]	2/7 2030	[signature]	2/7 1930
Anthony Pierce	2/7/22	Anthony Pierce	2/7/22 2030
[signature]	2/7/22 2130	[signature] AAC	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(MA) (rev. 8-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA — TEL: 508-898-9220 — FAX: 508-898-9193
Mansfield, MA — TEL: 508-822-9300 — FAX: 508-822-3288

Date Rec'd in Lab: 2/8/22

ALPHA Job #: L2206339

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com
☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Sampling
Criteria:

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene (8260)	ETHYL-BENZENE	1,2-DBA (DIBROMOETHANE)					Sample Specific Comments
06339-11	PB-29-02R-0.0-0.5	2/7	1405	S	TS	✓												
12	PB-29-02R-6.0-6.5		1415			✓												
13	PB-29-02R-14.0-14.5		1420			✓												HOLD
14	PB-29-03R-6.0-6.5		1445				✓	✓										
15	PB-29-03R-14.0-14.5		1455				✓	✓										HOLD
16	~~[illegible]~~ FB-220207-1		1200			✓	✓	✓			✓	✓	✓					
17	FB-220207-2		1500			✓	✓	✓			✓	✓	✓					
18	TB-220207		-				✓	✓			✓	✓						

TOTAL # BOTTLES

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	2/7 1515	[illegible]	2/7 1515
[illegible]	1800	AmP	2/7 1960
AmP	2/7 2030	[illegible]	2/7/22 2030
[illegible]	2/7/22	[illegible]	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

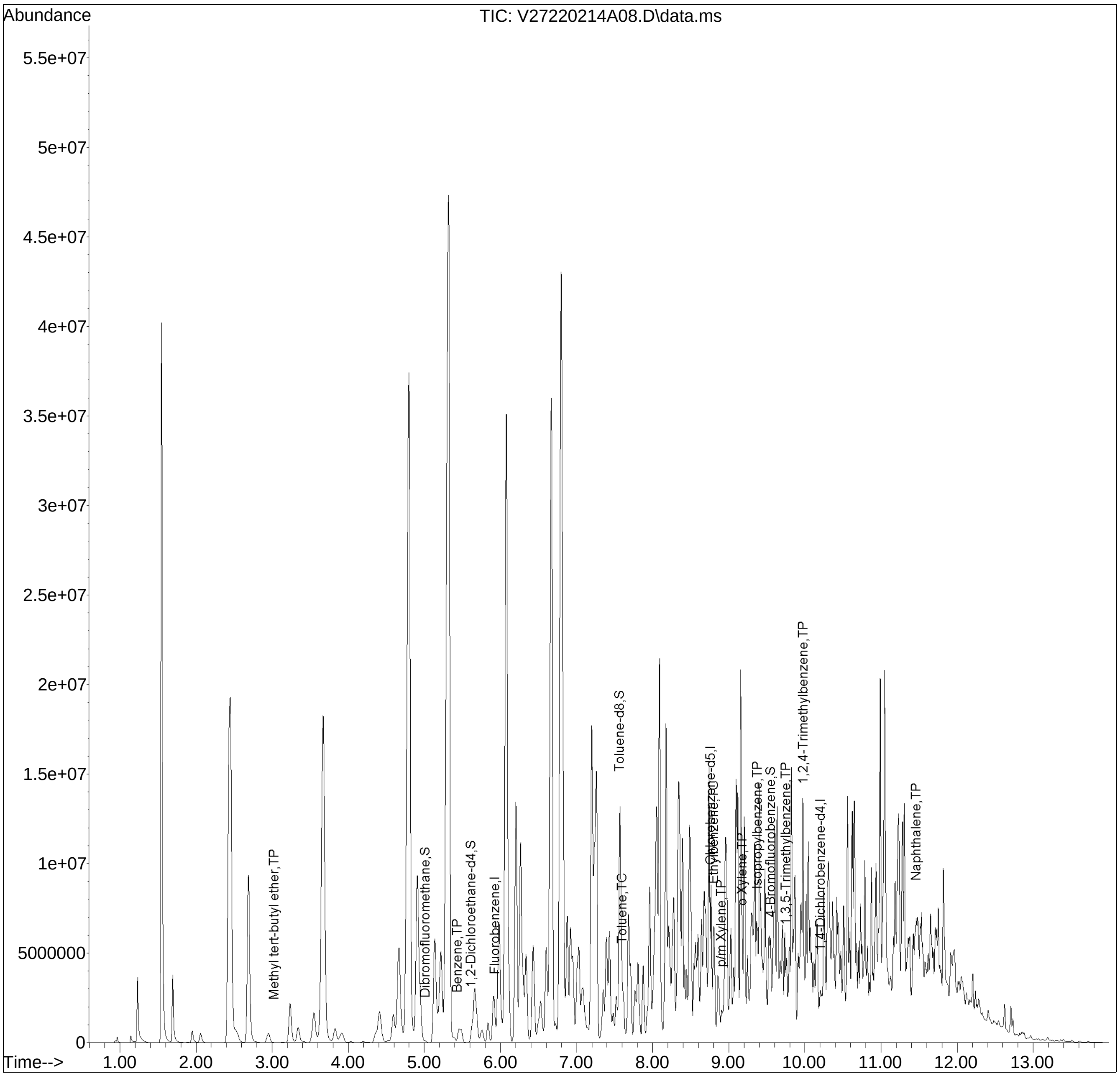
FORM NO: 01-01(HJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
Data File : V27220214A08.D
Acq On : 14 Feb 2022 10:02 am
Operator : VOA127:AJK
Sample : l2206339-01,31H,5.11,5,0.100,,a
Misc : WG1604734,ICAL18638
ALS Vial : 8 Sample Multiplier: 1

Quant Time: Feb 14 11:46:43 2022
Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•

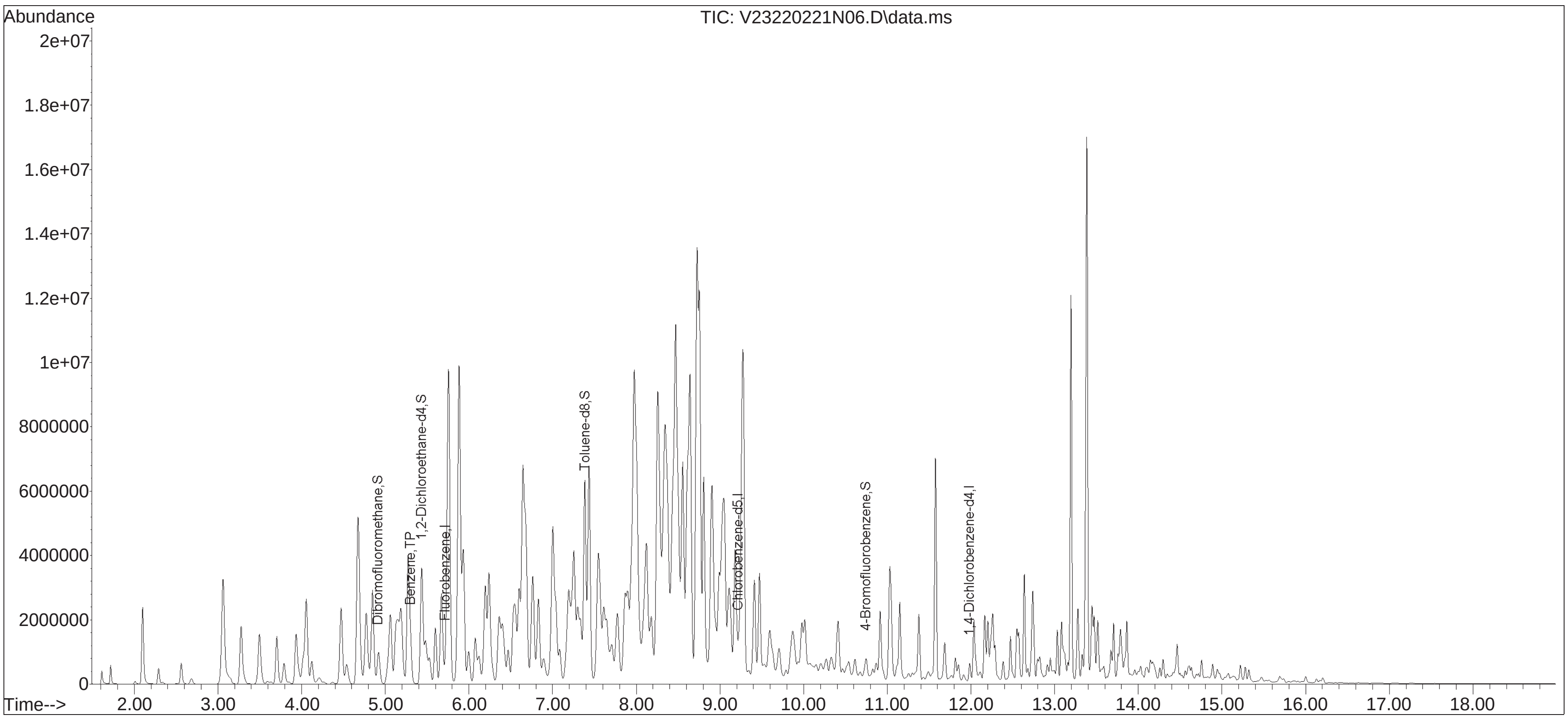


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220221N\
Data File : V23220221N06.D
Acq On   : 21 Feb 2022 08:32 pm
Operator : VOA123:AJK
Sample   : l2206339-07,31,6.17,5,,b
Misc   : WG1607838,ICAL18401
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Feb 22 13:01:12 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List   : 8260-Benzene - benzene only2\220221N\V23220221N01.D•

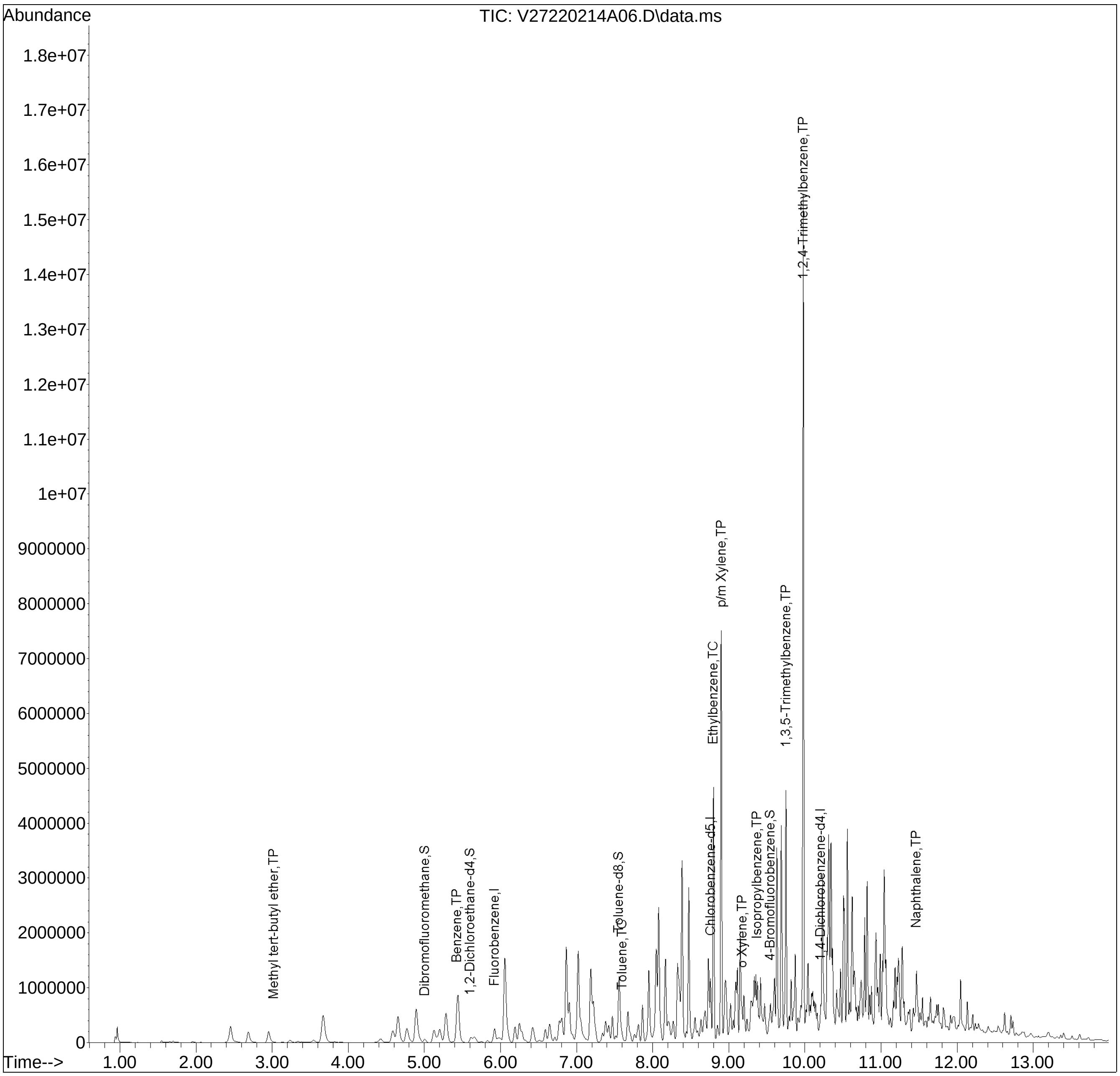


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220214A\
Data File : V27220214A06.D
Acq On : 14 Feb 2022 09:21 am
Operator : VOA127:AJK
Sample : l2206339-09D2,31H,7.02,5,0.050,,a
Misc : WG1604734,ICAL18638
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 14 11:45:49 2022
Quant Method : I:\VOLATILES\VOA127\2022\220214A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V27220214A02.D•



ANALYTICAL REPORT

Lab Number:	L2206606
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206606-01	PB-29-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 09:35	02/08/22
L2206606-02	PB-29-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 09:45	02/08/22
L2206606-03	PB-29-15R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 10:35	02/08/22
L2206606-04	PB-29-15R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 10:45	02/08/22
L2206606-05	PB-29-15R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 10:55	02/08/22
L2206606-06	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:10	02/08/22
L2206606-07	PB-29-28-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 11:15	02/08/22
L2206606-08	PB-29-28-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 11:25	02/08/22
L2206606-09	PB-29-26R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 11:30	02/08/22
L2206606-10	PB-27-01R-3.5-4.0	SOIL	PHILADELPHIA, PA	02/08/22 12:25	02/08/22
L2206606-11	PB-27-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 12:30	02/08/22
L2206606-12	PB-27-02R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:05	02/08/22
L2206606-13	PB-27-02R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:10	02/08/22
L2206606-14	PB-27-02R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:15	02/08/22
L2206606-15	PB-27-18-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 13:25	02/08/22
L2206606-16	PB-27-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/08/22 13:30	02/08/22
L2206606-17	PB-27-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/08/22 13:35	02/08/22
L2206606-18	PB-27-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/08/22 12:20	02/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2206606-01, -06, -07, -08, and -13 through -16.

March 29, 2022: The Volatile Organics reporting list has been amended on L2206606-14, -15, and -16.

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206606-14.

February 28, 2022: This preliminary report includes the results of the Volatile Organics analysis performed on L2206606-08 and the Total Lead analysis performed on L2206606-15 and -16.

Report Revision

February 22, 2022: At the client's request, the Volatile Organics reporting list has been amended on L2206606-06 and -07.

Report Submission

February 15, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206606-12: Sample containers for Volatile Organics were received for the "PB-27-02R-0.0-0.5" sample, but were not listed on the chain of custody. At the client's request, the analysis was not performed.

Volatile Organics

L2206606-01: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (141%) and 4-

Case Narrative (continued)

bromofluorobenzene (288%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (57%) and dibromofluoromethane (61%) due to interference with the Internal Standard.
L2206606-07: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (136%) and 4-bromofluorobenzene (285%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-08 and -14D: The sample was analyzed with the method required holding time exceeded.
L2206606-13D2: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (204%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-13D2: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (64%) due to interference with the Internal Standard.
L2206606-14D: The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis.
L2206606-14D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206606-15: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed to vial discrepancies.
L2206606-15: The sample was received in the appropriate containers (vials) for the Volatile Organics by EPA Method 5035/8260 Low Level analysis; however, analysis yielded no reportable data. With the client's authorization, a sample aliquot was taken from an unpreserved container (inappropriate plastic) and preserved appropriately.
L2206606-16: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed

Case Narrative (continued)

due to the elevated concentrations of non-target compounds in the sample.
L2206606-16: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals
L2206606-03: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.
The WG1607927-3 MS recovery for lead (15%), performed on L2206606-15, does not apply because the sample concentration is greater than four times the spike amount added.
The WG1607927-6 serial dilution analysis, associated with L2206606-15, had a %D above the acceptance criteria for lead (43%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-01
Client ID: PB-29-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 09:35
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 08:48
Analyst: NLK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.37		mg/kg	0.00062	0.00020	1
Toluene	0.012		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	0.21		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.037		mg/kg	0.0025	0.00069	1
o-Xylene	0.0085		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.046		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.067		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.0071		mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**57**	Q	70-130
Toluene-d8	**141**	Q	70-130
4-Bromofluorobenzene	**288**	Q	70-130
Dibromofluoromethane	**61**	Q	70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-06	Date Collected:	02/08/22 11:10
Client ID:	PB-29-28-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 16:28
Analyst: AJK
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0042		mg/kg	0.0029	0.00030	1
Benzene	0.0027		mg/kg	0.00073	0.00024	1
Toluene	0.0015		mg/kg	0.0015	0.00080	1
1,2-Dibromoethane	ND		mg/kg	0.00073	0.00043	1
Ethylbenzene	0.0016		mg/kg	0.0015	0.00021	1
p/m-Xylene	0.0039		mg/kg	0.0029	0.00082	1
o-Xylene	0.0011	J	mg/kg	0.0015	0.00043	1
Xylenes, Total	0.0050	J	mg/kg	0.0015	0.00043	1
Isopropylbenzene	0.00073	J	mg/kg	0.0015	0.00016	1
1,3,5-Trimethylbenzene	0.0023	J	mg/kg	0.0029	0.00028	1
1,2,4-Trimethylbenzene	0.0074		mg/kg	0.0029	0.00049	1
Naphthalene	ND		mg/kg	0.0059	0.00096	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-07	Date Collected:	02/08/22 11:15
Client ID:	PB-29-28-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:41
Analyst: AJK
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0		mg/kg	0.14	0.014	1
Benzene	7.0		mg/kg	0.035	0.012	1
Toluene	8.1		mg/kg	0.070	0.038	1
1,2-Dibromoethane	ND		mg/kg	0.035	0.020	1
Ethylbenzene	8.7		mg/kg	0.070	0.0099	1
p/m-Xylene	22.		mg/kg	0.14	0.039	1
o-Xylene	7.1		mg/kg	0.070	0.020	1
Xylenes, Total	29.		mg/kg	0.070	0.020	1
Isopropylbenzene	3.5		mg/kg	0.070	0.0076	1
1,3,5-Trimethylbenzene	3.2		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	9.4		mg/kg	0.14	0.023	1
Naphthalene	2.3		mg/kg	0.28	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	**136**	Q	70-130
4-Bromofluorobenzene	**285**	Q	70-130
Dibromofluoromethane	78		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-08
Client ID: PB-29-28-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:25
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 01:18
Analyst: KDU
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	6.0		mg/kg	0.032	0.011	1
Toluene	16.		mg/kg	0.064	0.035	1
Ethylbenzene	4.8		mg/kg	0.064	0.0090	1
p/m-Xylene	13.		mg/kg	0.13	0.036	1
o-Xylene	4.6		mg/kg	0.064	0.019	1
Xylenes, Total	18.		mg/kg	0.064	0.019	1
Naphthalene	1.1		mg/kg	0.26	0.042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-13 D2
Client ID: PB-27-02R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:31
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	2.5		mg/kg	0.59	0.059	5
Benzene	19.		mg/kg	0.15	0.049	5
Toluene	150	E	mg/kg	0.29	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.086	5
Ethylbenzene	94.	E	mg/kg	0.29	0.041	5
p/m-Xylene	310	E	mg/kg	0.59	0.16	5
o-Xylene	100		mg/kg	0.29	0.085	5
Isopropylbenzene	17.		mg/kg	0.29	0.032	5
1,3,5-Trimethylbenzene	57.		mg/kg	0.59	0.056	5
1,2,4-Trimethylbenzene	160	E	mg/kg	0.59	0.098	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**204**	Q	70-130
Dibromofluoromethane	**64**	Q	70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-13 D
Client ID: PB-27-02R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:10
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 17:18
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	170		mg/kg	5.9	3.2	100
Ethylbenzene	100		mg/kg	5.9	0.83	100
p/m-Xylene	360		mg/kg	12	3.3	100
Xylenes, Total	460		mg/kg	0.29	0.085	100
1,2,4-Trimethylbenzene	180		mg/kg	12	2.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-14 D
Client ID: PB-27-02R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:15
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:38
Analyst: AJK
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.38		mg/kg	0.27	0.027	2
Benzene	6.6		mg/kg	0.068	0.023	2
Toluene	12.		mg/kg	0.14	0.074	2
1,2-Dibromoethane	ND		mg/kg	0.068	0.040	2
Ethylbenzene	31.		mg/kg	0.14	0.019	2
p/m-Xylene	110	E	mg/kg	0.27	0.076	2
o-Xylene	31.		mg/kg	0.14	0.040	2
Isopropylbenzene	4.0		mg/kg	0.14	0.015	2
1,3,5-Trimethylbenzene	19.		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	53.	E	mg/kg	0.27	0.046	2
Naphthalene	7.6		mg/kg	0.54	0.089	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 17:43
Analyst: AJK
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.025	J	mg/kg	0.10	0.010	1
Benzene	0.034		mg/kg	0.026	0.0085	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	0.0078	J	mg/kg	0.051	0.0072	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.051	0.015	1
Xylenes, Total	ND		mg/kg	0.051	0.015	1
Isopropylbenzene	0.032	J	mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-15
Client ID: PB-27-18-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:51
Analyst: KJD
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00087	J	mg/kg	0.0022	0.00022	1
Benzene	0.00085		mg/kg	0.00054	0.00018	1
Toluene	0.0047		mg/kg	0.0011	0.00059	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00032	1
Ethylbenzene	0.0013		mg/kg	0.0011	0.00015	1
p/m-Xylene	0.0043		mg/kg	0.0022	0.00061	1
o-Xylene	0.0015		mg/kg	0.0011	0.00032	1
Xylenes, Total	0.0058		mg/kg	0.0011	0.00032	1
Isopropylbenzene	0.0013		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00058	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.0011	J	mg/kg	0.0022	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	116		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-16
Client ID: PB-27-18-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:30
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:06
Analyst: AJK
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.017	J	mg/kg	0.15	0.015	1
Benzene	0.016	J	mg/kg	0.038	0.013	1
Toluene	ND		mg/kg	0.077	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.038	0.022	1
Ethylbenzene	0.026	J	mg/kg	0.077	0.011	1
p/m-Xylene	ND		mg/kg	0.15	0.043	1
o-Xylene	0.034	J	mg/kg	0.077	0.022	1
Xylenes, Total	0.034	J	mg/kg	0.077	0.022	1
Isopropylbenzene	2.4		mg/kg	0.077	0.0084	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.15	0.015	1
1,2,4-Trimethylbenzene	0.033	J	mg/kg	0.15	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06 Batch: WG1603548-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13,15 Batch: WG1603551-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:16
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07,13,16 Batch: WG1605129-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 08:27
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01 Batch: WG1605187-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 15 Batch: WG1605212-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 14 Batch: WG1608829-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06 Batch: WG1603548-3 WG1603548-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
1,2-Dibromoethane	87		97		70-130	11		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
Isopropylbenzene	86		95		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30
Naphthalene	90		99		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13,15 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
Toluene	85		93		70-130	9		30
1,2-Dibromoethane	87		97		70-130	11		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
Isopropylbenzene	86		95		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07,13,16 Batch: WG1605129-3 WG1605129-4								
Methyl tert butyl ether	89		96		66-130	8		30
Benzene	92		96		70-130	4		30
Toluene	100		102		70-130	2		30
1,2-Dibromoethane	97		100		70-130	3		30
Ethylbenzene	102		103		70-130	1		30
p/m-Xylene	99		100		70-130	1		30
o-Xylene	97		99		70-130	2		30
Isopropylbenzene	105		105		70-130	0		30
1,3,5-Trimethylbenzene	104		105		70-130	1		30
1,2,4-Trimethylbenzene	102		104		70-130	2		30
Naphthalene	95		101		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	110		113		70-130
Toluene-d8	107		105		70-130
4-Bromofluorobenzene	114		109		70-130
Dibromofluoromethane	93		94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01 Batch: WG1605187-3 WG1605187-4								
Methyl tert butyl ether	79		81		66-130	3		30
Benzene	91		90		70-130	1		30
Toluene	97		92		70-130	5		30
1,2-Dibromoethane	99		94		70-130	5		30
Ethylbenzene	96		91		70-130	5		30
p/m-Xylene	99		94		70-130	5		30
o-Xylene	102		97		70-130	5		30
Isopropylbenzene	108		99		70-130	9		30
1,3,5-Trimethylbenzene	108		100		70-130	8		30
1,2,4-Trimethylbenzene	109		101		70-130	8		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		82		70-130
Toluene-d8	102		101		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	87		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 15 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 14 Batch: WG1608829-8 WG1608829-9								
Methyl tert butyl ether	84		84		66-130	0		30
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
1,2-Dibromoethane	100		95		70-130	5		30
Ethylbenzene	98		100		70-130	2		30
p/m-Xylene	98		104		70-130	6		30
o-Xylene	96		103		70-130	7		30
Isopropylbenzene	121		108		70-130	11		30
1,3,5-Trimethylbenzene	108		103		70-130	5		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30
Naphthalene	107		103		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30
Toluene	82		81		70-130	1		30
Ethylbenzene	78		77		70-130	1		30
p/m-Xylene	85		83		70-130	2		30
o-Xylene	84		83		70-130	1		30
Naphthalene	92		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-01	Date Collected:	02/08/22 09:35
Client ID:	PB-29-08R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 13:52		
Analyst:	WR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	101		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	72		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-09	Date Collected:	02/08/22 11:30
Client ID:	PB-29-26R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 14:15		
Analyst:	WR		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.026	J	mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	107		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	79		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-10	Date Collected:	02/08/22 12:25
Client ID:	PB-27-01R-3.5-4.0	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 14:37		
Analyst:	WR		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.63		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**126**	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	80		18-120

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-12	Date Collected:	02/08/22 13:05
Client ID:	PB-27-02R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:00		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.036	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**124**	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-13	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:22		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-15	Date Collected:	02/08/22 13:25
Client ID:	PB-27-18-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 15:45		
Analyst:	WR		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	35		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-16	Date Collected:	02/08/22 13:30
Client ID:	PB-27-18-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:07		
Analyst:	WR		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	37		30-120
4-Terphenyl-d14	36		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-18	Date Collected:	02/08/22 12:20
Client ID:	PB-27-01R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:30		
Analyst:	WR		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	42		23-120
2-Fluorobiphenyl	**27**	Q	30-120
4-Terphenyl-d14	24		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/13/22 11:30	Extraction Date:	02/12/22 03:15
Analyst:	CMM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE

Project Number: 200.00135.005.03

Lab Number: L2206606

Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01,09-10,12-13,15-16,18 Batch: WG1604252-2 WG1604252-3								
Naphthalene	70		65		40-140	7		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	77		71		23-120
2-Fluorobiphenyl	76		70		30-120
4-Terphenyl-d14	71		64		18-120

METALS

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-03	Date Collected:	02/08/22 10:35
Client ID:	PB-29-15R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.57	J	mg/kg	11.3	0.604	5	02/09/22 22:45	02/13/22 18:41	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-04	Date Collected:	02/08/22 10:45
Client ID:	PB-29-15R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.39		mg/kg	2.37	0.127	1	02/09/22 22:45	02/13/22 14:48	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-09	Date Collected:	02/08/22 11:30
Client ID:	PB-29-26R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	274		mg/kg	2.06	0.111	1	02/09/22 22:45	02/13/22 14:52	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-10
Date Collected: 02/08/22 12:25
Client ID: PB-27-01R-3.5-4.0
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	16.9		mg/kg	2.32	0.124	1	02/09/22 22:45	02/13/22 15:38	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-12	Date Collected:	02/08/22 13:05
Client ID:	PB-27-02R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1210		mg/kg	2.38	0.127	1	02/10/22 22:22	02/13/22 12:48	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-13	Date Collected:	02/08/22 13:10
Client ID:	PB-27-02R-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.00		mg/kg	2.35	0.126	1	02/09/22 22:45	02/13/22 15:42	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-15
Client ID: PB-27-18-0.0-0.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:25
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	330		mg/kg	2.14	0.115	1	02/23/22 07:45	02/28/22 13:47	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-16
Client ID: PB-27-18-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:30
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	32.6		mg/kg	2.40	0.128	1	02/23/22 07:45	02/28/22 13:33	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-18	Date Collected:	02/08/22 12:20
Client ID:	PB-27-01R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	273		mg/kg	2.30	0.123	1	02/09/22 22:45	02/13/22 15:47	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04,09-10,13,18 Batch: WG1603164-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 12 Batch: WG1603583-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/10/22 22:22	02/13/22 11:49	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 15-16 Batch: WG1607927-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 07:45	02/28/22 13:24	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,09-10,13,18 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 12 Batch: WG1603583-2 SRM Lot Number: D113-540								
Lead, Total	108		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 15-16 Batch: WG1607927-2 SRM Lot Number: D113-540								
Lead, Total	97		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206606
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04,09-10,13,18 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	**73**	Q	41.5	**65**	Q	75-125	9		20
Total Metals - Mansfield Lab Associated sample(s): 12 QC Batch ID: WG1603583-3 WG1603583-4 QC Sample: L2206791-01 Client ID: MS Sample												
Lead, Total	18.7	66.7	69.3	76		74.5	82		75-125	7		20
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-3 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5												
Lead, Total	330	45.7	337	**15**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-4 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	324	mg/kg	2		20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206606
Report Date: 12/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 15-16 QC Batch ID: WG1607927-6 QC Sample: L2206606-15 Client ID: PB-27-18-0.0-0.5						
Lead, Total	330	472	mg/kg	**43**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-01
Client ID: PB-29-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 09:35
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.8		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-03
Client ID: PB-29-15R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 10:35
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-04
Client ID: PB-29-15R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 10:45
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-06
Client ID: PB-29-28-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 11:10
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-07
Client ID: PB-29-28-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 11:15
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.6		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-08	Date Collected:	02/08/22 11:25
Client ID:	PB-29-28-14.0-14.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-09	Date Collected:	02/08/22 11:30
Client ID:	PB-29-26R-0.0-0.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-10
Client ID: PB-27-01R-3.5-4.0
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 12:25
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-12
Date Collected: 02/08/22 13:05
Client ID: PB-27-02R-0.0-0.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206606
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-13
Date Collected: 02/08/22 13:10
Client ID: PB-27-02R-6.0-6.5
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-14	Date Collected:	02/08/22 13:15
Client ID:	PB-27-02R-14.0-14.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-15
Client ID: PB-27-18-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:25
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.1		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206606
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206606-16	Date Collected:	02/08/22 13:30
Client ID:	PB-27-18-6.0-6.5	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206606-18
Client ID: PB-27-01R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:20
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	02/09/22 07:58	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206606
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03-04,06-07,09-10,12-13,15-16,18 QC Batch ID: WG1602922-1 QC Sample: L2206606-01 Client ID: PB-29-08R-6.0-6.5						
Solids, Total	78.8	78.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 08,14 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: PB-29-28-14.0-14.5						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
C	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2206606-01A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW(14)
L2206606-01B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-01D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-01E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		PA-PAH(14)
L2206606-02A	Vial MeOH preserved	C	NA		2.3	Y	Absent		HOLD-8260HLW(14)
L2206606-02B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-02D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-02E	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		HOLD-8270(14)
L2206606-03A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-03B	Glass 120ml/4oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		PB-TI(180)
L2206606-04B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		TS(7)
L2206606-05A	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-METAL(180)
L2206606-05B	Glass 60mL/2oz unpreserved	C	NA		2.3	Y	Absent		HOLD-WETCHEM()
L2206606-06A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-06B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-06D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-07A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-07B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-07C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-07D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-08A	Vial MeOH preserved	C	NA		2.3	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-08B	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08C	Vial water preserved	C	NA		2.3	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-08D	Plastic 2oz unpreserved for TS	C	NA		2.3	Y	Absent		TS(7)
L2206606-09A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-09B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-10A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-10B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-11A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-CONTINGENCY(14)
L2206606-11B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-12A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-12B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-12D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-12E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)
L2206606-13A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-13B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-13D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-13E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-13F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PA-PAH(14)
L2206606-14A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW-BTEX(14)
L2206606-14B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW-BTEX(14)
L2206606-14D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-14E	Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-METAL(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206606-14F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-15A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206606-15B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260H(14),PA-8260HLW(14)
L2206606-15D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-15E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-16A	Vial MeOH preserved	A	NA		2.7	Y	Absent		PA-8260HLW(14)
L2206606-16B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	PA-8260HLW(14)
L2206606-16D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		TS(7)
L2206606-16E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180),PA-PAH(14)
L2206606-17A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2206606-17B	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17C	Vial water preserved	A	NA		2.7	Y	Absent	09-FEB-22 04:40	HOLD-8260HLW(14)
L2206606-17D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2206606-17E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2206606-18A	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		PB-TI(180)
L2206606-18B	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		TS(7),PA-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206606

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS AST Closure - Site Investigation

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ ☑ Rush (ONLY IF PRE-APPROVED) TS 5-Day

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS Run NAP via 8270

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene ~~(8260)~~ TS	1,2,4-TMB, 1,3,5-TMB, XYLENES, ETHYLBENZENE	~~MTBE~~ TS					Sample Specific Comments	TOTAL # BOTTLES
06606-01	PB-29-08R-6.0-6.5	2/8	0935	S	TS	☐	☐	☐	☐	☐	X	X	☐	☐	☐	☐	☐		5
02	PB-29-08R-14.0-14.5		0945			☐	☐	☐	☐	☐	X	X	☐	☐	☐	☐	☐	HOLD	5
03	PB-29-15R-0.0-0.5		1035			X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
04	PB-29-15R-6.0-6.5		1045			X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
05	PB-29-15R-14.0-14.5		1055			X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2
06	PB-29-28-0.0-0.5		1110			☐	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
07	PB-29-28-6.0-6.5		1115			☐	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
08	PB-29-28-14.0-14.5		1125			☐	X	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
09	PB-29-26R-0.0-0.5		1130			X	☐	☐	☐	☐	X	☐	☐	☐	☐	☐	☐		5
~~10~~ cel 2/9	~~PB-29-01R-0.0-0.5~~					~~X~~	~~X~~	~~X~~	☐	☐	~~X~~	☐	~~X~~	☐	☐	☐	☐		~~5~~

TS; see pg. 2

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1536	[signature]	2/8 1536
[signature]	2/8 1800	[signature]	2/8 1800
[signature]	2-8 2030	Anthony Ilkew	2/8/22 2030
Anthony Ilkew	2/8/22	[signature]	2/8/22 2355

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206606

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES ~~Refinery - Delineation~~ TS AST CLOSURE - SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ TS ☐ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached RUN NAP VIA 8270

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	~~Benzo(a)pyrene~~	~~Benzo(b)fluoranthene~~	Naphthalene ~~(8260)~~ TS	1,2,4-TMB, 1,3,5-TMB, XYLENES, MTBE, ETHYLBENZENE	1,2,4-TMB, 1,3,5-TMB, ETHYLBENZENE					Sample Specific Comments	TOTAL # BOTTLES
06606-10	PB-27-01R-3.5-4.0	2/8	1225	S	TS	☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		~~5~~ 2
11	PB-27-01R-14.0-14.5		1230	S		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	~~5~~ 2
12	PB-27-02R-0.0-0.5		1305	S		☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
13	PB-27-02R-6.0-6.5		1310	S		☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐		
14	PB-27-02R-14.0-14.5		1315	S		☑	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐	HOLD	
15	PB-27-18-0.0-0.5		1325	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐		
16	PB-27-18-6.0-6.5		1330	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐		
17	PB-27-18-14.0-14.5		1335	S		☐	☑	☐	☐	☐	☑	☐	☑	☐	☐	☐	☐	HOLD	
18	PB-27-01R-0.0-0.5		1220	S		☑	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		2

Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1536	[signature]	2/8 1536
[signature]	2/8 1800	[signature]	2/8 1800
[signature]	2-8-2030	Anthony Ikocw	2/8/22 2030
Anthony Ikocw	2/8/22	[signature]	2/8/22 2035

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

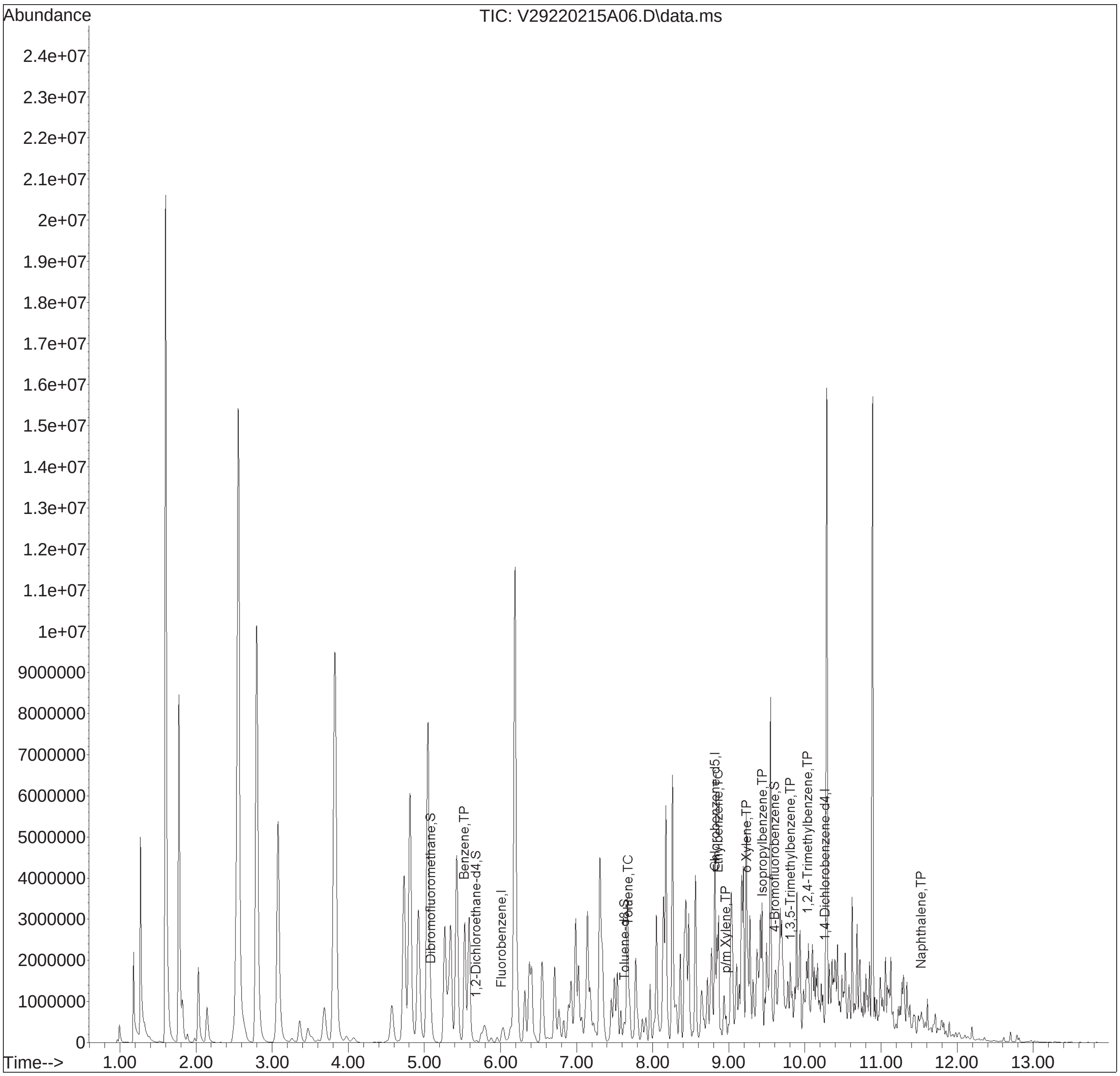
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220215A\
Data File : V29220215A06.D
Acq On   : 15 Feb 2022 08:48 am
Operator : VOA129:NLK
Sample   : L2206606-01,31,5.15,5,,C,R2F
Misc   : WG1605187,ICAL18564
ALS Vial : 6   Sample Multiplier: 1

Quant Time: Feb 15 12:22:50 2022
Quant Method : I:\VOLATILES\VOA129\2022\220215A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list15A\V29220215A02.D•

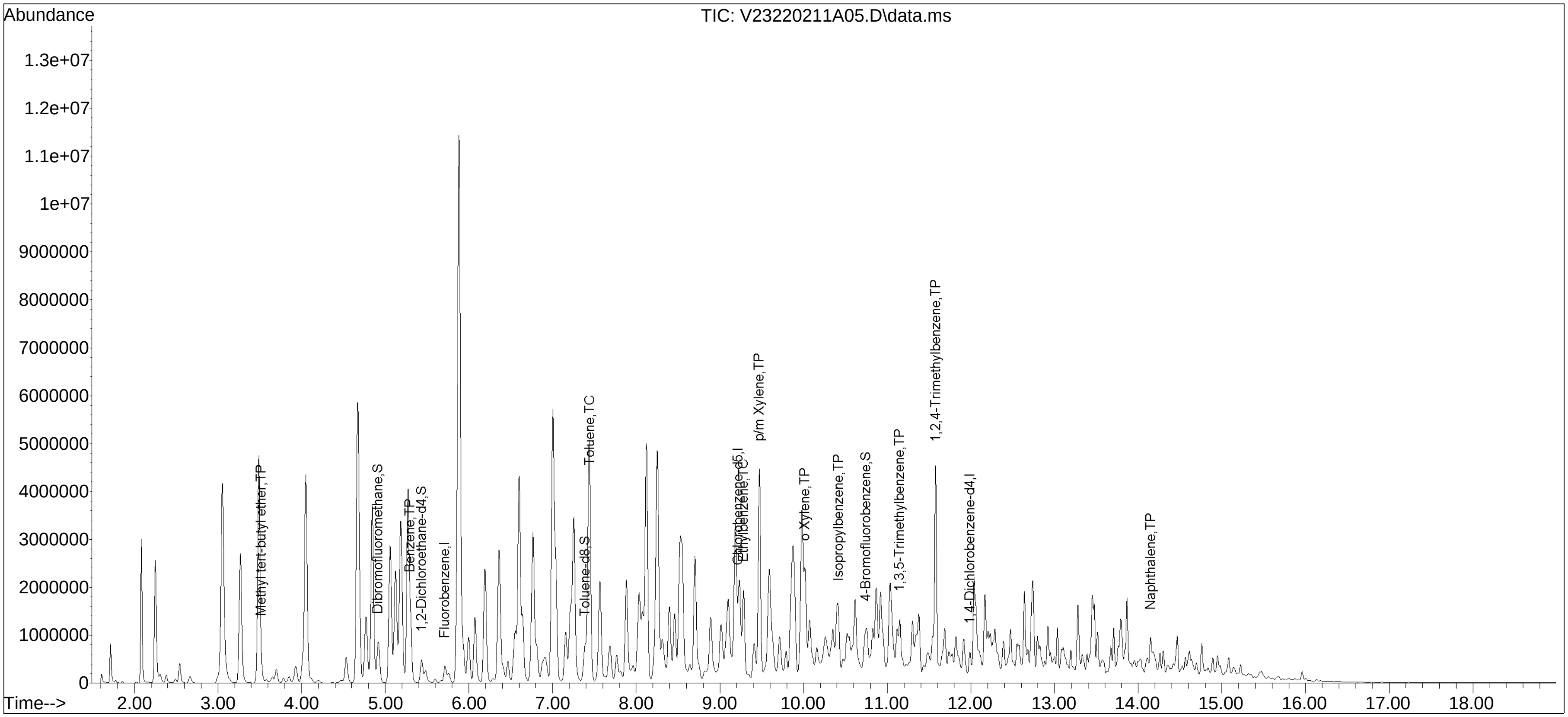


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A05.D
Acq On : 11 Feb 2022 09:41 am
Operator : VOA123:AJK
Sample : L2206606-07,31H,5.34,5,0.100,,A,R2F
Misc : WG1605129,ICAL18401
ALS Vial : 5 Sample Multiplier: 1

Quant Time: Feb 14 14:55:28 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•

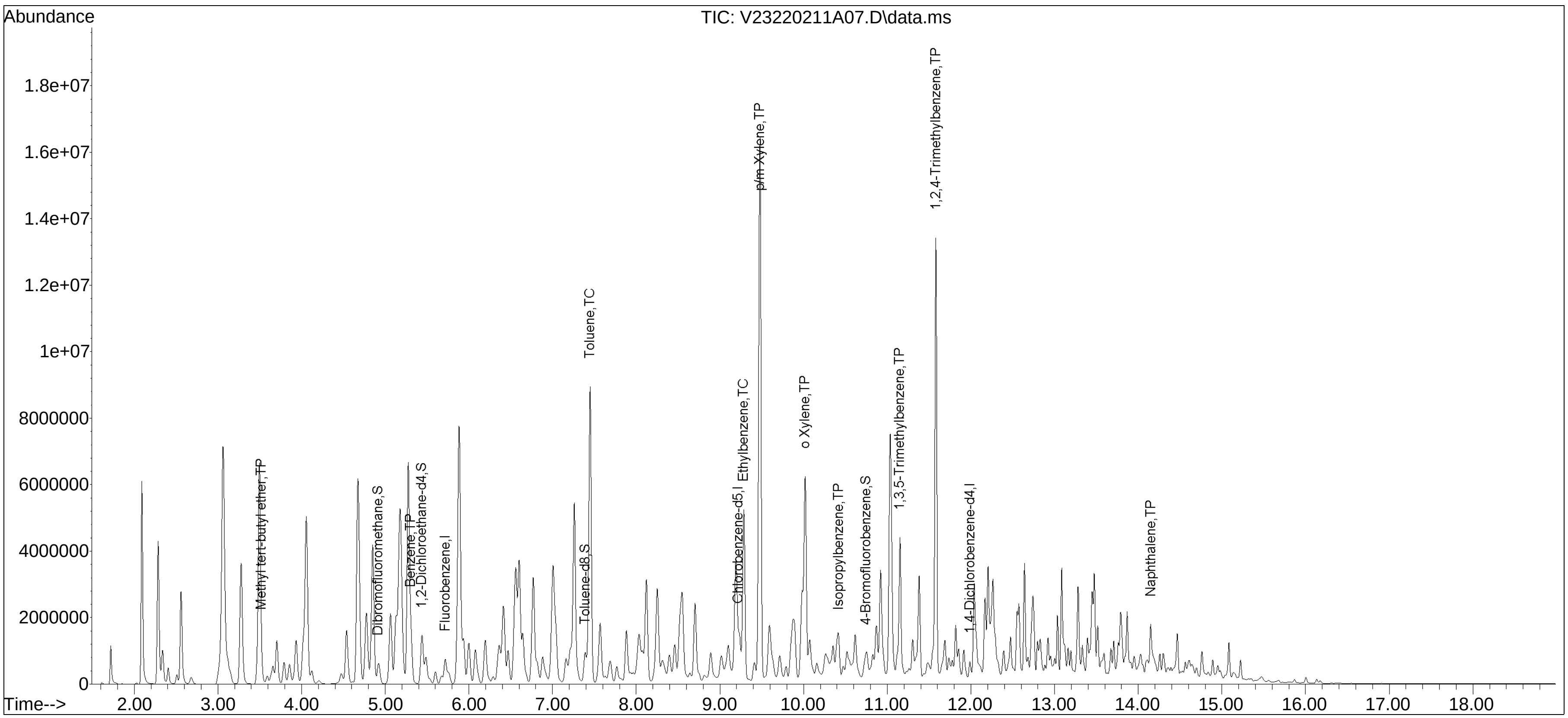


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A07.D
Acq On   : 11 Feb 2022 10:31 am
Operator : VOA123:AJK
Sample   : L2206606-13D2,31H,6.36,5,0.020,,A,R2F
Misc   : WG1605129,ICAL18401
ALS Vial : 7   Sample Multiplier: 1

Quant Time: Feb 14 15:00:21 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•

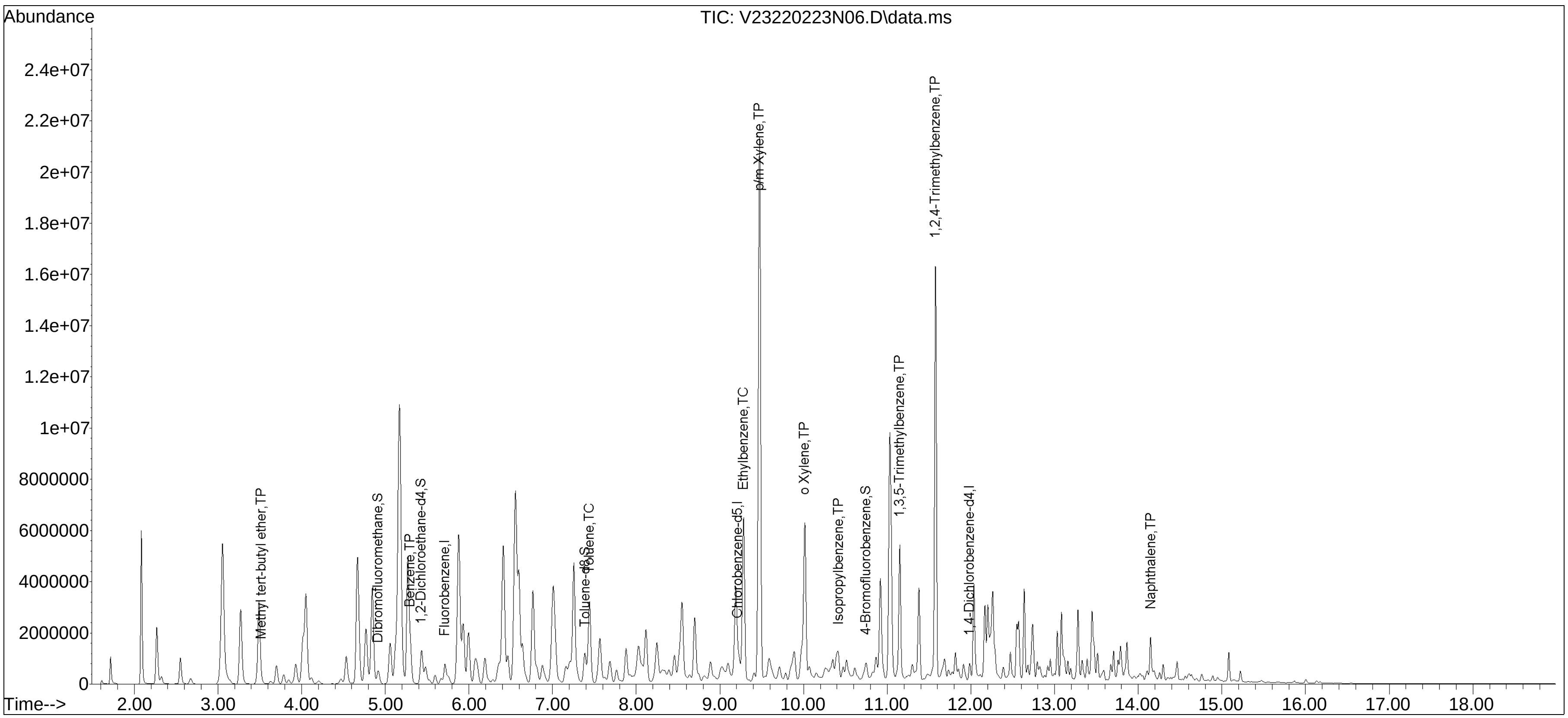


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220223N\
Data File : V23220223N06.D
Acq On : 23 Feb 2022 09:38 pm
Operator : VOA123:AJK
Sample : l2206606-14D,31H,4.65,5,0.050,,a,r2f
Misc : WG1608829,ICAL18401
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Mar 29 13:16:20 2022
Quant Method : I:\VOLATILES\VOA123\2022\220223N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list23N\V23220223N01.D•



Quantitation Report   (QT Reviewed)

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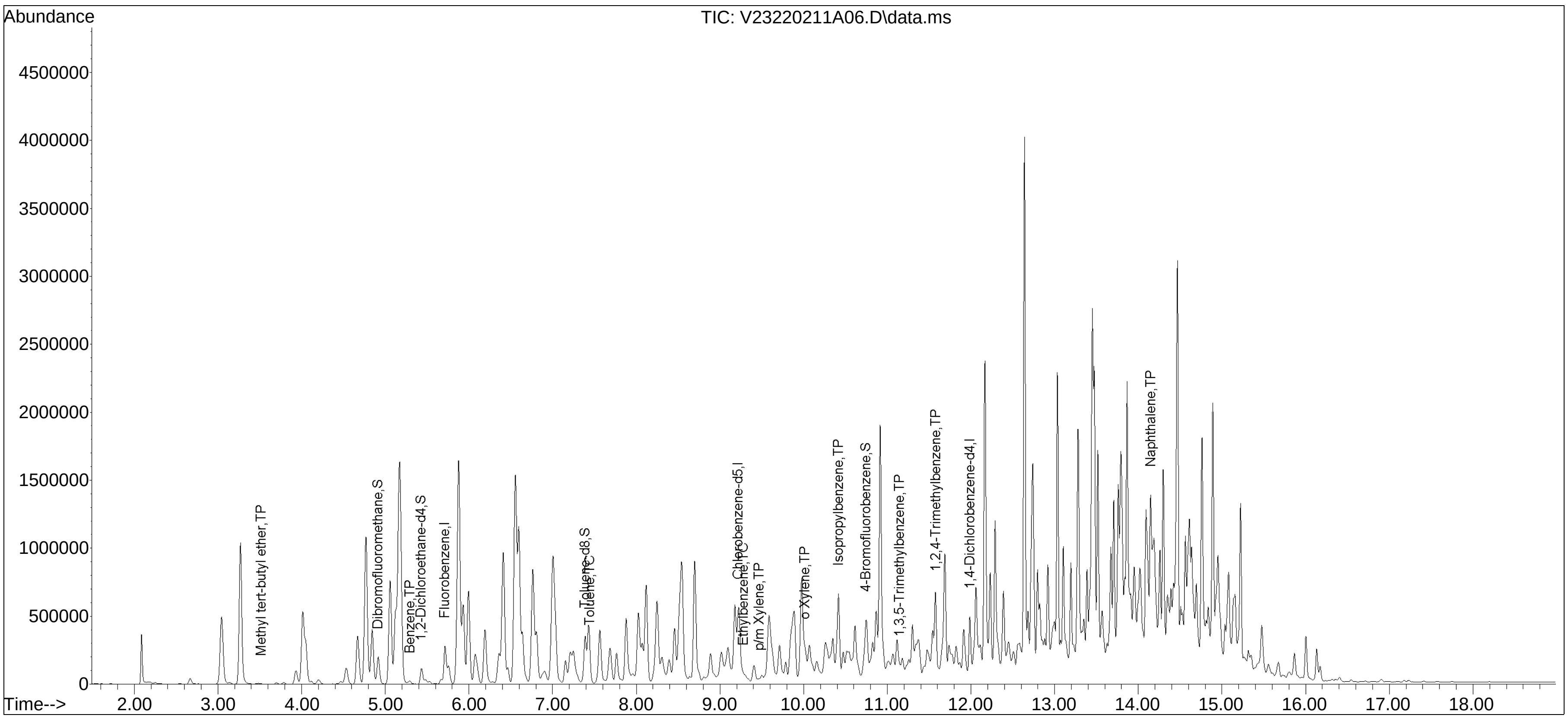
Data Path : I:\VOLATILES\VOA123\2022\220211A\
Data File : V23220211A06.D
Acq On    : 11 Feb 2022  10:06 am
Operator  : VOA123:AJK
Sample    : L2206606-16,31H,4.92,5,0.100,,A,R2F
Misc      : WG1605129,ICAL18401
ALS Vial  : 6   Sample Multiplier: 1

Quant Time: Feb 14 14:59:34 2022
Quant Method : I:\VOLATILES\VOA123\2022\220211A\V123_211020N_8260D.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V23220211A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2206607
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/17/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206607-01	PB-28-05-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:40	02/08/22
L2206607-02	PB-28-08-SS01	SOIL	PHILADELPHIA, PA	02/08/22 13:50	02/08/22
L2206607-03	FB-220208-1	WATER	PHILADELPHIA, PA	02/08/22 12:00	02/08/22
L2206607-04	FB-220208-2	WATER	PHILADELPHIA, PA	02/08/22 14:00	02/08/22
L2206607-05	TB-220208	WATER	PHILADELPHIA, PA	02/08/22 00:00	02/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

February 17, 2022: The Volatile Organics analyte list has been amended on L2206607-03, -04 and -05.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206607-03, -04 and -05: The analysis of Microextractables was requested on the Chain of Custody; however, sample containers were not received. This was verified by the client.

Volatile Organics

L2206607-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2206607-02: The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (68%) and 4-bromofluorobenzene (132%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 02/17/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-01 D
Client ID: PB-28-05-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 13:40
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 15:13
Analyst: AJK
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.23	J	mg/kg	0.62	0.063	5
Benzene	3.2		mg/kg	0.16	0.052	5
1,2-Dichloroethane	ND		mg/kg	0.31	0.080	5
Toluene	2.1		mg/kg	0.31	0.17	5
1,2-Dibromoethane	ND		mg/kg	0.16	0.091	5
Ethylbenzene	15.		mg/kg	0.31	0.044	5
p/m-Xylene	32.		mg/kg	0.62	0.17	5
o-Xylene	5.0		mg/kg	0.31	0.091	5
Xylenes, Total	37.		mg/kg	0.31	0.091	5
Isopropylbenzene	3.4		mg/kg	0.31	0.034	5
1,3,5-Trimethylbenzene	19.		mg/kg	0.62	0.060	5
1,2,4-Trimethylbenzene	46.		mg/kg	0.62	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-02
Client ID: PB-28-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:50
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/09/22 15:38
Analyst: AJK
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.49		mg/kg	0.13	0.013	1
Benzene	1.3		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.067	0.017	1
Toluene	0.54		mg/kg	0.067	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.020	1
Ethylbenzene	0.45		mg/kg	0.067	0.0094	1
p/m-Xylene	1.6		mg/kg	0.13	0.037	1
o-Xylene	0.70		mg/kg	0.067	0.019	1
Xylenes, Total	2.3		mg/kg	0.067	0.019	1
Isopropylbenzene	0.024	J	mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.25		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.77		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	92		70-130

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 01:08
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.35	E	mg/kg	0.0023	0.00023	1
Benzene	0.92	E	mg/kg	0.00058	0.00019	1
1,2-Dichloroethane	0.0034		mg/kg	0.0012	0.00030	1
Toluene	0.45	E	mg/kg	0.0012	0.00063	1
1,2-Dibromoethane	ND		mg/kg	0.00058	0.00034	1
Ethylbenzene	0.34		mg/kg	0.0012	0.00016	1
p/m-Xylene	1.2	E	mg/kg	0.0023	0.00065	1
o-Xylene	0.56		mg/kg	0.0012	0.00034	1
Isopropylbenzene	0.020		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.18		mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0023	0.00039	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**68**	Q	70-130
Toluene-d8	120		70-130
4-Bromofluorobenzene	**132**	Q	70-130
Dibromofluoromethane	72		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-03	Date Collected:	02/08/22 12:00
Client ID:	FB-220208-1	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:12
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	109		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-04
Client ID: FB-220208-2
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 14:00
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:33
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	111		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-05	Date Collected:	02/08/22 00:00
Client ID:	TB-220208	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:53
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 11:45
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1603551-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	92		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/09/22 08:30
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03-05 Batch: WG1603560-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	108		70-130

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:50
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1605096-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1603551-3 WG1603551-4								
Methyl tert butyl ether	86		94		66-130	9		30
Benzene	79		88		70-130	11		30
1,2-Dichloroethane	92		103		70-130	11		30
Toluene	85		93		70-130	9		30
1,2-Dibromoethane	87		97		70-130	11		30
Ethylbenzene	85		94		70-130	10		30
p/m-Xylene	83		93		70-130	11		30
o-Xylene	83		92		70-130	10		30
Isopropylbenzene	86		95		70-130	10		30
1,3,5-Trimethylbenzene	86		95		70-130	10		30
1,2,4-Trimethylbenzene	85		94		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	102		102		70-130
4-Bromofluorobenzene	111		108		70-130
Dibromofluoromethane	90		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03
Lab Number: L2206607
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03-05 Batch: WG1603560-3 WG1603560-4								
Methyl tert butyl ether	94		98		63-130	4		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	95		100		70-130	5		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	105		110		70-130	5		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	99		100		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		98		70-130
Toluene-d8	102		100		70-130
4-Bromofluorobenzene	101		100		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1605096-3 WG1605096-4								
Methyl tert butyl ether	79		82		66-130	4		30
Benzene	94		94		70-130	0		30
1,2-Dichloroethane	78		80		70-130	3		30
Toluene	99		100		70-130	1		30
1,2-Dibromoethane	94		100		70-130	6		30
Ethylbenzene	96		98		70-130	2		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	101		103		70-130	2		30
Isopropylbenzene	107		108		70-130	1		30
1,3,5-Trimethylbenzene	107		109		70-130	2		30
1,2,4-Trimethylbenzene	107		109		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	79		80		70-130
Toluene-d8	103		104		70-130
4-Bromofluorobenzene	104		106		70-130
Dibromofluoromethane	88		88		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-01	Date Collected:	02/08/22 13:40
Client ID:	PB-28-05-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/13/22 14:02		
Analyst:	SLR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	9.4	E	mg/kg	0.21	0.025	1
Fluorene	0.26		mg/kg	0.21	0.020	1
Phenanthrene	0.63		mg/kg	0.12	0.025	1
Anthracene	0.11	J	mg/kg	0.12	0.040	1
Pyrene	0.23		mg/kg	0.12	0.021	1
Benzo(a)anthracene	0.13		mg/kg	0.12	0.023	1
Chrysene	0.13		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	0.16		mg/kg	0.12	0.035	1
Benzo(a)pyrene	0.12	J	mg/kg	0.16	0.050	1
Benzo(ghi)perylene	0.087	J	mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	78		18-120

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-01 D	Date Collected:	02/08/22 13:40
Client ID:	PB-28-05-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/15/22 13:42		
Analyst:	WR		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	11.		mg/kg	1.0	0.13	5

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:17
Analytical Date:	02/13/22 18:26		
Analyst:	SLR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12	J	mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.039	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	54		18-120

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-03
Client ID: FB-220208-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/08/22 12:00
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 12:26
Analyst: JJW

Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	71		15-120
4-Terphenyl-d14	86		41-149

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Lab Number: L2206607

Project Number: 200.00135.005.03

Report Date: 02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-04	Date Collected:	02/08/22 14:00
Client ID:	FB-220208-2	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/12/22 10:27
Analytical Date:	02/13/22 12:42		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	85		41-149

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/13/22 18:02	Extraction Date:	02/12/22 03:17
Analyst:	SLR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1604253-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/13/22 11:37	Extraction Date:	02/12/22 10:27
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03-04 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03-04 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

METALS

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-01
Client ID: PB-28-05-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/08/22 13:40
Date Received: 02/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	461		mg/kg	12.3	0.661	5	02/09/22 22:45	02/13/22 18:46	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-02 Date Collected: 02/08/22 13:50
Client ID: PB-28-08-SS01 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.67		mg/kg	2.39	0.128	1	02/09/22 22:45	02/13/22 16:37	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-03	Date Collected:	02/08/22 12:00
Client ID:	FB-220208-1	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:21	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY-SOIL CHA **Lab Number:** L2206607
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-04 Date Collected: 02/08/22 14:00
Client ID: FB-220208-2 Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:26	EPA 3005A	1,6020B	SV

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 03-04 Batch: WG1603140-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/09/22 16:00	02/10/22 12:11	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1603164-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/09/22 22:45	02/13/22 14:34	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2206607

Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 Batch: WG1603140-2								
Lead, Total	106		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1603164-2 SRM Lot Number: D113-540								
Lead, Total	99		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03
Lab Number: L2206607
Report Date: 02/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1603140-3 QC Sample: L2206637-01 Client ID: MS Sample												
Lead, Total	1.260	530	568.2	107		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1603164-3 WG1603164-4 QC Sample: L2206392-01 Client ID: MS Sample												
Lead, Total	11.4	46.3	45.3	**73**	Q	41.5	**65**	Q	75-125	9		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 03-04 QC Batch ID: WG1603140-4 QC Sample: L2206637-01 Client ID: DUP Sample						
Lead, Total	1.260	1.326	ug/l	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Lab Number: L2206607
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2206607-01
Date Collected: 02/08/22 13:40
Client ID: PB-28-05-SS01
Date Received: 02/08/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.0		%	0.100	NA	1	-	02/09/22 08:13	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-SOIL CHA	**Lab Number:**	L2206607
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2206607-02	Date Collected:	02/08/22 13:50
Client ID:	PB-28-08-SS01	Date Received:	02/08/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.6		%	0.100	NA	1	-	02/09/22 08:13	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1602926-1 QC Sample: L2206608-01 Client ID: DUP Sample						
Solids, Total	91.4	90.8	%	1		20

Project Name: PHILADELPHIA REFINERY-SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2206607
Report Date: 02/17/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-01A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206607-01B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 06:40	PA-8260HLW(14)
L2206607-01C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260HLW(14)
L2206607-01D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-01F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-02A	Vial MeOH preserved	B	NA		2.4	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206607-02B	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02C	Vial water preserved	B	NA		2.4	Y	Absent	09-FEB-22 03:53	PA-8260H(14),PA-8260HLW(14)
L2206607-02D	Plastic 2oz unpreserved for TS	B	NA		2.4	Y	Absent		TS(7)
L2206607-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.4	Y	Absent		PB-TI(180)
L2206607-02F	Glass 120ml/4oz unpreserved	B	NA		2.4	Y	Absent		PA-PAH(14)
L2206607-03A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-03D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-03E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-03F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-04A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04C	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-04D	Plastic 250ml HNO3 preserved	B	<2	<2	2.4	Y	Absent		PB-6020T-PPB(180)
L2206607-04E	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206607-04F	Amber 1000ml unpreserved	B	7	7	2.4	Y	Absent		PA-PAHSIM(7)
L2206607-05A	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)
L2206607-05B	Vial HCl preserved	B	NA		2.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/9/22

ALPHA Job #: L2206607

Project Information

Project Name: Philadelphia Refinery - Soil Characterization
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ ~~Rush~~ (ONLY IF PRE-APPROVED)
5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06607-01	PB-28-05-5501	2/8	1340	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
02	PB-28-08-5501		1350	S		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
03	FB-220208-1		1200	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
04	FB-220208-2		1400	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
05	TB-220208		-	W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		2
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/8 1636	[signature] AAL	2/8 1536
[signature] AAL	2/8 1800	[signature]	2/8 1800
[signature]	2-8 2030	Yuthang Yuen	2/8/22 2030
Yuthang Yuen	2/8/22	[signature] AAL	2/8/22 2355
[signature] AAL	2/9/22 0155	[signature]	2/9/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

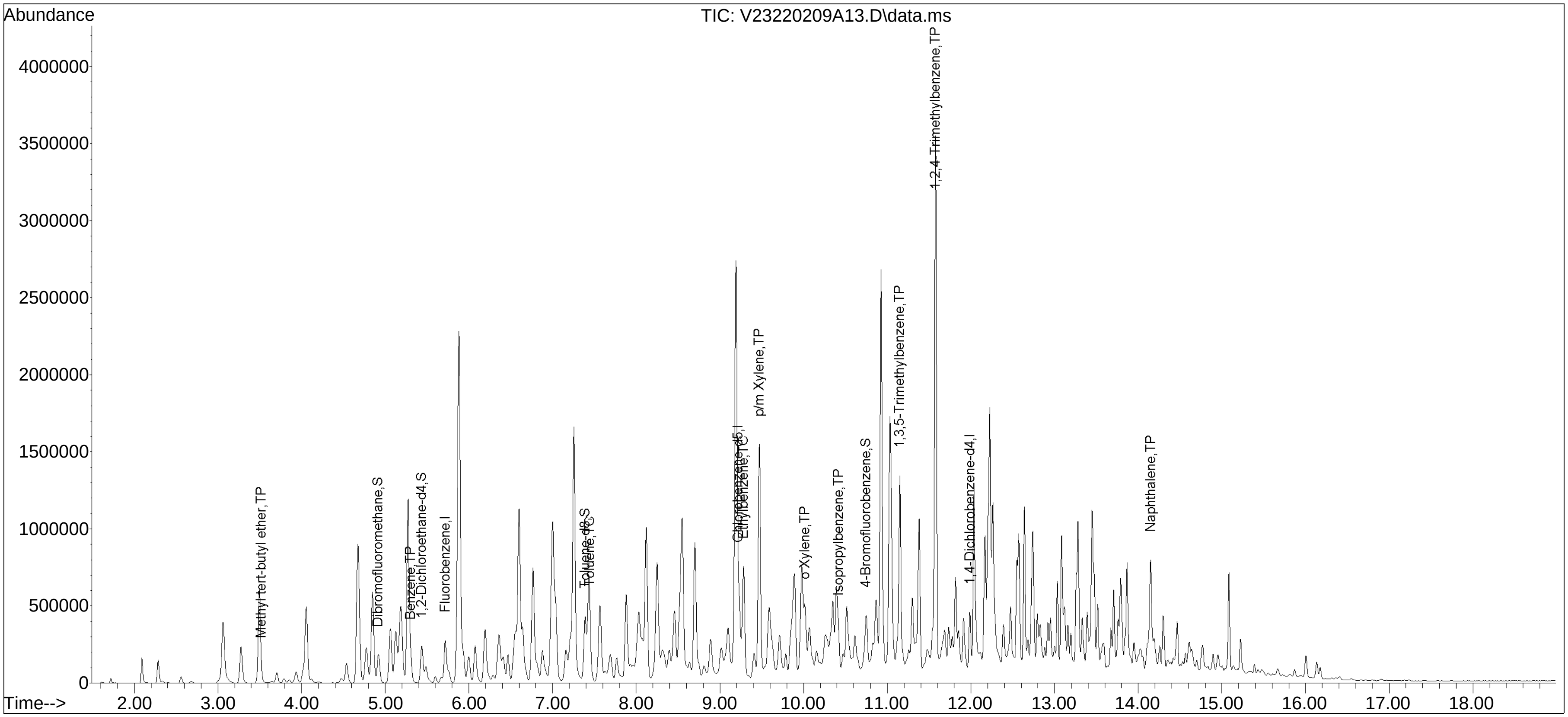
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220209A\
Data File : V23220209A13.D
Acq On : 09 Feb 2022 03:13 pm
Operator : VOA123:AJK
Sample : L2206607-01D,31H,6.44,5,0.020,,A,R2F
Misc : WG1603551,ICAL18401
ALS Vial : 13 Sample Multiplier: 1

Quant Time: Feb 09 19:35:18 2022
Quant Method : I:\VOLATILES\VOA123\2022\220209A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V23220209A01.D•

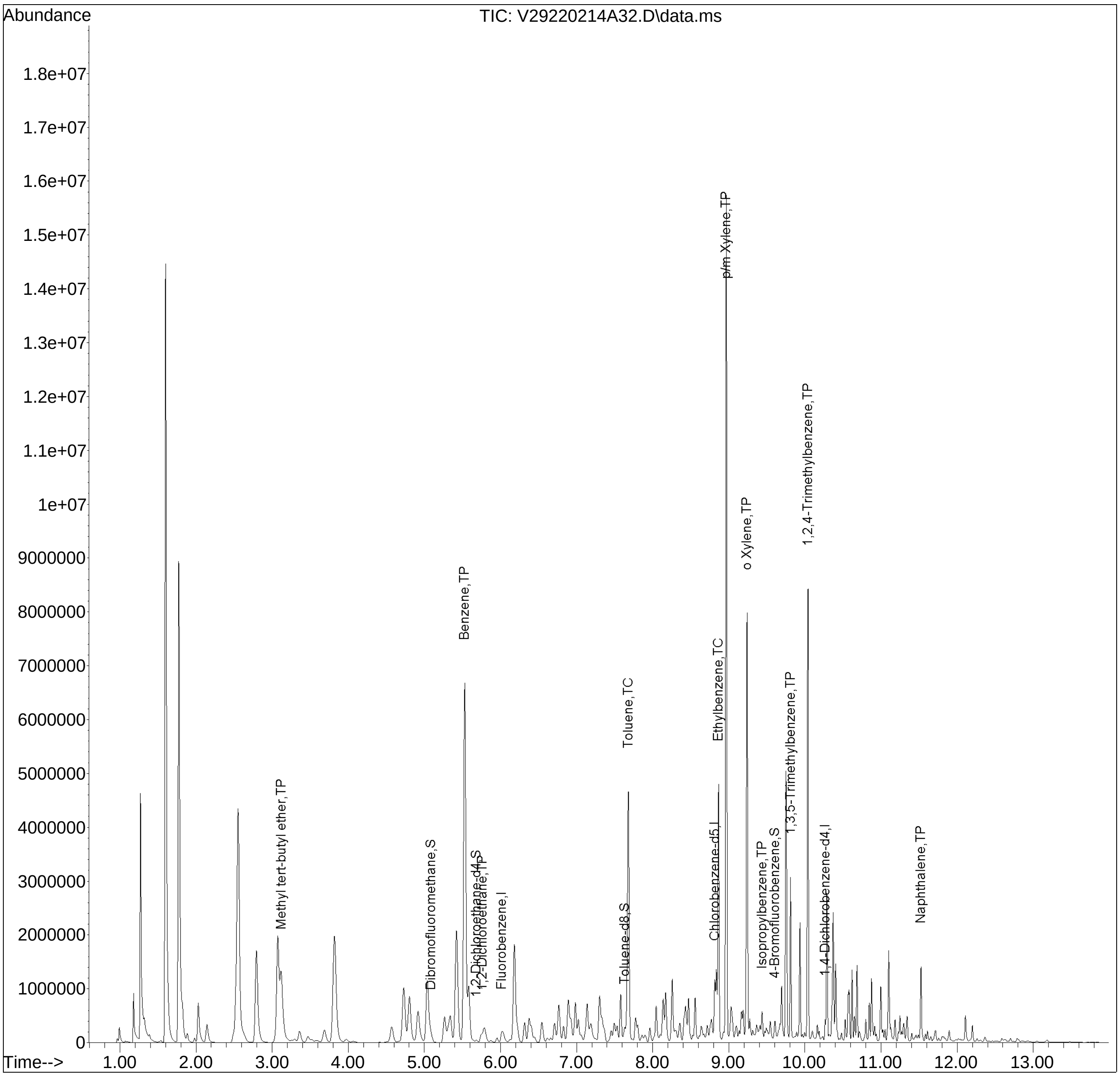


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220214A\
Data File : V29220214A32.D
Acq On : 15 Feb 2022 01:08 am
Operator : VOA129:JC
Sample : L2206607-02,31,5.30,5,,B,R2F
Misc : WG1605096,ICAL18564
ALS Vial : 32 Sample Multiplier: 1

Quant Time: Feb 15 09:17:36 2022
Quant Method : I:\VOLATILES\VOA129\2022\220214A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list14A\V29220214A01.D•



ANALYTICAL REPORT

Lab Number:	L2206903
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE-SITE
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206903-01	PB-28-19R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 10:20	02/09/22
L2206903-02	PB-28-19R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 10:40	02/09/22
L2206903-03	PB-37-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 12:35	02/09/22
L2206903-04	PB-37-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 12:45	02/09/22
L2206903-05	PB-37-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 13:10	02/09/22
L2206903-06	PB-37-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 13:15	02/09/22
L2206903-07	PB-37-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 13:20	02/09/22
L2206903-08	PB-38-11R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/09/22 14:30	02/09/22
L2206903-09	PB-38-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:35	02/09/22
L2206903-10	PB-38-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 14:40	02/09/22
L2206903-11	PB-38-13R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/09/22 14:50	02/09/22
L2206903-12	PB-38-13R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/09/22 15:00	02/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2206903-01 through -04 and -11.

Report Submission

March 02, 2022: This final report includes the results of the Volatile Organics analysis performed on L2206903-02, -04, and -12; and the results of the Total Lead analysis performed on L2206903-07.

Report Revision:

February 22, 2022: This is a preliminary report. At the client's request, the Volatile Organics reporting list has been amended on L2206903-01.

Report Submission

February 16, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2206903-04: The sample was analyzed with the method required holding time exceeded.

L2206903-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (326%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

Semivolatile Organics

L2206903-01: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

Total Metals

The WG1603728-3 MS recovery, performed on L2206903-05, is outside the acceptance criteria for lead (68%). A post digestion spike was performed and yielded an unacceptable recovery for lead (49%). The serial dilution recovery was not acceptable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

The WG1603728-6 serial dilution analysis, associated with L2206903-05, had a %D above the acceptance criteria for lead (35%).

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-01 D	Date Collected:	02/09/22 10:20
Client ID:	PB-28-19R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:44
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.1	J	mg/kg	6.3	0.63	50
Benzene	24.		mg/kg	1.6	0.52	50
Toluene	510		mg/kg	3.2	1.7	50
1,2-Dibromoethane	ND		mg/kg	1.6	0.92	50
Ethylbenzene	120		mg/kg	3.2	0.44	50
p/m-Xylene	550		mg/kg	6.3	1.8	50
o-Xylene	200		mg/kg	3.2	0.92	50
Xylenes, Total	750		mg/kg	3.2	0.92	50
Isopropylbenzene	7.9		mg/kg	3.2	0.34	50
1,3,5-Trimethylbenzene	79.		mg/kg	6.3	0.61	50
1,2,4-Trimethylbenzene	240		mg/kg	6.3	1.0	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-02 D	Date Collected:	02/09/22 10:40
Client ID:	PB-28-19R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:13
Analyst: KJD
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.3	0.13	10
Benzene	51.		mg/kg	0.32	0.11	10
Toluene	9.9		mg/kg	0.65	0.35	10
1,2-Dibromoethane	ND		mg/kg	0.32	0.19	10
Ethylbenzene	95.		mg/kg	0.65	0.092	10
p/m-Xylene	410	E	mg/kg	1.3	0.36	10
o-Xylene	120		mg/kg	0.65	0.19	10
Isopropylbenzene	7.7		mg/kg	0.65	0.071	10
1,3,5-Trimethylbenzene	60.		mg/kg	1.3	0.12	10
1,2,4-Trimethylbenzene	170		mg/kg	1.3	0.22	10
Naphthalene	19.		mg/kg	2.6	0.42	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-03 D
Client ID: PB-37-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:35
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:04
Analyst: KJD
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	7.0	0.70	50
Benzene	11.		mg/kg	1.7	0.58	50
Toluene	7.3		mg/kg	3.5	1.9	50
1,2-Dibromoethane	ND		mg/kg	1.7	1.0	50
Ethylbenzene	94.		mg/kg	3.5	0.49	50
p/m-Xylene	350		mg/kg	7.0	2.0	50
o-Xylene	36.		mg/kg	3.5	1.0	50
Xylenes, Total	390		mg/kg	3.5	1.0	50
Isopropylbenzene	12.		mg/kg	3.5	0.38	50
1,3,5-Trimethylbenzene	93.		mg/kg	7.0	0.67	50
1,2,4-Trimethylbenzene	300		mg/kg	7.0	1.2	50
Naphthalene	52.		mg/kg	14	2.3	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	88		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-04	Date Collected:	02/09/22 12:45
Client ID:	PB-37-05R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 20:56
Analyst: KJD
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0080		mg/kg	0.00050	0.00017	1
Toluene	0.010		mg/kg	0.0010	0.00055	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00030	1
Ethylbenzene	0.20		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.37		mg/kg	0.0020	0.00056	1
o-Xylene	0.040		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.41		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.24		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.46	E	mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	1.1	E	mg/kg	0.0020	0.00034	1
Naphthalene	0.24		mg/kg	0.0040	0.00066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**326**	Q	70-130
Dibromofluoromethane	84		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-11
Client ID: PB-38-13R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 14:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:25
Analyst: KJD
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	1.0		mg/kg	0.095	0.0095	1
Benzene	3.0		mg/kg	0.024	0.0078	1
Toluene	0.27		mg/kg	0.047	0.026	1
1,2-Dibromoethane	ND		mg/kg	0.024	0.014	1
Ethylbenzene	0.98		mg/kg	0.047	0.0067	1
p/m-Xylene	1.9		mg/kg	0.095	0.026	1
o-Xylene	0.22		mg/kg	0.047	0.014	1
Xylenes, Total	2.1		mg/kg	0.047	0.014	1
Isopropylbenzene	0.16		mg/kg	0.047	0.0052	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.095	0.0091	1
1,2,4-Trimethylbenzene	0.73		mg/kg	0.095	0.016	1
Naphthalene	0.071	J	mg/kg	0.19	0.031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	82		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-12	Date Collected:	02/09/22 15:00
Client ID:	PB-38-13R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 21:41
Analyst: KDU
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.16		mg/kg	0.035	0.012	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	84		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,11 Batch: WG1604658-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1608829-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	92		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 12 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:26
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1610140-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,11 Batch: WG1604658-3 WG1604658-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30
Naphthalene	106		104		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1608829-8 WG1608829-9								
Methyl tert butyl ether	84		84		66-130	0		30
Benzene	98		98		70-130	0		30
Toluene	104		101		70-130	3		30
1,2-Dibromoethane	100		95		70-130	5		30
Ethylbenzene	98		100		70-130	2		30
p/m-Xylene	98		104		70-130	6		30
o-Xylene	96		103		70-130	7		30
Isopropylbenzene	121		108		70-130	11		30
1,3,5-Trimethylbenzene	108		103		70-130	5		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30
Naphthalene	107		103		70-130	4		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		84		70-130
Toluene-d8	102		99		70-130
4-Bromofluorobenzene	117		102		70-130
Dibromofluoromethane	92		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 12 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1610140-3 WG1610140-4								
Methyl tert butyl ether	82		79		66-130	4		30
Benzene	87		84		70-130	4		30
Toluene	85		82		70-130	4		30
1,2-Dibromoethane	97		96		70-130	1		30
Ethylbenzene	82		79		70-130	4		30
p/m-Xylene	88		86		70-130	2		30
o-Xylene	88		85		70-130	3		30
Isopropylbenzene	80		80		70-130	0		30
1,3,5-Trimethylbenzene	82		80		70-130	2		30
1,2,4-Trimethylbenzene	81		79		70-130	3		30
Naphthalene	101		98		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	89		87		70-130
Dibromofluoromethane	98		98		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-01	Date Collected:	02/09/22 10:20
Client ID:	PB-28-19R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/15/22 21:06
Analytical Date:	02/16/22 11:36		
Analyst:	IM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	23.		mg/kg	0.58	0.071	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	117		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	82		18-120

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/16/22 01:12	Extraction Date:	02/15/22 08:00
Analyst:	IM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120

METALS

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-05 Date Collected: 02/09/22 13:10
Client ID: PB-37-11R-0.0-0.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	161		mg/kg	2.30	0.123	1	02/11/22 09:25	02/13/22 17:41	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-06 Date Collected: 02/09/22 13:15
Client ID: PB-37-11R-6.0-6.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	854		mg/kg	2.26	0.121	1	02/11/22 09:25	02/13/22 17:05	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-07
Client ID: PB-37-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 13:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	52.2		mg/kg	2.38	0.128	1	02/23/22 22:40	03/02/22 11:35	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-08 Date Collected: 02/09/22 14:30
Client ID: PB-38-11R-0.0-0.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	18.7		mg/kg	2.15	0.115	1	02/11/22 09:25	02/13/22 17:18	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-09	Date Collected:	02/09/22 14:35
Client ID:	PB-38-11R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	22.6		mg/kg	2.21	0.118	1	02/11/22 09:25	02/13/22 17:23	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 05-06,08-09 Batch: WG1603728-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 07 Batch: WG1608436-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03
Lab Number: L2206903
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 07 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5												
Lead, Total	161	48.8	194	**68**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	**44**	Q	-	-		75-125	-		20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2206903
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	190	mg/kg	17		20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	**23**	Q	20

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206903
Report Date: 12/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 05-06,08-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: PB-37-11R-0.0-0.5						
Lead, Total	161	218	mg/kg	**35**	Q	20
Total Metals - Mansfield Lab Associated sample(s): 07 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-01
Date Collected: 02/09/22 10:20
Client ID: PB-28-19R-6.0-6.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-02	Date Collected:	02/09/22 10:40
Client ID:	PB-28-19R-14.0-14.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-03
Date Collected: 02/09/22 12:35
Client ID: PB-37-05R-6.0-6.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-04
Client ID: PB-37-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 12:45
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-05	Date Collected:	02/09/22 13:10
Client ID:	PB-37-11R-0.0-0.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.1		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-06 Date Collected: 02/09/22 13:15
Client ID: PB-37-11R-6.0-6.5 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE **Lab Number:** L2206903
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-07
Client ID: PB-37-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 13:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.2		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-08
Client ID: PB-38-11R-0.0-0.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 14:30
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.2		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2206903-09	Date Collected:	02/09/22 14:35
Client ID:	PB-38-11R-6.0-6.5	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.5		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-11
Date Collected: 02/09/22 14:50
Client ID: PB-38-13R-6.0-6.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.9		%	0.100	NA	1	-	02/10/22 08:56	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE-SITE
Lab Number: L2206903
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2206903-12
Date Collected: 02/09/22 15:00
Client ID: PB-38-13R-14.0-14.5
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,05-06,08-09,11 QC Batch ID: WG1603384-1 QC Sample: L2206903-01 Client ID: PB-28-19R-6.0-6.5						
Solids, Total	84.2	83.8	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,07,12 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206903-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206903-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW(14)
L2206903-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-01E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206903-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7),HOLD-8270(14)
L2206903-02E	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		HOLD-8270(14)
L2206903-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206903-05A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-05B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-06A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-06B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-AST CLOSURE-SITE
Project Number: 200.00135.005.03

Lab Number: L2206903
Report Date: 12/02/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206903-07A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-07B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-08A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-08B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-09A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		TS(7)
L2206903-09B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		PB-TI(180)
L2206903-10A	Plastic 2oz unpreserved for TS	A	NA		2.5	Y	Absent		HOLD-WETCHEM()
L2206903-10B	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.5	Y	Absent		HOLD-METAL(180)
L2206903-11A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-11B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-11D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)
L2206903-12A	Vial MeOH preserved	A	NA		2.5	Y	Absent		PA-8260HLW-BTEX(14)
L2206903-12B	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12C	Vial water preserved	A	NA		2.5	Y	Absent	10-FEB-22 05:53	PA-8260HLW-BTEX(14)
L2206903-12D	Plastic 120ml unpreserved	A	NA		2.5	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

Project Name:	PES REFINERY-AST CLOSURE-SITE	**Lab Number:**	L2206903
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206903

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per ~~attached~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYLBENZENE	XYLENES			Sample Specific Comments	TOTAL # BOTTLES
06903-01	PB-28-19R-6.0-6.5	2/9	1020	S	TS	☐	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	☐		5
02	PB-28-19R-14.0-14.5		1040			☐	☑	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	HOLD	4
03	PB-37-05R-6.0-6.5		1235			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
04	PB-37-05R-14.0-14.5		1245			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
05	PB-37-11R-0.0-0.5		1310			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
06	PB-37-11R-6.0-6.5		1315			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
07	PB-37-11R-14.0-14.5		1320			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2
08	PB-38-11R-0.0-0.5		1430			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
09	PB-38-11R-6.0-6.5		1435			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
10	PB-38-11R-14.0-14.5		1440			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2

	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYLBENZENE	XYLENES		
Container Type	-	-	-	-	-	-	-	-	-	-	-	-
Preservative	-	-	-	-	-	-	-	-	-	-	-	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature] AAL	2/9 1540
[signature] AAL	2/9 1800	[signature] AAL	2/9/22 1800
[signature] AAL	2/9/22	Anthony Tree	2/9/22 2030
Anthony Tree	2/9/22	[signature] AAL	2/10/22 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-HJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206903

Project Information

Project Name: PES Refinery - ~~Delineation~~ TS SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ TS ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	Sample Specific Comments	TOTAL # BOTTLES
06903-11	PB-38-13R-6.0-6.5	2/4	1450	S	TS	☐	☑	☐	☐	☐	☐		4
12	PB-38-13R-14.0-14.5	2/4	1500	S	TS	☐	☑	☐	☐	☐	☐		4

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature] AAL	2/9 1540
[signature] AAL	2/9 1800	[signature]	2/9/22 1800
[signature] AAL	2/9/20	Anthony J [signature]	2/9/22 2030
Anthony J [signature]	2/9/22	[signature] AAL	2/10/22 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

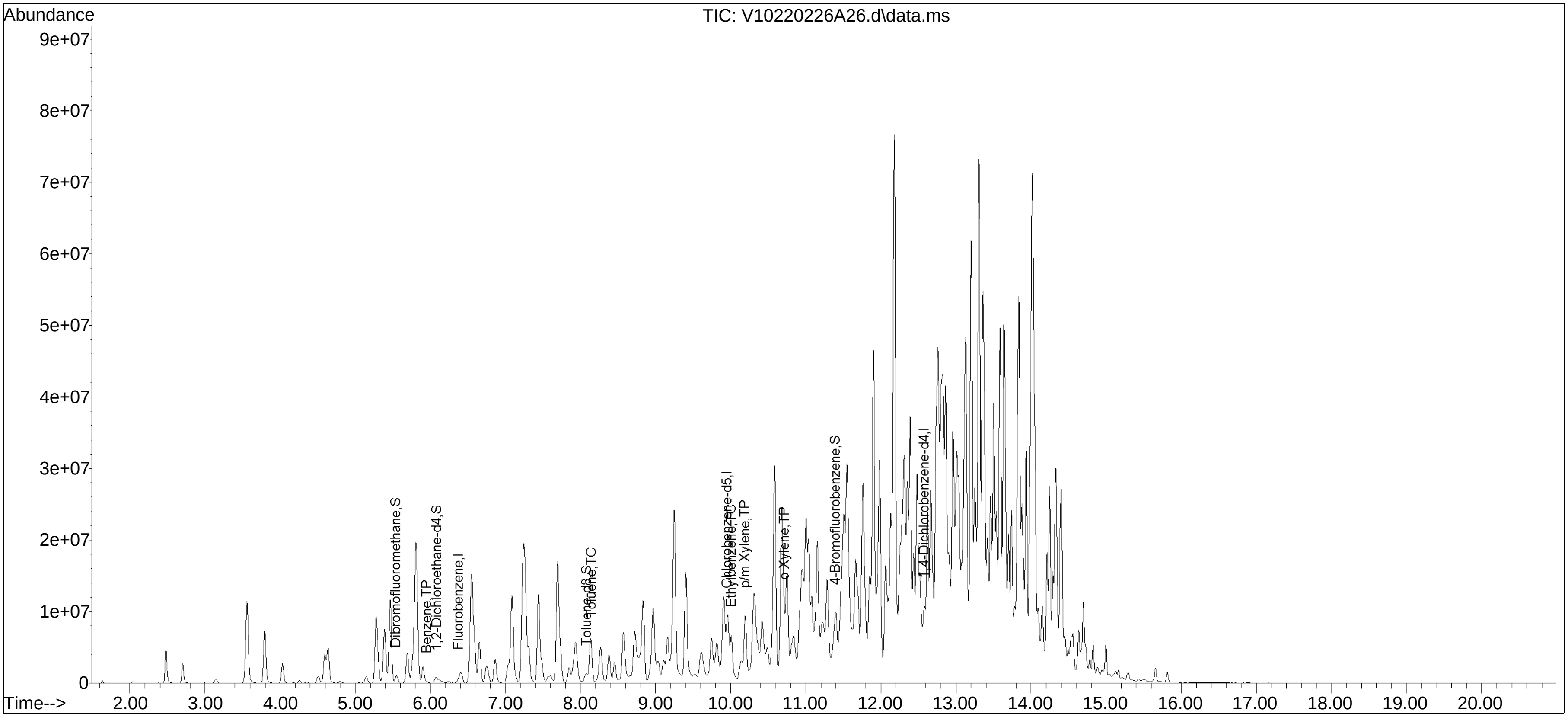
FORM NO: 01-01(I) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220226A\
Data File : V10220226A26.d
Acq On   : 26 Feb 2022   8:56 pm
Operator : VOA110:MKS
Sample   : L2206903-04,31,5.41,5,,B,R2F
Misc   : WG1610140,ICAL18690
ALS Vial : 26   Sample Multiplier: 1

Quant Time: Feb 28 17:06:29 2022
Quant Method : I:\VOLATILES\VOA110\2022\220226A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List   : 8260-BTEX - Standard BTEX List20226A\V10220226A01.d•



ANALYTICAL REPORT

Lab Number:	L2206907
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/16/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2206907-01	PB-28-09-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:30	02/09/22
L2206907-02	PB-28-10-SS01	SOIL	PHILADELPHIA, PA	02/09/22 08:50	02/09/22
L2206907-03	PB-28-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:10	02/09/22
L2206907-04	PB-28-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 09:20	02/09/22
L2206907-05	PB-37-04-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:10	02/09/22
L2206907-06	PB-37-07-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:20	02/09/22
L2206907-07	PB-37-08-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:30	02/09/22
L2206907-08	PB-37-13-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:40	02/09/22
L2206907-09	PB-37-14-SS01	SOIL	PHILADELPHIA, PA	02/09/22 11:50	02/09/22
L2206907-10	FB-220209	WATER	PHILADELPHIA, PA	02/09/22 12:00	02/09/22
L2206907-11	TB-220209	WATER	PHILADELPHIA, PA	02/09/22 00:00	02/09/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2206907-10: Sample containers for the Microextractables analysis were received for the "FB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.
L2206907-11: Sample containers for the Microextractables analysis were received for the "TB-220209" sample, but were not listed on the chain of custody. At the client's request, the analysis was performed.

Volatile Organics

L2206907-01: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.
L2206907-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (225%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206907-01: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (63%) and dibromofluoromethane (63%) due to interference with the Internal Standard.
L2206907-02D, -03D, and -09D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.
L2206907-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206907-03D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (153%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

L2206907-06: The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (60%) and dibromofluoromethane (63%) due to interference with the Internal Standard.
L2206907-08: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.
L2206907-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (164%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.
L2206907-09D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 02/16/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
Client ID: PB-28-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:30
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:37
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.44	E	mg/kg	0.0020	0.00020	1
Benzene	0.55	E	mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0078		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.10		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.061		mg/kg	0.0020	0.00056	1
o-Xylene	0.0036		mg/kg	0.0010	0.00029	1
Xylenes, Total	0.065		mg/kg	0.0010	0.00029	1
Isopropylbenzene	0.059		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0051		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0089		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**63**	Q	70-130
Toluene-d8	123		70-130
4-Bromofluorobenzene	**225**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-01	Date Collected:	02/09/22 08:30
Client ID:	PB-28-09-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 18:17
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.76		mg/kg	0.12	0.012	1
Benzene	1.1		mg/kg	0.030	0.0099	1
1,2-Dichloroethane	ND		mg/kg	0.060	0.015	1
Toluene	0.034	J	mg/kg	0.060	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.26		mg/kg	0.060	0.0084	1
p/m-Xylene	0.20		mg/kg	0.12	0.033	1
o-Xylene	0.028	J	mg/kg	0.060	0.017	1
Xylenes, Total	0.23	J	mg/kg	0.060	0.017	1
Isopropylbenzene	0.14		mg/kg	0.060	0.0065	1
1,3,5-Trimethylbenzene	0.036	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.097	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-02 D	Date Collected:	02/09/22 08:50
Client ID:	PB-28-10-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:58
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	1.4		mg/kg	0.066	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	0.37		mg/kg	0.13	0.072	2
1,2-Dibromoethane	ND		mg/kg	0.066	0.039	2
Ethylbenzene	5.3		mg/kg	0.13	0.019	2
p/m-Xylene	4.8		mg/kg	0.26	0.074	2
o-Xylene	0.59		mg/kg	0.13	0.038	2
Xylenes, Total	5.4		mg/kg	0.13	0.038	2
Isopropylbenzene	2.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	0.77		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	4.9		mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	130		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-03	D	Date Collected:	02/09/22 09:10
Client ID:	PB-28-13-SS01		Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 11:18
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.27	0.027	2
Benzene	0.030	J	mg/kg	0.067	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.073	2
1,2-Dibromoethane	ND		mg/kg	0.067	0.039	2
Ethylbenzene	2.6		mg/kg	0.13	0.019	2
p/m-Xylene	0.15	J	mg/kg	0.27	0.075	2
o-Xylene	0.039	J	mg/kg	0.13	0.039	2
Xylenes, Total	0.19	J	mg/kg	0.13	0.039	2
Isopropylbenzene	1.2		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	1.2		mg/kg	0.27	0.026	2
1,2,4-Trimethylbenzene	3.7		mg/kg	0.27	0.045	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	**153**	Q	70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-04	Date Collected:	02/09/22 09:20
Client ID:	PB-28-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 11:39
Analyst: JC
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00047	J	mg/kg	0.0025	0.00025	1
Benzene	0.20		mg/kg	0.00063	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.0041		mg/kg	0.0012	0.00068	1
1,2-Dibromoethane	ND		mg/kg	0.00063	0.00037	1
Ethylbenzene	0.020		mg/kg	0.0012	0.00018	1
p/m-Xylene	0.025		mg/kg	0.0025	0.00070	1
o-Xylene	0.0032		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.028		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.012		mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.019		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.048		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
Client ID: PB-37-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:00
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0029		mg/kg	0.0018	0.00018	1
Benzene	0.00024	J	mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00092	0.00024	1
Toluene	ND		mg/kg	0.00092	0.00050	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.00016	J	mg/kg	0.00092	0.00013	1
p/m-Xylene	ND		mg/kg	0.0018	0.00052	1
o-Xylene	ND		mg/kg	0.00092	0.00027	1
Xylenes, Total	ND		mg/kg	0.00092	0.00027	1
Isopropylbenzene	ND		mg/kg	0.00092	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.00040	J	mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-06	Date Collected:	02/09/22 11:20
Client ID:	PB-37-07-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:21
Analyst: JC
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0018	0.00018	1
Benzene	0.021		mg/kg	0.00044	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00089	0.00023	1
Toluene	0.012		mg/kg	0.00089	0.00048	1
1,2-Dibromoethane	ND		mg/kg	0.00044	0.00026	1
Ethylbenzene	0.081		mg/kg	0.00089	0.00012	1
p/m-Xylene	0.13		mg/kg	0.0018	0.00050	1
o-Xylene	0.0080		mg/kg	0.00089	0.00026	1
Xylenes, Total	0.14		mg/kg	0.00089	0.00026	1
Isopropylbenzene	0.031		mg/kg	0.00089	0.00009	1
1,3,5-Trimethylbenzene	0.074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.15		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**60**	Q	70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 12:41
Analyst: JC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00072	J	mg/kg	0.0020	0.00020	1
Benzene	0.00019	J	mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	ND		mg/kg	0.0010	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	0.00015	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00056	1
o-Xylene	ND		mg/kg	0.0010	0.00029	1
Xylenes, Total	ND		mg/kg	0.0010	0.00029	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
Client ID: PB-37-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:02
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.017	J	mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.050	0.013	1
Toluene	0.034	J	mg/kg	0.050	0.027	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.19		mg/kg	0.050	0.0071	1
p/m-Xylene	0.18		mg/kg	0.10	0.028	1
o-Xylene	0.039	J	mg/kg	0.050	0.015	1
Xylenes, Total	0.22	J	mg/kg	0.050	0.015	1
Isopropylbenzene	0.27		mg/kg	0.050	0.0055	1
1,3,5-Trimethylbenzene	0.042	J	mg/kg	0.10	0.0097	1
1,2,4-Trimethylbenzene	0.13		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	121		70-130
4-Bromofluorobenzene	**164**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-09 D	Date Collected:	02/09/22 11:50
Client ID:	PB-37-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/11/22 13:23
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.92	J	mg/kg	1.1	0.11	10
Benzene	1.7		mg/kg	0.28	0.093	10
1,2-Dichloroethane	ND		mg/kg	0.56	0.14	10
Toluene	ND		mg/kg	0.56	0.30	10
1,2-Dibromoethane	ND		mg/kg	0.28	0.16	10
Ethylbenzene	0.56		mg/kg	0.56	0.079	10
p/m-Xylene	ND		mg/kg	1.1	0.32	10
o-Xylene	ND		mg/kg	0.56	0.16	10
Xylenes, Total	ND		mg/kg	0.56	0.16	10
Isopropylbenzene	3.8		mg/kg	0.56	0.061	10
1,3,5-Trimethylbenzene	ND		mg/kg	1.1	0.11	10
1,2,4-Trimethylbenzene	ND		mg/kg	1.1	0.19	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
Client ID: FB-220209
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 12:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/11/22 16:56
Analyst: GT

Extraction Method: EPA 8011
Extraction Date: 02/11/22 14:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-10	Date Collected:	02/09/22 12:00
Client ID:	FB-220209	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/10/22 10:23
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	108		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-11	Date Collected:	02/09/22 00:00
Client ID:	TB-220209	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/11/22 14:30
Analytical Date:	02/11/22 17:04		
Analyst:	GT		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-11
Client ID: TB-220209
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 00:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/10/22 10:44
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	108		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/10/22 08:21
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 10-11 Batch: WG1604023-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	106		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8011	Extraction Method:	EPA 8011
Analytical Date:	02/11/22 15:57	Extraction Date:	02/11/22 14:30
Analyst:	GT		

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 10-11 Batch: WG1604118-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03,08-09 Batch: WG1604658-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 09:12
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,04-07 Batch: WG1604660-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	94		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 10-11 Batch: WG1604023-3 WG1604023-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	100		110		70-130	10		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		100		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	98		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA | **Lab Number:** L2206907

Project Number: 200.00135.005.03 | **Report Date:** 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 10-11 Batch: WG1604118-2									
1,2-Dibromoethane	110		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03,08-09 Batch: WG1604658-3 WG1604658-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,04-07 Batch: WG1604660-3 WG1604660-4								
Methyl tert butyl ether	71		74		66-130	4		30
Benzene	85		85		70-130	0		30
1,2-Dichloroethane	76		76		70-130	0		30
Toluene	91		89		70-130	2		30
1,2-Dibromoethane	97		93		70-130	4		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	91		91		70-130	0		30
o-Xylene	92		92		70-130	0		30
Isopropylbenzene	102		98		70-130	4		30
1,3,5-Trimethylbenzene	102		99		70-130	3		30
1,2,4-Trimethylbenzene	104		98		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		83		70-130
Toluene-d8	105		104		70-130
4-Bromofluorobenzene	112		110		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

SEMIVOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907

Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-01	Date Collected:	02/09/22 08:30
Client ID:	PB-28-09-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 16:52		
Analyst:	WR		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1
Fluorene	ND		mg/kg	0.20	0.019	1
Phenanthrene	ND		mg/kg	0.12	0.024	1
Anthracene	ND		mg/kg	0.12	0.038	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.022	1
Chrysene	ND		mg/kg	0.12	0.020	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.033	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.048	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	54		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-02	Date Collected:	02/09/22 08:50
Client ID:	PB-28-10-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 17:15		
Analyst:	WR		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.19	J	mg/kg	0.20	0.024	1
Fluorene	0.45		mg/kg	0.20	0.020	1
Phenanthrene	0.74		mg/kg	0.12	0.024	1
Anthracene	0.086	J	mg/kg	0.12	0.039	1
Pyrene	0.030	J	mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.021	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.034	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.049	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	86		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	53		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
Client ID: PB-28-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 09:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/14/22 17:37
Analyst: WR
Percent Solids: 80%
Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.6		mg/kg	0.21	0.025	1
Fluorene	0.19	J	mg/kg	0.21	0.020	1
Phenanthrene	0.27		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	0.023	J	mg/kg	0.12	0.021	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.051	1
Benzo(ghi)perylene	ND		mg/kg	0.17	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	60		30-120
4-Terphenyl-d14	58		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-04	Date Collected:	02/09/22 09:20
Client ID:	PB-28-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 18:00		
Analyst:	WR		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.21	0.025	1
Fluorene	ND		mg/kg	0.21	0.020	1
Phenanthrene	ND		mg/kg	0.12	0.025	1
Anthracene	ND		mg/kg	0.12	0.040	1
Pyrene	ND		mg/kg	0.12	0.020	1
Benzo(a)anthracene	ND		mg/kg	0.12	0.023	1
Chrysene	ND		mg/kg	0.12	0.022	1
Benzo(b)fluoranthene	ND		mg/kg	0.12	0.035	1
Benzo(a)pyrene	ND		mg/kg	0.16	0.050	1
Benzo(ghi)perylene	ND		mg/kg	0.16	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	89		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	74		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
Client ID: PB-37-04-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/14/22 18:22
Analyst: WR
Percent Solids: 94%

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:41

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	81		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-06	Date Collected:	02/09/22 11:20
Client ID:	PB-37-07-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 18:45		
Analyst:	WR		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	47		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 19:07		
Analyst:	WR		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	108		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-08	Date Collected:	02/09/22 11:40
Client ID:	PB-37-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/12/22 03:41
Analytical Date:	02/14/22 19:29		
Analyst:	WR		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	77		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-09	Date Collected:	02/09/22 11:50
Client ID:	PB-37-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/15/22 21:06
Analytical Date:	02/16/22 11:59		
Analyst:	IM		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	105		23-120
2-Fluorobiphenyl	76		30-120
4-Terphenyl-d14	81		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10
Client ID: FB-220209
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 12:00
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/13/22 12:58
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 02/12/22 10:42

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.02	1
Fluorene	ND		ug/l	0.10	0.004	1
Phenanthrene	ND		ug/l	0.10	0.01	1
Anthracene	ND		ug/l	0.10	0.004	1
Pyrene	ND		ug/l	0.10	0.01	1
Benzo(a)anthracene	ND		ug/l	0.10	0.08	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06	1
Benzo(a)pyrene	ND		ug/l	0.10	0.03	1
Benzo(ghi)perylene	ND		ug/l	0.50	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	72		41-149

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/13/22 18:02
Analyst: SLR

Extraction Method: EPA 3546
Extraction Date: 02/12/22 03:17

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-08 Batch: WG1604253-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.098	0.020
Anthracene	ND		mg/kg	0.098	0.032
Pyrene	ND		mg/kg	0.098	0.016
Benzo(a)anthracene	ND		mg/kg	0.098	0.018
Chrysene	ND		mg/kg	0.098	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.098	0.027
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	83		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/13/22 11:37	Extraction Date:	02/12/22 10:27
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 10 Batch: WG1604340-1					
Naphthalene	ND		ug/l	0.10	0.02
Fluorene	ND		ug/l	0.10	0.004
Phenanthrene	ND		ug/l	0.10	0.01
Anthracene	ND		ug/l	0.10	0.004
Pyrene	ND		ug/l	0.10	0.01
Benzo(a)anthracene	ND		ug/l	0.10	0.08
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.10	0.06
Benzo(a)pyrene	ND		ug/l	0.10	0.03
Benzo(ghi)perylene	ND		ug/l	0.50	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	59		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	73		41-149

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/16/22 01:12	Extraction Date:	02/15/22 08:00
Analyst:	IM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 09 Batch: WG1605012-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	84		25-120
Phenol-d6	83		10-120
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	86		30-120
2,4,6-Tribromophenol	99		10-136
4-Terphenyl-d14	92		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-08 Batch: WG1604253-2 WG1604253-3								
Naphthalene	84		80		40-140	5		50
Fluorene	91		90		40-140	1		50
Phenanthrene	86		84		40-140	2		50
Anthracene	86		84		40-140	2		50
Pyrene	87		86		35-142	1		50
Benzo(a)anthracene	86		84		40-140	2		50
Chrysene	84		81		40-140	4		50
Benzo(b)fluoranthene	82		84		40-140	2		50
Benzo(a)pyrene	82		78		40-140	5		50
Benzo(ghi)perylene	69		67		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	78		77		23-120
2-Fluorobiphenyl	95		95		30-120
4-Terphenyl-d14	90		89		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 10 Batch: WG1604340-2 WG1604340-3								
Naphthalene	79		72		40-140	9		40
Fluorene	87		81		40-140	7		40
Phenanthrene	80		76		40-140	5		40
Anthracene	85		81		40-140	5		40
Pyrene	90		87		26-127	3		40
Benzo(a)anthracene	96		88		40-140	9		40
Chrysene	75		73		40-140	3		40
Benzo(b)fluoranthene	92		83		40-140	10		40
Benzo(a)pyrene	91		85		40-140	7		40
Benzo(ghi)perylene	84		80		40-140	5		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	88		80		23-120
2-Fluorobiphenyl	82		72		15-120
4-Terphenyl-d14	88		83		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 09 Batch: WG1605012-2 WG1605012-3								
Naphthalene	95		84		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	101		86		25-120
Phenol-d6	103		86		10-120
Nitrobenzene-d5	103		87		23-120
2-Fluorobiphenyl	99		85		30-120
2,4,6-Tribromophenol	119		97		10-136
4-Terphenyl-d14	103		82		18-120

METALS

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-01	Date Collected:	02/09/22 08:30
Client ID:	PB-28-09-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.50		mg/kg	2.31	0.124	1	02/11/22 09:25	02/13/22 17:28	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02
Date Collected: 02/09/22 08:50
Client ID: PB-28-10-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.65		mg/kg	2.33	0.125	1	02/11/22 09:25	02/13/22 17:32	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-03
Date Collected: 02/09/22 09:10
Client ID: PB-28-13-SS01
Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.82		mg/kg	2.37	0.127	1	02/11/22 09:25	02/13/22 17:37	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-04	Date Collected:	02/09/22 09:20
Client ID:	PB-28-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	35.5		mg/kg	2.41	0.129	1	02/11/22 09:25	02/13/22 18:13	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-05	Date Collected:	02/09/22 11:10
Client ID:	PB-37-04-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	12.4		mg/kg	2.04	0.109	1	02/11/22 09:25	02/13/22 18:18	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06
Client ID: PB-37-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 11:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.19		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:22	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	89%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	15.9		mg/kg	2.12	0.114	1	02/11/22 09:25	02/13/22 18:27	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-08	Date Collected:	02/09/22 11:40
Client ID:	PB-37-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	58.5		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:32	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-09	Date Collected:	02/09/22 11:50
Client ID:	PB-37-14-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.42		mg/kg	2.03	0.109	1	02/11/22 09:25	02/13/22 18:37	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-10 Date Collected: 02/09/22 12:00
Client ID: FB-220209 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/10/22 13:15	02/10/22 20:25	EPA 3005A	1,6020B	SV

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 10 Batch: WG1603545-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/10/22 13:15	02/10/22 18:08	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-09 Batch: WG1603728-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/11/22 08:46	02/13/22 16:23	1,6010D	DL

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 Batch: WG1603545-2								
Lead, Total	96		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-09 Batch: WG1603728-2 SRM Lot Number: D113-540								
Lead, Total	89		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-3 QC Sample: L2206783-01 Client ID: MS Sample												
Lead, Total	1.486	530	531.6	100		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-3 QC Sample: L2206903-05 Client ID: MS Sample												
Lead, Total	161	48.8	194	**68**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2206907

Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 10 QC Batch ID: WG1603545-4 QC Sample: L2206783-01 Client ID: DUP Sample						
Lead, Total	1.486	1.504	ug/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-4 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	190	mg/kg	17		20

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-09 QC Batch ID: WG1603728-6 QC Sample: L2206903-05 Client ID: DUP Sample						
Lead, Total	161	218	mg/kg	**35**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-01
Client ID: PB-28-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 08:30
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-02
Client ID: PB-28-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 08:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-03	Date Collected:	02/09/22 09:10
Client ID:	PB-28-13-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-04
Client ID: PB-28-14-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 09:20
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-05
Client ID: PB-37-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 11:10
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.0		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-06 Date Collected: 02/09/22 11:20
Client ID: PB-37-07-SS01 Date Received: 02/09/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2206907
Project Number:	200.00135.005.03	**Report Date:**	02/16/22

SAMPLE RESULTS

Lab ID:	L2206907-07	Date Collected:	02/09/22 11:30
Client ID:	PB-37-08-SS01	Date Received:	02/09/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.6		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2206907
Project Number: 200.00135.005.03 **Report Date:** 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-08
Client ID: PB-37-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/09/22 11:40
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.5		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2206907
Project Number: 200.00135.005.03
Report Date: 02/16/22

SAMPLE RESULTS

Lab ID: L2206907-09
Client ID: PB-37-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/09/22 11:50
Date Received: 02/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.9		%	0.100	NA	1	-	02/10/22 08:42	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2206907
Report Date: 02/16/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1603381-1 QC Sample: L2205996-17 Client ID: DUP Sample						
Solids, Total	96.8	97.2	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-01A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2206907-01B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260H(14),PA-8260HLW(14)
L2206907-01D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-01E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-01F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-02A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-02B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-02D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-02E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-02F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-03A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-03B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-03D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)
L2206907-03E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-03F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-04A	Vial MeOH preserved	B	NA		2.1	Y	Absent		PA-8260HLW(14)
L2206907-04B	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04C	Vial water preserved	B	NA		2.1	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-04D	Plastic 120ml unpreserved	B	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-04E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		2.1	Y	Absent		PB-TI(180)
L2206907-04F	Glass 120ml/4oz unpreserved	B	NA		2.1	Y	Absent		PA-PAH(14)
L2206907-05A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-05B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-05D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-05E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-06A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-06B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-06D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-06E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-07A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-07B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-07D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-07E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-08A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-08B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-08D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-08E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-09A	Vial MeOH preserved	A	NA		2.4	Y	Absent		PA-8260HLW(14)
L2206907-09B	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09C	Vial water preserved	A	NA		2.4	Y	Absent	10-FEB-22 06:23	PA-8260HLW(14)
L2206907-09D	Plastic 120ml unpreserved	A	NA		2.4	Y	Absent		PB-TI(180)
L2206907-09E	Glass 60mL/2oz unpreserved	A	NA		2.4	Y	Absent		TS(7),PA-PAH(14)
L2206907-10A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2206907-10B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10C	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-10D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10E	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-10F	Plastic 250ml HNO3 preserved	B	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2206907-10G	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-10H	Amber 1000ml unpreserved	B	7	7	2.1	Y	Absent		PA-PAHSIM(7)
L2206907-11A	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11B	Vial HCl preserved	B	NA		2.1	Y	Absent		PA-8260(14)
L2206907-11C	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)
L2206907-11D	Vial Na2S2O3 preserved	B	NA		2.1	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:02162214:58

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206907

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery
SOIL CHARACTERIZATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06907-01	PB-28-09-SS01	2/9	830	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
02	PB-28-10-SS01		850	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
03	PB-28-13-SS01		910	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
04	PB-28-14-SS01		920	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
05	PB-37-04-SS01		1110	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
06	PB-37-07-SS01		1120	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
07	PB-37-08-SS01		1130	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
08	PB-37-13-SS01		1140	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
09	PB-37-14-SS01		1150	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
10	FB-220209		1200	GW	TS	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9 1540	[signature] AAL	2/9 1540
[signature] AAL	2/9 1800	[signature] AAL	2/9/22 1800
[signature] AAL	2/9/22	Anthony [illegible]	2/9/22 2030
Anthony [illegible]	2/9/22	[signature] AAL	2/9/22 0100
[signature] AAL	2/10/22		2/10/22 0255

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF COUNTY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/10/22

ALPHA Job #: L2206907

Project Information

Project Name: Philadelphia Refinery
SOIL CHARACTERIZATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
06907-11	TB-220209	2/9	–	W	TJ	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/9/22 1410	[signature] AAC	2/9 1540
[signature] AAC	2/9/22 1800	[signature] AAC	2/9/22 1800
[signature] AAC	2/9/22	Anthony Green	2/9/22 2030
Anthony Green	2/9/22	[signature] AAC	2/10/22 0100
[signature]			2/10/22 0755

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

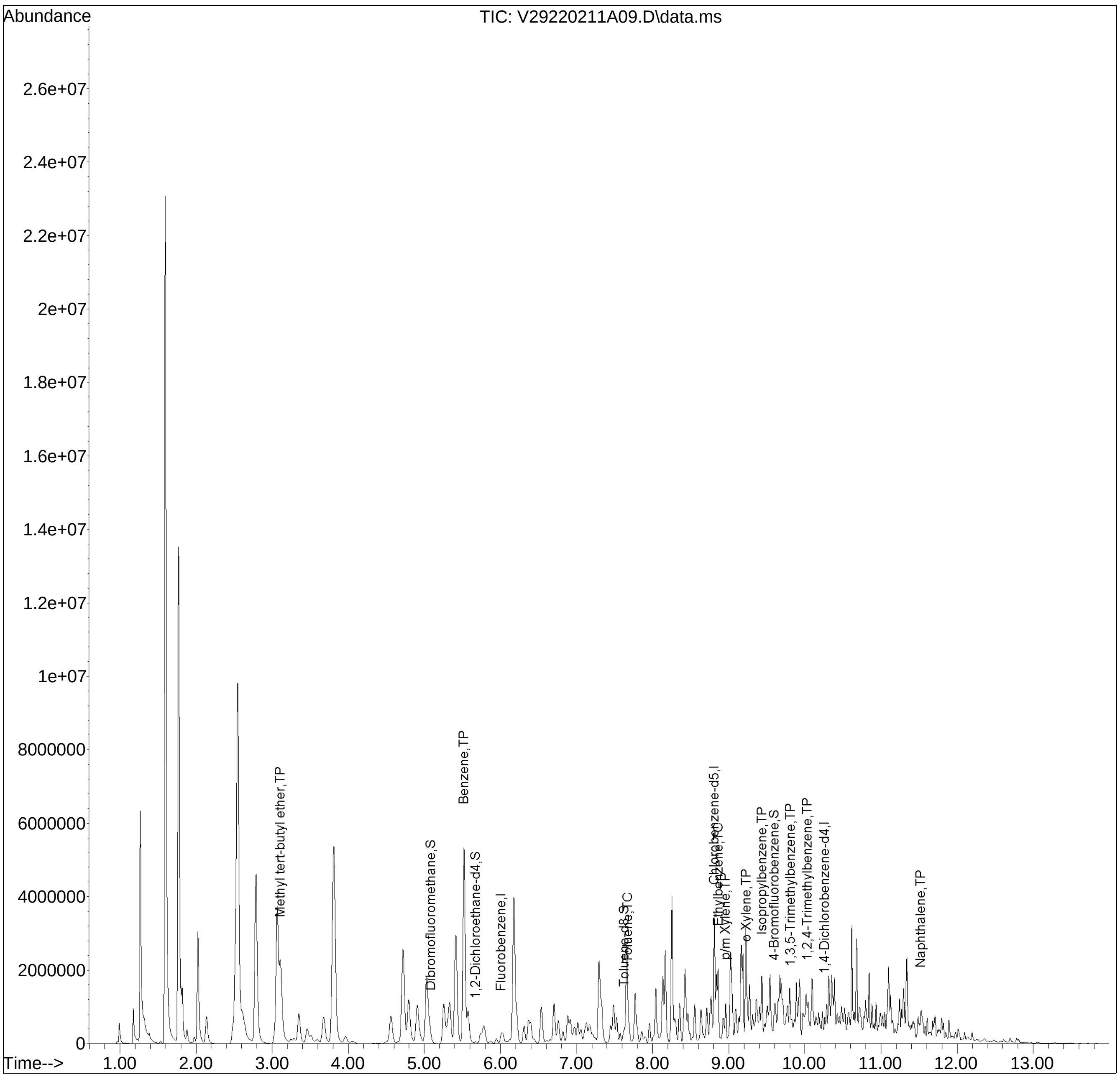
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A09.D
Acq On : 11 Feb 2022 10:37 am
Operator : VOA129:JC
Sample : L2206907-01,31,6.14,5,,C,R2F
Misc : WG1604660,ICAL18564
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 14 07:53:53 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

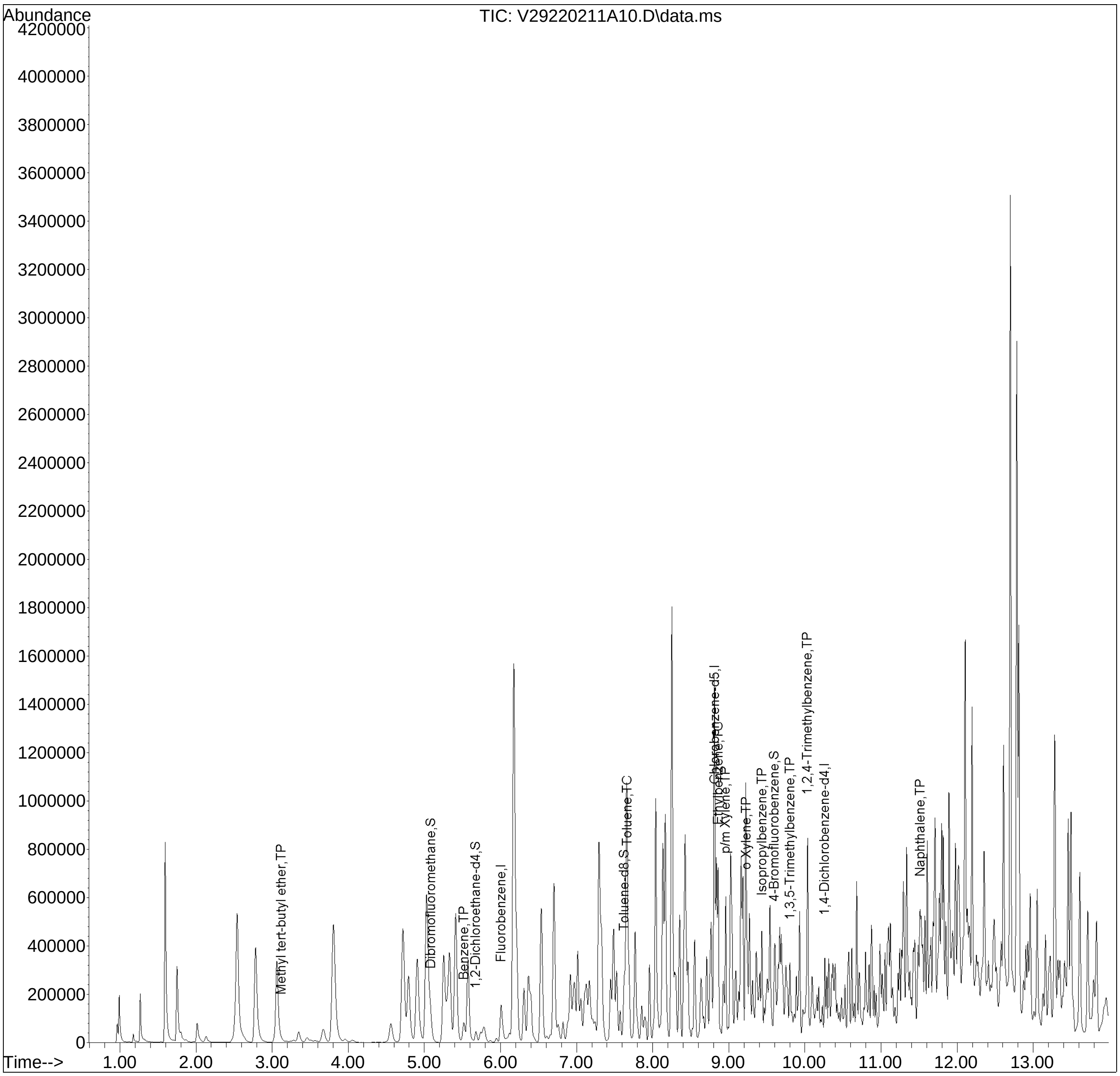


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A10.D
Acq On    : 11 Feb 2022  10:58 am
Operator  : VOA129:JC
Sample    : L2206907-02D,31H,5.63,5,0.050,,A,R2F
Misc      : WG1604658,ICAL18564
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Feb 14 06:32:26 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•
```

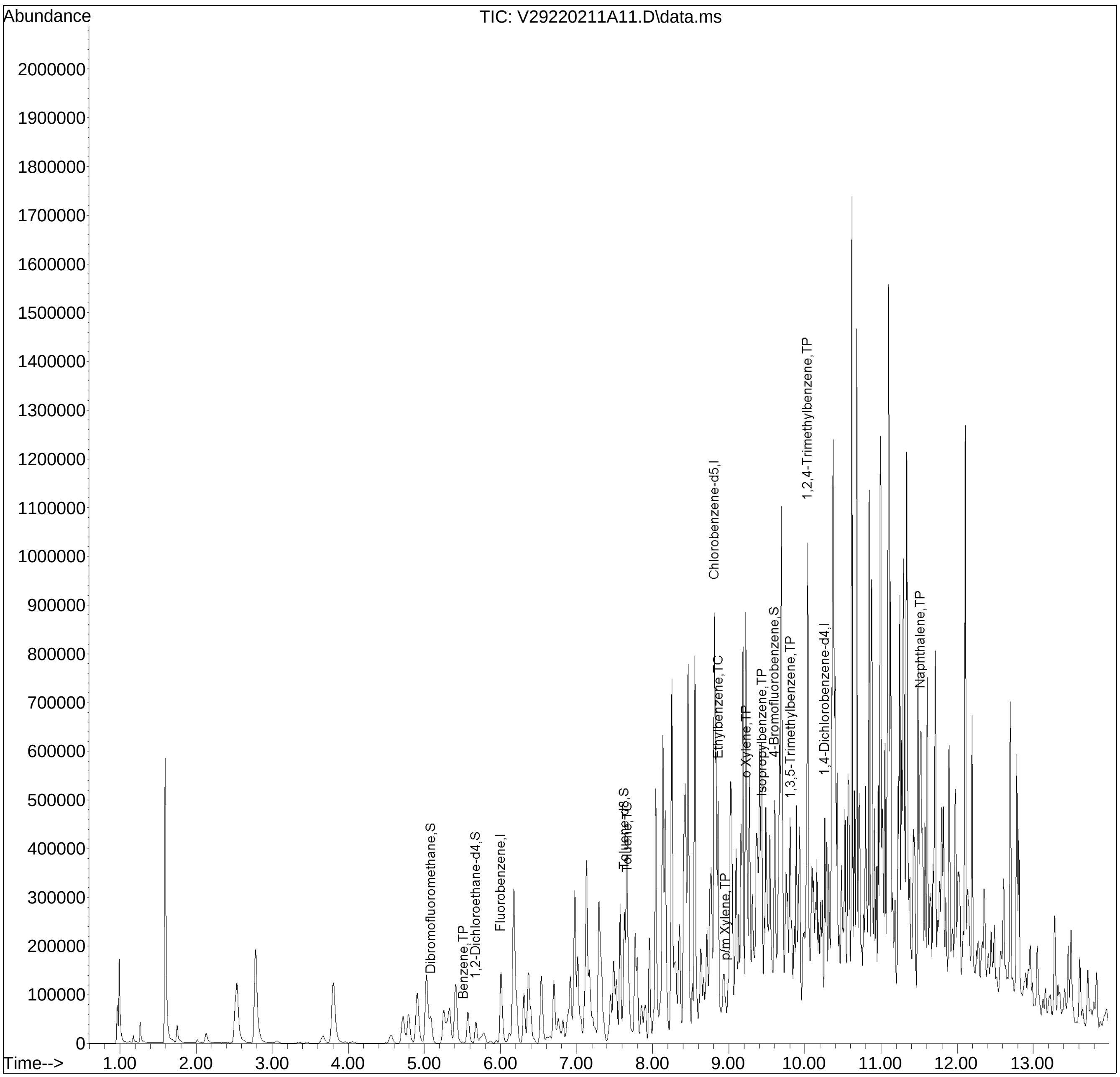


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A11.D
Acq On : 11 Feb 2022 11:18 am
Operator : VOA129:JC
Sample : L2206907-03D,31H,5.80,5,0.050,,A,R2F
Misc : WG1604658,ICAL18564
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 14 07:55:41 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

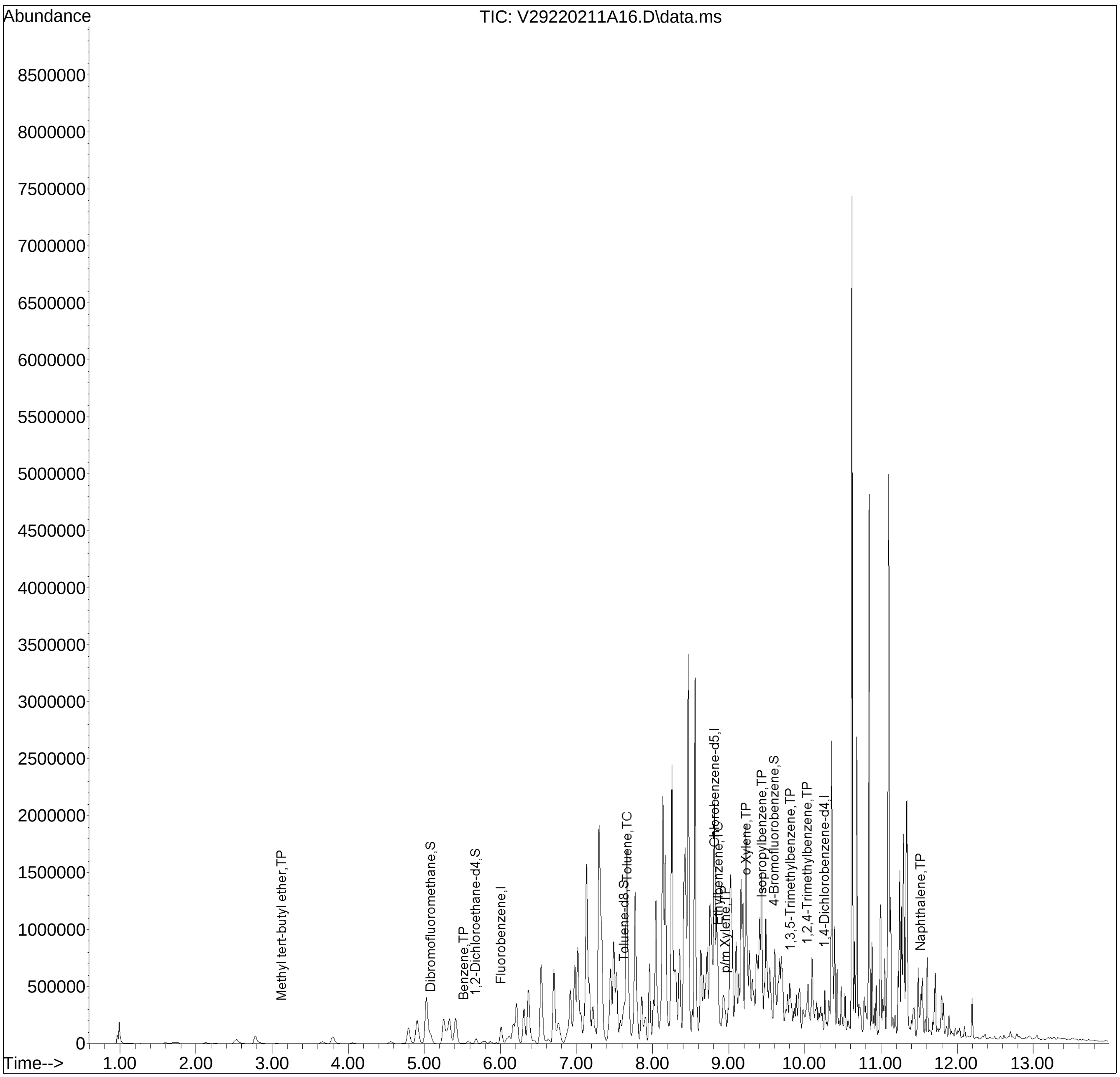


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A16.D
Acq On : 11 Feb 2022 01:02 pm
Operator : VOA129:JC
Sample : L2206907-08,31H,5.69,5,0.100,,A,R2F
Misc : WG1604658,ICAL18564
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 14 07:58:50 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•

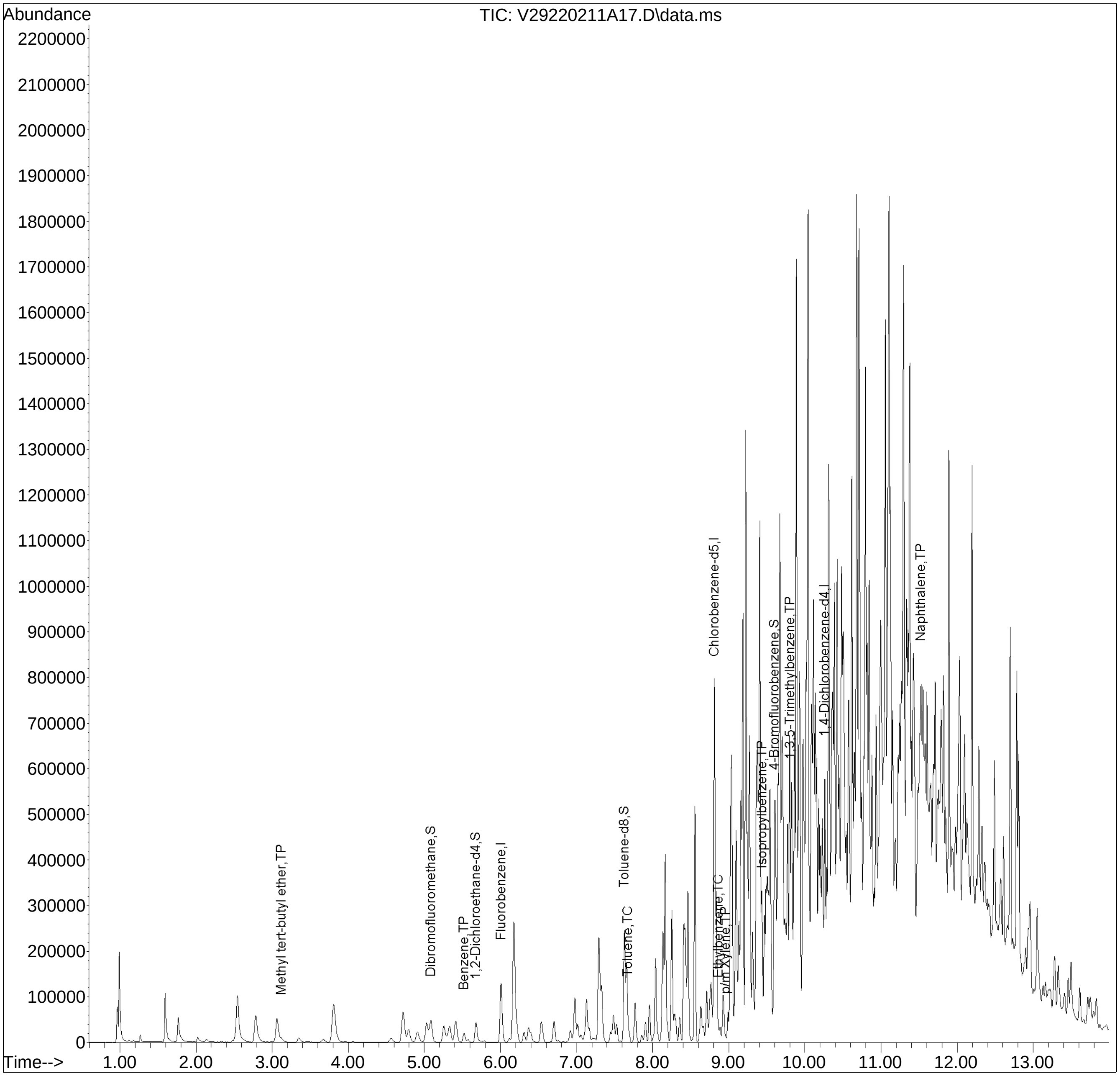


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA129\2022\220211A\
Data File : V29220211A17.D
Acq On : 11 Feb 2022 01:23 pm
Operator : VOA129:JC
Sample : L2206907-09D,31H,5.02,5,0.010,,A,R2F
Misc : WG1604658,ICAL18564
ALS Vial : 17 Sample Multiplier: 1

Quant Time: Feb 14 07:59:20 2022
Quant Method : I:\VOLATILES\VOA129\2022\220211A\V129_211213N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 10:56:36 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list11A\V29220211A02.D•



ANALYTICAL REPORT

Lab Number:	L2207184
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207184-01	PB-39-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:15	02/10/22
L2207184-02	PB-39-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:25	02/10/22
L2207184-03	PB-85-06R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 09:45	02/10/22
L2207184-04	PB-85-06R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 09:55	02/10/22
L2207184-05	PB-36-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:00	02/10/22
L2207184-06	PB-36-07R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 11:40	02/10/22
L2207184-07	PB-36-07R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/10/22 11:30	02/10/22
L2207184-08	PB-36-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 11:50	02/10/22
L2207184-09	PB-35-08R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-10	PB-35-08R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 14:30	02/10/22
L2207184-11	PB-36-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/10/22 10:45	02/10/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2207184-01 through -04, -06, -09, -10, and -11.

Report Submission

March 01, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207184-02, -04, and -09.

Report Revision

February 22, 2022. This is a preliminary report. At the client's request, the Volatile Organics reporting list has been amended on L2207184-11, and the Client IDs have been revised on L2207184-07 and -08.

Report Submission

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207184-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207184-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207184-06D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

Case Narrative (continued)

L2207184-06D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-01
Client ID: PB-39-12R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:15
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 16:41
Analyst: KD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	1.7		mg/kg	0.031	0.010	1
Toluene	7.1		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.35		mg/kg	0.062	0.0087	1
p/m-Xylene	1.4		mg/kg	0.12	0.035	1
o-Xylene	0.53		mg/kg	0.062	0.018	1
Xylenes, Total	1.9		mg/kg	0.062	0.018	1
Isopropylbenzene	0.45		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	0.094	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.46		mg/kg	0.12	0.021	1
Naphthalene	0.71		mg/kg	0.25	0.040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-02 D	Date Collected:	02/10/22 09:25
Client ID:	PB-39-12R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/23/22 22:36
Analyst:	KDU
Percent Solids:	87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	45.		mg/kg	0.70	0.23	20
Toluene	360		mg/kg	1.4	0.76	20
Ethylbenzene	80.		mg/kg	1.4	0.20	20
p/m-Xylene	380		mg/kg	2.8	0.79	20
o-Xylene	130		mg/kg	1.4	0.41	20
Xylenes, Total	510		mg/kg	1.4	0.41	20
Naphthalene	20.		mg/kg	5.6	0.91	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-03 D2
Client ID: PB-85-06R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:45
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 17:26
Analyst: AJK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.12	J	mg/kg	0.21	0.021	2
Benzene	15.		mg/kg	0.052	0.017	2
Toluene	120	E	mg/kg	0.10	0.057	2
1,2-Dibromoethane	ND		mg/kg	0.052	0.031	2
Ethylbenzene	28.		mg/kg	0.10	0.015	2
p/m-Xylene	150	E	mg/kg	0.21	0.059	2
o-Xylene	50.		mg/kg	0.10	0.030	2
Xylenes, Total	180		mg/kg	0.10	0.030	2
Isopropylbenzene	1.9		mg/kg	0.10	0.011	2
1,3,5-Trimethylbenzene	17.		mg/kg	0.21	0.020	2
1,2,4-Trimethylbenzene	53.	E	mg/kg	0.21	0.035	2
Naphthalene	6.4		mg/kg	0.42	0.068	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	76		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-03 D	Date Collected:	02/10/22 09:45
Client ID:	PB-85-06R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:06
Analyst: KD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	110		mg/kg	1.0	0.57	20
p/m-Xylene	130		mg/kg	2.1	0.59	20
1,2,4-Trimethylbenzene	53.		mg/kg	2.1	0.35	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-04	Date Collected:	02/10/22 09:55
Client ID:	PB-85-06R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/24/22 21:13
Analyst:	KJD
Percent Solids:	86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.0031		mg/kg	0.00047	0.00015	1
Toluene	0.031		mg/kg	0.00093	0.00051	1
Ethylbenzene	0.0050		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.022		mg/kg	0.0019	0.00052	1
o-Xylene	0.0088		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.031		mg/kg	0.00093	0.00027	1
Naphthalene	0.015		mg/kg	0.0037	0.00061	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-06 D	Date Collected:	02/10/22 11:40
Client ID:	PB-36-07R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:31
Analyst: KD
Percent Solids: 93%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2.5
Benzene	0.32		mg/kg	0.070	0.023	2.5
Toluene	ND		mg/kg	0.14	0.076	2.5
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	2.5
Ethylbenzene	2.9		mg/kg	0.14	0.020	2.5
p/m-Xylene	4.4		mg/kg	0.28	0.078	2.5
o-Xylene	0.31		mg/kg	0.14	0.041	2.5
Xylenes, Total	4.7		mg/kg	0.14	0.041	2.5
Isopropylbenzene	1.9		mg/kg	0.14	0.015	2.5
1,3,5-Trimethylbenzene	2.0		mg/kg	0.28	0.027	2.5
1,2,4-Trimethylbenzene	17.		mg/kg	0.28	0.047	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-09	Date Collected:	02/10/22 14:30
Client ID:	PB-35-08R-14.0-14.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 00:24
Analyst: KDU
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.24		mg/kg	0.051	0.017	1
Toluene	ND		mg/kg	0.10	0.055	1
Ethylbenzene	0.16		mg/kg	0.10	0.014	1
p/m-Xylene	0.10	J	mg/kg	0.20	0.057	1
o-Xylene	0.053	J	mg/kg	0.10	0.030	1
Xylenes, Total	0.15	J	mg/kg	0.10	0.030	1
Naphthalene	1.0		mg/kg	0.41	0.066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	102		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-10 D2
Client ID: PB-35-08R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 14:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 17:01
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.24	0.025	2
Benzene	2.4		mg/kg	0.061	0.020	2
Toluene	46.	E	mg/kg	0.12	0.067	2
1,2-Dibromoethane	ND		mg/kg	0.061	0.036	2
Ethylbenzene	20.		mg/kg	0.12	0.017	2
p/m-Xylene	96.	E	mg/kg	0.24	0.069	2
o-Xylene	28.		mg/kg	0.12	0.036	2
Xylenes, Total	110		mg/kg	0.12	0.036	2
Isopropylbenzene	1.2		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	13.		mg/kg	0.24	0.024	2
1,2,4-Trimethylbenzene	43.	E	mg/kg	0.24	0.041	2
Naphthalene	8.1		mg/kg	0.49	0.080	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	83		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-10	D	Date Collected:	02/10/22 14:30
Client ID:	PB-35-08R-6.0-6.5		Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA		Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:56
Analyst: KD
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	42.		mg/kg	0.31	0.17	5
p/m-Xylene	83.		mg/kg	0.61	0.17	5
1,2,4-Trimethylbenzene	40.		mg/kg	0.61	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	91		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-11
Client ID: PB-36-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 10:45
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 18:21
Analyst: KD
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0012	J	mg/kg	0.0024	0.00024	1
Benzene	0.00074		mg/kg	0.00061	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
1,2-Dibromoethane	ND		mg/kg	0.00061	0.00036	1
Ethylbenzene	0.00021	J	mg/kg	0.0012	0.00017	1
p/m-Xylene	ND		mg/kg	0.0024	0.00068	1
o-Xylene	ND		mg/kg	0.0012	0.00035	1
Xylenes, Total	ND		mg/kg	0.0012	0.00035	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00024	1
1,2,4-Trimethylbenzene	0.00041	J	mg/kg	0.0024	0.00041	1
Naphthalene	0.00083	J	mg/kg	0.0049	0.00079	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 11 Batch: WG1605544-5					
Methyl tert butyl ether	0.00023	J	mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 12:56
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,03,06,10 Batch: WG1605547-5					
Methyl tert butyl ether	0.011	J	mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,09 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/24/22 20:46
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1609164-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	107		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 11 Batch: WG1605544-3 WG1605544-4								
Methyl tert butyl ether	101		99		66-130	2		30
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
1,2-Dibromoethane	102		99		70-130	3		30
Ethylbenzene	103		101		70-130	2		30
p/m-Xylene	103		101		70-130	2		30
o-Xylene	104		101		70-130	3		30
Isopropylbenzene	112		108		70-130	4		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30
Naphthalene	107		104		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,03,06,10 Batch: WG1605547-3 WG1605547-4								
Methyl tert butyl ether	101		99		66-130	2		30
Benzene	99		96		70-130	3		30
Toluene	103		100		70-130	3		30
1,2-Dibromoethane	102		99		70-130	3		30
Ethylbenzene	103		101		70-130	2		30
p/m-Xylene	103		101		70-130	2		30
o-Xylene	104		101		70-130	3		30
Isopropylbenzene	112		108		70-130	4		30
1,3,5-Trimethylbenzene	107		105		70-130	2		30
1,2,4-Trimethylbenzene	106		103		70-130	3		30
Naphthalene	107		104		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		99		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	111		111		70-130
Dibromofluoromethane	95		95		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,09 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30
Toluene	82		81		70-130	1		30
Ethylbenzene	78		77		70-130	1		30
p/m-Xylene	85		83		70-130	2		30
o-Xylene	84		83		70-130	1		30
Naphthalene	92		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1609164-3 WG1609164-4								
Methyl tert butyl ether	80		82		66-130	2		30
Benzene	84		85		70-130	1		30
Toluene	83		82		70-130	1		30
Ethylbenzene	79		79		70-130	0		30
p/m-Xylene	86		86		70-130	0		30
o-Xylene	87		85		70-130	2		30
Naphthalene	99		99		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		90		70-130
Toluene-d8	92		91		70-130
4-Bromofluorobenzene	85		85		70-130
Dibromofluoromethane	98		102		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-06	Date Collected:	02/10/22 11:40
Client ID:	PB-36-07R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 13:19
Analytical Date:	02/18/22 00:32		
Analyst:	WR		
Percent Solids:	93%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.2		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	79		18-120

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-07	Date Collected:	02/10/22 11:30
Client ID:	PB-36-07R-0.0-0.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 17:50
Analytical Date:	02/18/22 08:03		
Analyst:	IM		
Percent Solids:	80%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/17/22 13:34	Extraction Date:	02/16/22 22:53
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207184

Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO | **Lab Number:** L2207184
Project Number: 200.00135.005.03 | **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-01
Client ID: PB-39-12R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:15
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-02
Date Collected: 02/10/22 09:25
Client ID: PB-39-12R-14.0-14.5
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.6		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO | **Lab Number:** L2207184
Project Number: 200.00135.005.03 | **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-03 | Date Collected: 02/10/22 09:45
Client ID: PB-85-06R-6.0-6.5 | Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-04
Client ID: PB-85-06R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 09:55
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.0		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207184
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-06
Client ID: PB-36-07R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 11:40
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	93.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-07 Date Collected: 02/10/22 11:30
Client ID: PB-36-07R-0.0-0.5 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-09 Date Collected: 02/10/22 14:30
Client ID: PB-35-08R-14.0-14.5 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.5		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207184
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207184-10 Date Collected: 02/10/22 14:30
Client ID: PB-35-08R-6.0-6.5 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207184
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207184-11	Date Collected:	02/10/22 10:45
Client ID:	PB-36-03R-6.0-6.5	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207184
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,03,06-07,10-11 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: PB-39-12R-6.0-6.5						
Solids, Total	80.4	82.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 02,04,09 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207184-01A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-01B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-01D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-02A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-02B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-02D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-03A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-03B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-03D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-04A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-04B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-04D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-05A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-05B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-05D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-06A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW(14)
L2207184-06B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207184-06C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207184-06D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)
L2207184-06E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		PA-PAH(14)
L2207184-07A	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		TS(7),PA-PAH(14)
L2207184-08A	Vial MeOH preserved	A	NA		2.9	Y	Absent		HOLD-8260HLW(14)
L2207184-08B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	HOLD-8260HLW(14)
L2207184-08D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		HOLD-WETCHEM()
L2207184-08E	Glass 120ml/4oz unpreserved	A	NA		2.9	Y	Absent		HOLD-8270(14)
L2207184-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207184-11A	Vial MeOH preserved	A	NA		2.9	Y	Absent		PA-8260HLW-BTEX(14)
L2207184-11B	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11C	Vial water preserved	A	NA		2.9	Y	Absent	11-FEB-22 09:20	PA-8260HLW-BTEX(14)
L2207184-11D	Plastic 2oz unpreserved for TS	A	NA		2.9	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Date Rec'd in Lab: 2/11/22	ALPHA Job #: L2207184

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per ~~attached~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	~~Benzo(a)pyrene~~ TS	~~Benzo(b)fluoranthene~~	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYL BENZENE	XYLENES			Sample Specific Comments	TOTAL # BOTTLES
07184-01	PB-34-12R-6.0-6.5	2/10	09:15	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☐	☐	☐		4
-02	PB-34-12R-14.0-14.5		09:25	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☐	☐	☐	HOLD	4
-03	PB-85-062-6.0-6.5		0945	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
-04	PB-85-062-14.0-14.5		0955	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
-05	PB-36-03R-14.0-14.5		1100	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☐	☐	☐	☐	HOLD	[illegible]
-06	PB-36-07R-6.0-6.5		1140	S	TS	☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☐	☐		
-07	PB-37-07R-0.0-0.5		1130	S	TS	☐	☐	☐	☐	☐	☑	☐	☐	☐	☐	☐	☐		
-08	PB-37-07R-14.0-14.5		1150	S	TS	☐	☐	☐	☐	☐	☑	☑	☑	☑	☑	☐	☐	HOLD	
-09	PB-35-08R-14.0-14.5		1420	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	4
-10	PB-35-08R-6.0-6.5		1430	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		4
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	STOR AAL	2/10/22 15:10
[signature]	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	[signature]	2/10/22 2050
[signature]	2/10/22	[signature] AAL	2/11/22 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207184

Project Information

Project Name: PES Refinery - ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

~~☒ Standard~~ TS ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

~~***Report only project-specific analyte list per attached***~~ TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB				Sample Specific Comments	TOTAL # BOTTLES
07184-11	PB-36-032-6.0-6.5	2/10	~~1055~~ 1045 TS	S	TS	☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐		4

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	STS AAL	2/10/22 15:10
[signature]	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	[signature]	2/10/22 2030
[signature]	2/10/22	[signature] AAL	2/11/22 2005
[signature] AAL	2/11/22 2005	[signature]	2/11/22 0205

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

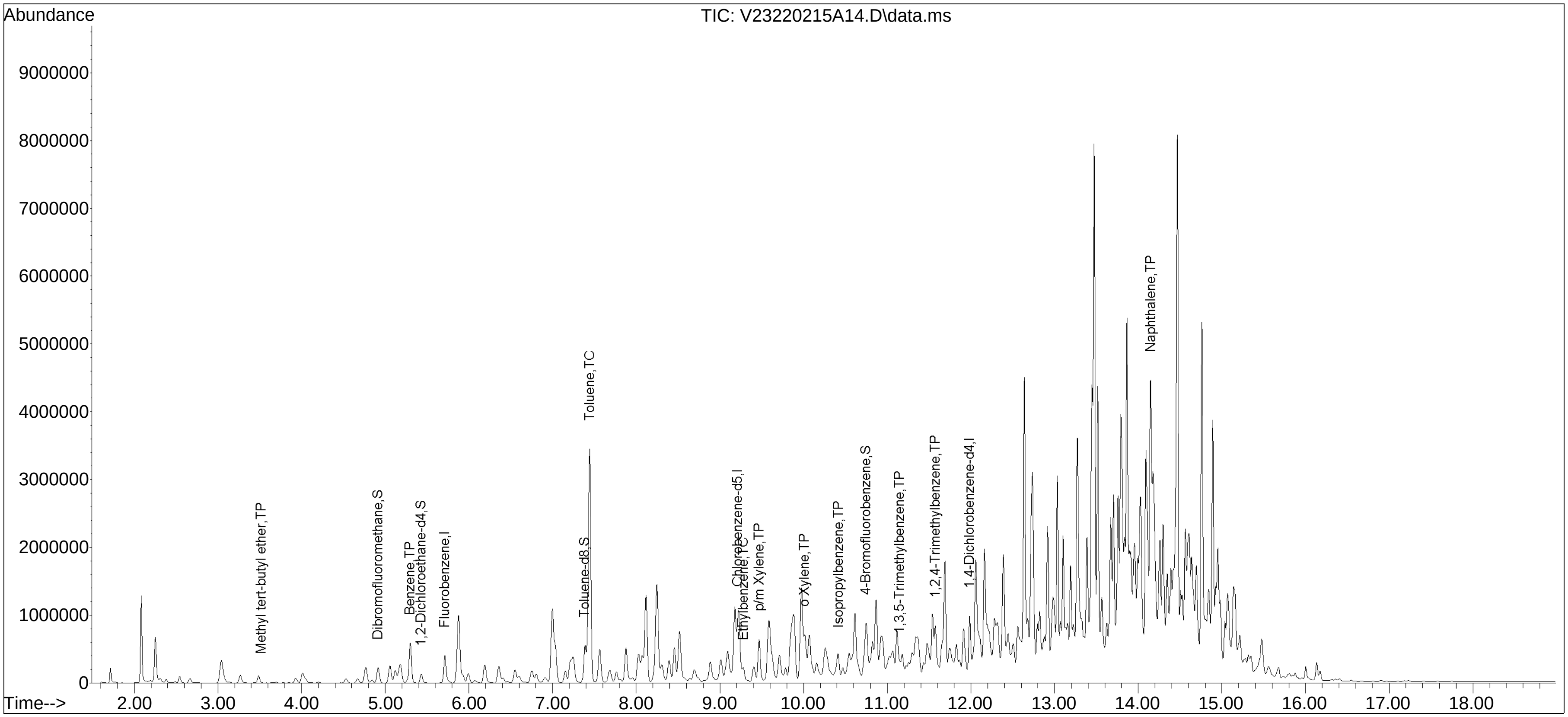
FORM NO: 01-01(HJ) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A14.D
Acq On   : 15 Feb 2022 04:41 pm
Operator : VOA123:KD
Sample   : l2207184-01,31H,6.25,5,0.100,,a,r2f
Misc   : WG1605547,ICAL18401
ALS Vial : 14   Sample Multiplier: 1

Quant Time: Feb 15 17:36:19 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•

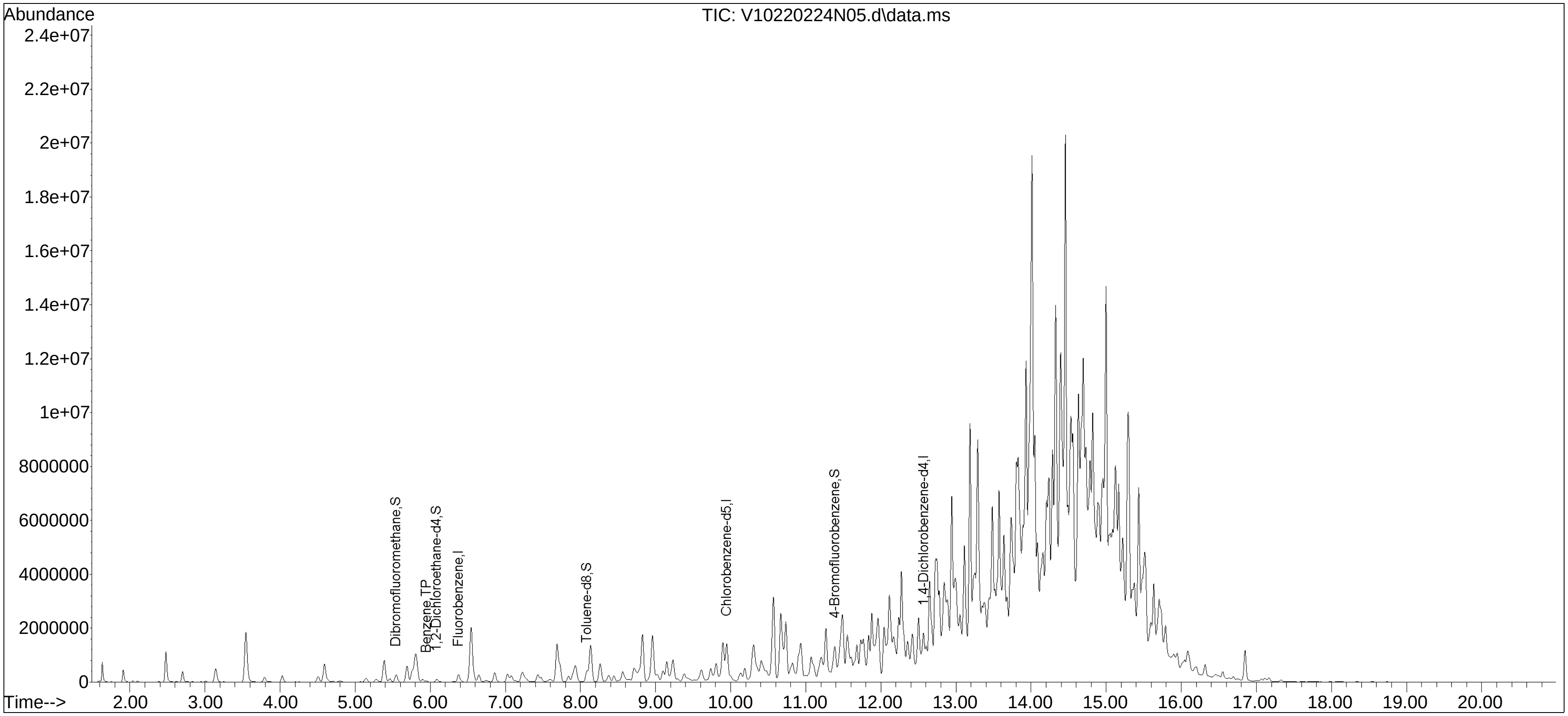


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2022\220224N\
Data File : V10220224N05.d
Acq On    : 24 Feb 2022   9:13 pm
Operator  : VOA110:NLK
Sample    : L2207184-04,31,6.23,5,,B,R2F
Misc      : WG1609164,ICAL18690
ALS Vial  : 5   Sample Multiplier: 1

Quant Time: Feb 24 21:34:55 2022
Quant Method : I:\VOLATILES\VOA110\2022\220224N\V110_220125N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List     : 8260-Benzene - benzene only2\220224N\V10220224N01.d•
```

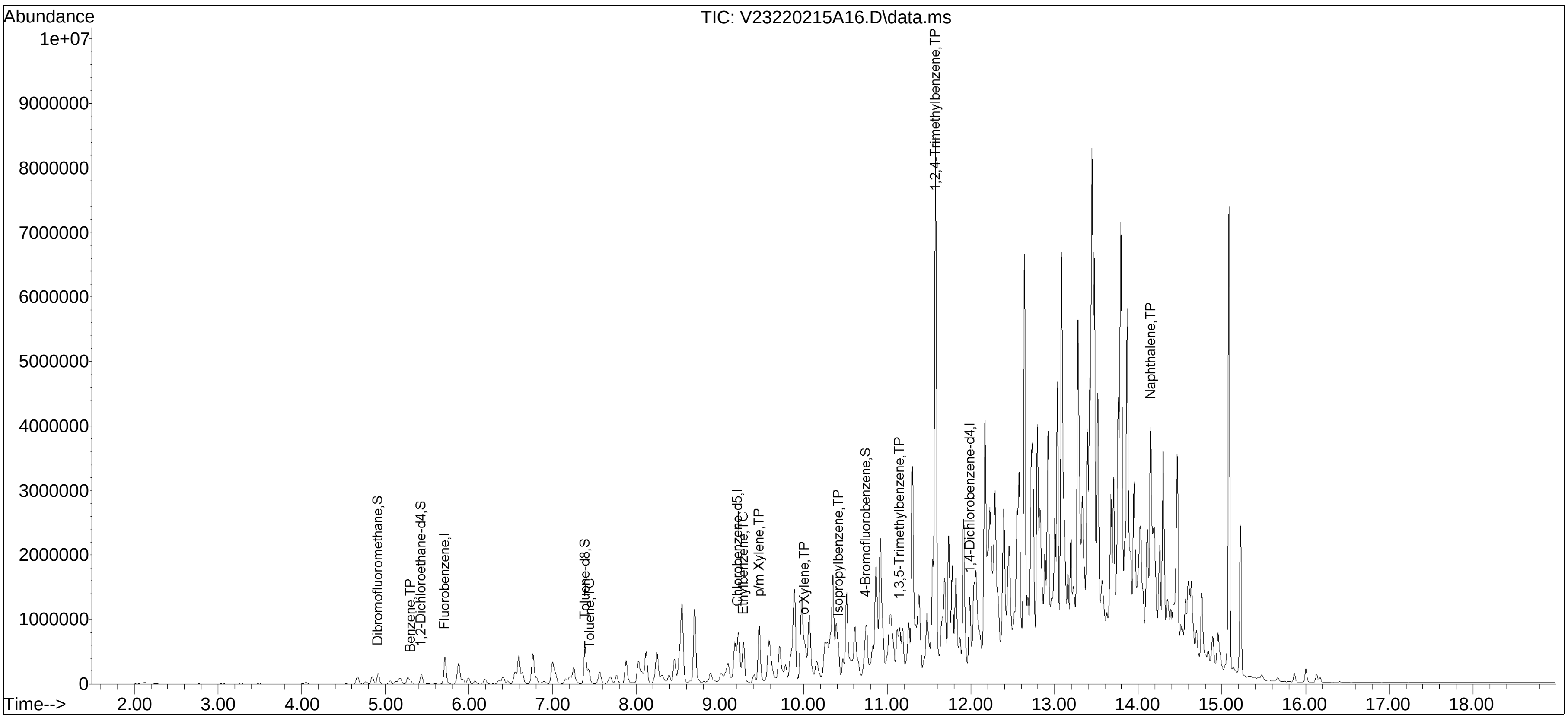


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220215A\
Data File : V23220215A16.D
Acq On : 15 Feb 2022 05:31 pm
Operator : VOA123:KD
Sample : l2207184-06D,31H,5.10,5,0.040,,a,r2f
Misc : WG1605547,ICAL18401
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 15 18:16:26 2022
Quant Method : I:\VOLATILES\VOA123\2022\220215A\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V23220215A01.D•



ANALYTICAL REPORT

Lab Number:	L2207185
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SOIL CHARACTERIZA
Project Number:	200.00135.005.03
Report Date:	02/17/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207185-01	PB-36-04-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:10	02/10/22
L2207185-02	PB-36-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:30	02/10/22
L2207185-03	PB-36-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:40	02/10/22
L2207185-04	PB-36-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 12:50	02/10/22
L2207185-05	PB-35-06-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:10	02/10/22
L2207185-06	PB-35-09-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:20	02/10/22
L2207185-07	PB-35-10-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:30	02/10/22
L2207185-08	PB-35-11-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:40	02/10/22
L2207185-09	PB-35-13-SS01	SOIL	PHILADELPHIA, PA	02/10/22 13:50	02/10/22
L2207185-10	PB-35-14-SS01	SOIL	PHILADELPHIA, PA	02/10/22 14:00	02/10/22
L2207185-11	FB-220210	WATER	PHILADELPHIA, PA	02/10/22 15:00	02/10/22
L2207185-12	TB-220210	WATER	PHILADELPHIA, PA	02/10/22 00:00	02/10/22
L2207185-13	DUP-26	SOIL	PHILADELPHIA, PA	02/10/22 00:00	02/10/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207185-02D2: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (135%) and 4-bromofluorobenzene (188%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (156%) due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-04: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

L2207185-05: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207185-06: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2207185-06 (Low): The surrogate recovery is outside the acceptance criteria for toluene-d8 (158%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-07 and -10: The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. Differences were noted between the results of the analyses which have been attributed

Case Narrative (continued)

to vial discrepancies.

L2207185-07 (Low): The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the Internal Standard.

L2207185-07 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (145%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-08: The internal standard (IS) response for fluorobenzene (257%) and the surrogate recovery for dibromofluoromethane (31%), toluene-d8 (332%) and 4-bromofluorobenzene (8050%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2207185-09: The internal standard (IS) response for fluorobenzene (451%) and the surrogate recoveries for 4-bromofluorobenzene (49%), dibromofluoromethane (19%), and toluene-d8 (492%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response wasabove method criteria, all associated compounds are considered to have a potentially low bias. The results of both analyses are reported.

L2207185-10 (Low): The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (321%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207185-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (62%) due to interference with the Internal Standard.

Case Narrative (continued)

Total Metals

L2207185-06, -10, and -13: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

The WG1604051-3 MS recovery, performed on L2207185-01, is outside the acceptance criteria for lead (139%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker

Title: Technical Director/Representative Date: 02/17/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 12:13
Analyst: MKS
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.59		mg/kg	0.13	0.013	1
Benzene	1.2		mg/kg	0.032	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.065	0.017	1
Toluene	ND		mg/kg	0.065	0.035	1
1,2-Dibromoethane	ND		mg/kg	0.032	0.019	1
Ethylbenzene	1.4		mg/kg	0.065	0.0091	1
p/m-Xylene	0.40		mg/kg	0.13	0.036	1
o-Xylene	0.12		mg/kg	0.065	0.019	1
Xylenes, Total	0.52		mg/kg	0.065	0.019	1
Isopropylbenzene	0.58		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	2.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	6.1		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02 D2
Client ID: PB-36-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:49
Analyst: KD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.40		mg/kg	0.32	0.032	2.5
Benzene	35.		mg/kg	0.080	0.027	2.5
1,2-Dichloroethane	ND		mg/kg	0.16	0.041	2.5
Toluene	ND		mg/kg	0.16	0.087	2.5
1,2-Dibromoethane	ND		mg/kg	0.080	0.047	2.5
Ethylbenzene	12.		mg/kg	0.16	0.023	2.5
p/m-Xylene	14.		mg/kg	0.32	0.090	2.5
o-Xylene	0.87		mg/kg	0.16	0.047	2.5
Xylenes, Total	15.		mg/kg	0.16	0.047	2.5
Isopropylbenzene	5.7		mg/kg	0.16	0.018	2.5
1,3,5-Trimethylbenzene	29.		mg/kg	0.32	0.031	2.5
1,2,4-Trimethylbenzene	73.	E	mg/kg	0.32	0.054	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	**135**	Q	70-130
4-Bromofluorobenzene	**188**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02 D
Client ID: PB-36-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 12:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 12:39
Analyst: MKS
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	100		mg/kg	13	2.1	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:29
Analyst: KD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.030	J	mg/kg	0.12	0.012	1
Benzene	0.019	J	mg/kg	0.031	0.010	1
1,2-Dichloroethane	ND		mg/kg	0.061	0.016	1
Toluene	ND		mg/kg	0.061	0.033	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.67		mg/kg	0.061	0.0086	1
p/m-Xylene	1.3		mg/kg	0.12	0.034	1
o-Xylene	0.031	J	mg/kg	0.061	0.018	1
Xylenes, Total	1.3	J	mg/kg	0.061	0.018	1
Isopropylbenzene	0.95		mg/kg	0.061	0.0067	1
1,3,5-Trimethylbenzene	8.8		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	21.	E	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	**132**	Q	70-130
4-Bromofluorobenzene	**156**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03 D	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:05
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	19.		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:31
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	0.14		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.072		mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	2.0		mg/kg	0.072	0.010	1
p/m-Xylene	1.5		mg/kg	0.14	0.040	1
o-Xylene	0.076		mg/kg	0.072	0.021	1
Xylenes, Total	1.6		mg/kg	0.072	0.021	1
Isopropylbenzene	0.16		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	1.7		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.83		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	99		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 12:10
Analyst: KD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0088		mg/kg	0.0018	0.00018	1
Benzene	0.12		mg/kg	0.00046	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00091	0.00023	1
Toluene	0.014		mg/kg	0.00091	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00046	0.00027	1
Ethylbenzene	0.67	E	mg/kg	0.00091	0.00013	1
p/m-Xylene	0.90	E	mg/kg	0.0018	0.00051	1
o-Xylene	0.022		mg/kg	0.00091	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00091	0.00009	1
1,3,5-Trimethylbenzene	0.41	E	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	0.59	E	mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	83		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-05	Date Collected:	02/10/22 13:10
Client ID:	PB-35-06-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 13:57
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.082	J	mg/kg	0.16	0.016	1
Benzene	0.89		mg/kg	0.040	0.013	1
1,2-Dichloroethane	ND		mg/kg	0.079	0.020	1
Toluene	0.070	J	mg/kg	0.079	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.040	0.023	1
Ethylbenzene	1.8		mg/kg	0.079	0.011	1
p/m-Xylene	0.20		mg/kg	0.16	0.044	1
o-Xylene	0.037	J	mg/kg	0.079	0.023	1
Xylenes, Total	0.24	J	mg/kg	0.079	0.023	1
Isopropylbenzene	0.37		mg/kg	0.079	0.0086	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	0.095	J	mg/kg	0.16	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	95		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/14/22 14:23
Analyst:	MKS
Percent Solids:	82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.077	J	mg/kg	0.10	0.010	1
Benzene	0.31		mg/kg	0.025	0.0084	1
1,2-Dichloroethane	ND		mg/kg	0.051	0.013	1
Toluene	ND		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.025	0.015	1
Ethylbenzene	0.10		mg/kg	0.051	0.0072	1
p/m-Xylene	0.21		mg/kg	0.10	0.028	1
o-Xylene	0.14		mg/kg	0.051	0.015	1
Xylenes, Total	0.35		mg/kg	0.051	0.015	1
Isopropylbenzene	0.035	J	mg/kg	0.051	0.0055	1
1,3,5-Trimethylbenzene	0.28		mg/kg	0.10	0.0098	1
1,2,4-Trimethylbenzene	0.62		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:54
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.039		mg/kg	0.0020	0.00020	1
Benzene	0.14		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.0097		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	0.078		mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00057	1
o-Xylene	0.14		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.31		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.030		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.48	E	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	**158**	Q	70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-07
Client ID: PB-35-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:48
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.035	J	mg/kg	0.14	0.014	1
Benzene	1.2		mg/kg	0.036	0.012	1
1,2-Dichloroethane	ND		mg/kg	0.072	0.018	1
Toluene	0.060	J	mg/kg	0.072	0.039	1
1,2-Dibromoethane	ND		mg/kg	0.036	0.021	1
Ethylbenzene	0.90		mg/kg	0.072	0.010	1
p/m-Xylene	0.096	J	mg/kg	0.14	0.040	1
o-Xylene	0.024	J	mg/kg	0.072	0.021	1
Xylenes, Total	0.12	J	mg/kg	0.072	0.021	1
Isopropylbenzene	0.30		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	0.028	J	mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	0.090	J	mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:34
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.012		mg/kg	0.0028	0.00028	1
Benzene	0.20		mg/kg	0.00069	0.00023	1
1,2-Dichloroethane	ND		mg/kg	0.0014	0.00035	1
Toluene	0.010		mg/kg	0.0014	0.00075	1
1,2-Dibromoethane	ND		mg/kg	0.00069	0.00040	1
Ethylbenzene	0.15		mg/kg	0.0014	0.00019	1
p/m-Xylene	0.014		mg/kg	0.0028	0.00077	1
o-Xylene	0.0043		mg/kg	0.0014	0.00040	1
Xylenes, Total	0.018		mg/kg	0.0014	0.00040	1
Isopropylbenzene	0.050		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	0.0032		mg/kg	0.0028	0.00026	1
1,2,4-Trimethylbenzene	0.0095		mg/kg	0.0028	0.00046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	**134**	Q	70-130
4-Bromofluorobenzene	**145**	Q	70-130
Dibromofluoromethane	**63**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
Client ID: PB-35-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:14
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.066	J	mg/kg	0.10	0.011	1
Benzene	0.73		mg/kg	0.026	0.0088	1
1,2-Dichloroethane	ND		mg/kg	0.053	0.014	1
Toluene	ND		mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.016	1
Ethylbenzene	0.15		mg/kg	0.053	0.0075	1
p/m-Xylene	ND		mg/kg	0.10	0.030	1
o-Xylene	ND		mg/kg	0.053	0.015	1
Xylenes, Total	ND		mg/kg	0.053	0.015	1
Isopropylbenzene	0.030	J	mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.010	1
1,2,4-Trimethylbenzene	0.052	J	mg/kg	0.10	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	98		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-08	Date Collected:	02/10/22 13:40
Client ID:	PB-35-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 15:13
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.034		mg/kg	0.0034	0.00034	1
Benzene	1.9	E	mg/kg	0.00085	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00044	1
Toluene	0.64	E	mg/kg	0.0017	0.00093	1
1,2-Dibromoethane	ND		mg/kg	0.00085	0.00050	1
Ethylbenzene	3.1	E	mg/kg	0.0017	0.00024	1
p/m-Xylene	0.11		mg/kg	0.0034	0.00096	1
o-Xylene	0.19		mg/kg	0.0017	0.00050	1
Xylenes, Total	0.30		mg/kg	0.0017	0.00050	1
Isopropylbenzene	0.99	E	mg/kg	0.0017	0.00019	1
1,3,5-Trimethylbenzene	0.0099		mg/kg	0.0034	0.00033	1
1,2,4-Trimethylbenzene	0.046		mg/kg	0.0034	0.00057	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	**332**	Q	70-130
4-Bromofluorobenzene	**8050**	Q	70-130
Dibromofluoromethane	**31**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
Client ID: PB-35-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 15:40
Analyst: MKS
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.89		mg/kg	0.029	0.0097	1
1,2-Dichloroethane	ND		mg/kg	0.058	0.015	1
Toluene	0.074		mg/kg	0.058	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.029	0.017	1
Ethylbenzene	2.0		mg/kg	0.058	0.0082	1
p/m-Xylene	0.31		mg/kg	0.12	0.033	1
o-Xylene	0.034	J	mg/kg	0.058	0.017	1
Xylenes, Total	0.34	J	mg/kg	0.058	0.017	1
Isopropylbenzene	0.29		mg/kg	0.058	0.0064	1
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.30		mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/15/22 14:53
Analyst:	KJD
Percent Solids:	85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.18		mg/kg	0.00051	0.00017	1
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026	1
Toluene	0.078		mg/kg	0.0010	0.00056	1
1,2-Dibromoethane	ND		mg/kg	0.00051	0.00030	1
Ethylbenzene	1.4	E	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.17		mg/kg	0.0020	0.00058	1
o-Xylene	0.032		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.20		mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.46	E	mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.0081		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.083		mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	**492**	Q	70-130
4-Bromofluorobenzene	**49**	Q	70-130
Dibromofluoromethane	**19**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10 Date Collected: 02/10/22 14:00
Client ID: PB-35-14-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/14/22 16:06
Analyst: MKS
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.54		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	0.050	J	mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.037	J	mg/kg	0.066	0.0092	1
p/m-Xylene	0.052	J	mg/kg	0.13	0.037	1
o-Xylene	0.027	J	mg/kg	0.066	0.019	1
Xylenes, Total	0.079	J	mg/kg	0.066	0.019	1
Isopropylbenzene	0.24		mg/kg	0.066	0.0071	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10 Date Collected: 02/10/22 14:00
Client ID: PB-35-14-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 14:12
Analyst: KJD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00091	J	mg/kg	0.0010	0.00011	1
Benzene	0.089		mg/kg	0.00026	0.00008	1
1,2-Dichloroethane	ND		mg/kg	0.00053	0.00014	1
Toluene	0.0079		mg/kg	0.00053	0.00029	1
1,2-Dibromoethane	ND		mg/kg	0.00026	0.00016	1
Ethylbenzene	0.0030		mg/kg	0.00053	0.00007	1
p/m-Xylene	0.0064		mg/kg	0.0010	0.00030	1
o-Xylene	0.0037		mg/kg	0.00053	0.00015	1
Xylenes, Total	0.010		mg/kg	0.00053	0.00015	1
Isopropylbenzene	0.026		mg/kg	0.00053	0.00005	1
1,3,5-Trimethylbenzene	0.00027	J	mg/kg	0.0010	0.00010	1
1,2,4-Trimethylbenzene	0.00050	J	mg/kg	0.0010	0.00018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	80		70-130
Toluene-d8	**166**	Q	70-130
4-Bromofluorobenzene	**321**	Q	70-130
Dibromofluoromethane	**62**	Q	70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-11	Date Collected:	02/10/22 15:00
Client ID:	FB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/14/22 10:52
Analytical Date:	02/14/22 14:35		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-11
Client ID: FB-220210
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 15:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:24
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-12	Date Collected:	02/10/22 00:00
Client ID:	TB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/14/22 10:52
Analytical Date:	02/14/22 14:44		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-12	Date Collected:	02/10/22 00:00
Client ID:	TB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/11/22 14:50
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	103		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
Client ID: DUP-26
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 00:00
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 17:57
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.17	0.017	1
Benzene	2.6		mg/kg	0.043	0.014	1
1,2-Dichloroethane	ND		mg/kg	0.086	0.022	1
Toluene	41.	E	mg/kg	0.086	0.046	1
1,2-Dibromoethane	ND		mg/kg	0.043	0.025	1
Ethylbenzene	19.		mg/kg	0.086	0.012	1
p/m-Xylene	84.	E	mg/kg	0.17	0.048	1
o-Xylene	25.		mg/kg	0.086	0.025	1
Isopropylbenzene	1.2		mg/kg	0.086	0.0093	1
1,3,5-Trimethylbenzene	13.		mg/kg	0.17	0.016	1
1,2,4-Trimethylbenzene	41.	E	mg/kg	0.17	0.029	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	82		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	80		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-13 D	Date Collected:	02/10/22 00:00
Client ID:	DUP-26	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix: Soil

Analytical Method: 1,8260C

Analytical Date: 02/14/22 16:32

Analyst: MKS

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	42.		mg/kg	0.86	0.46	10
p/m-Xylene	85.		mg/kg	1.7	0.48	10
Xylenes, Total	110		mg/kg	0.086	0.025	10
1,2,4-Trimethylbenzene	37.		mg/kg	1.7	0.29	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	97		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8011	Extraction Method:	EPA 8011
Analytical Date:	02/14/22 13:53	Extraction Date:	02/14/22 10:52
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 11-12 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/11/22 10:59
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 11-12 Batch: WG1604746-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	102		70-130

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 10:55
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-10,13 Batch: WG1605183-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	97		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 06-10 Batch: WG1605212-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 13 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1606083-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 11:08
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02-03 Batch: WG1606084-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	113		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA

Project Number: 200.00135.005.03

Lab Number: L2207185

Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 11-12 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 11-12 Batch: WG1604746-3 WG1604746-4								
Methyl tert butyl ether	89		91		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	105		100		70-130	5		20
Isopropylbenzene	110		100		70-130	10		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		107		70-130
Toluene-d8	101		100		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	101		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1605183-3 WG1605183-4								
Methyl tert butyl ether	90		88		66-130	2		30
Benzene	97		94		70-130	3		30
1,2-Dichloroethane	87		87		70-130	0		30
Toluene	98		94		70-130	4		30
1,2-Dibromoethane	96		92		70-130	4		30
Ethylbenzene	96		94		70-130	2		30
p/m-Xylene	102		99		70-130	3		30
o-Xylene	102		99		70-130	3		30
Isopropylbenzene	99		96		70-130	3		30
1,3,5-Trimethylbenzene	98		94		70-130	4		30
1,2,4-Trimethylbenzene	99		94		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		88		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 06-10 Batch: WG1605212-3 WG1605212-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 13 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1606083-3 WG1606083-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		92		70-130
Dibromofluoromethane	99		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02-03 Batch: WG1606084-3 WG1606084-4								
Methyl tert butyl ether	82		80		66-130	2		30
Benzene	104		102		70-130	2		30
1,2-Dichloroethane	90		87		70-130	3		30
Toluene	108		107		70-130	1		30
1,2-Dibromoethane	88		86		70-130	2		30
Ethylbenzene	110		110		70-130	0		30
p/m-Xylene	116		116		70-130	0		30
o-Xylene	112		112		70-130	0		30
Isopropylbenzene	114		112		70-130	2		30
1,3,5-Trimethylbenzene	117		115		70-130	2		30
1,2,4-Trimethylbenzene	113		110		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	86		85		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	99		97		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 11:07		
Analyst:	JG		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.9		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	59		30-120
4-Terphenyl-d14	55		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 12:15		
Analyst:	JG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	4.7		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**164**	Q	23-120
2-Fluorobiphenyl	38		30-120
4-Terphenyl-d14	43		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 12:38		
Analyst:	JG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:00		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.073	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	118		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	70		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-05	Date Collected:	02/10/22 13:10
Client ID:	PB-35-06-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:23		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.48		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	94		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 13:45		
Analyst:	JG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	5.9		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 14:30		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	100		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	60		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-08	Date Collected:	02/10/22 13:40
Client ID:	PB-35-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 14:53		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.62		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**282**	Q	23-120
2-Fluorobiphenyl	50		30-120
4-Terphenyl-d14	59		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 15:16		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	6.9		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	64		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-10	Date Collected:	02/10/22 14:00
Client ID:	PB-35-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 15:38		
Analyst:	JG		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.062	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	75		30-120
4-Terphenyl-d14	73		18-120

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-11	Date Collected:	02/10/22 15:00
Client ID:	FB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/17/22 01:51
Analytical Date:	02/17/22 14:12		
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	88		23-120
2-Fluorobiphenyl	86		15-120
4-Terphenyl-d14	87		41-149

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-13	Date Collected:	02/10/22 00:00
Client ID:	DUP-26	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/14/22 23:26
Analytical Date:	02/15/22 16:01		
Analyst:	JG		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.13	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	99		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	62		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/15/22 10:00	Extraction Date:	02/14/22 23:26
Analyst:	JG		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-10,13 Batch: WG1604892-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	81		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	63		18-120

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/17/22 13:53	Extraction Date:	02/17/22 01:51
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 11 Batch: WG1605880-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	72		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	78		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-10,13 Batch: WG1604892-2 WG1604892-3								
Naphthalene	61		69		40-140	12		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		100		23-120
2-Fluorobiphenyl	65		72		30-120
4-Terphenyl-d14	70		80		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 11 Batch: WG1605880-2 WG1605880-3								
Naphthalene	80		77		40-140	4		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	86		80		23-120
2-Fluorobiphenyl	80		75		15-120
4-Terphenyl-d14	82		75		41-149

METALS

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-01 Date Collected: 02/10/22 12:10
Client ID: PB-36-04-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.3		mg/kg	4.90	0.263	2	02/14/22 17:26	02/16/22 12:27	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-02
Client ID: PB-36-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/10/22 12:30
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.84		mg/kg	2.32	0.124	1	02/14/22 17:26	02/16/22 14:50	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.57		mg/kg	2.36	0.126	1	02/14/22 17:26	02/16/22 14:55	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185

Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-04 Date Collected: 02/10/22 12:50

Client ID: PB-36-14-SS01 Date Received: 02/10/22

Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	218		mg/kg	2.22	0.119	1	02/14/22 17:26	02/16/22 14:59	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-05	Date Collected:	02/10/22 13:10
Client ID:	PB-35-06-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	79.2		mg/kg	2.31	0.124	1	02/14/22 17:26	02/16/22 15:04	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-06	Date Collected:	02/10/22 13:20
Client ID:	PB-35-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1520		mg/kg	11.5	0.615	5	02/14/22 17:26	02/16/22 19:22	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	57.6		mg/kg	2.33	0.125	1	02/14/22 17:26	02/16/22 15:14	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-08	Date Collected:	02/10/22 13:40
Client ID:	PB-35-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	173		mg/kg	2.29	0.123	1	02/14/22 17:26	02/16/22 15:18	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-09	Date Collected:	02/10/22 13:50
Client ID:	PB-35-13-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	63.2		mg/kg	2.27	0.122	1	02/14/22 17:26	02/16/22 15:23	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-10	Date Collected:	02/10/22 14:00
Client ID:	PB-35-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.51	J	mg/kg	11.6	0.621	5	02/14/22 17:26	02/16/22 19:27	EPA 3050B	1,6010D	EW

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-11	Date Collected:	02/10/22 15:00
Client ID:	FB-220210	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 13:32	EPA 3005A	1,6020B	SV

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13 Date Collected: 02/10/22 00:00
Client ID: DUP-26 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1500		mg/kg	11.5	0.618	5	02/14/22 17:26	02/16/22 19:32	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SOIL CHARACTERIZA | **Lab Number:** L2207185
Project Number: 200.00135.005.03 | **Report Date:** 02/17/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-10,13 Batch: WG1604051-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/14/22 17:26	02/16/22 11:07	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 11 Batch: WG1604932-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 Batch: WG1604051-2 SRM Lot Number: D113-540								
Lead, Total	98		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 11 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03
Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-3 QC Sample: L2207185-01 Client ID: PB-36-04-SS01												
Lead, Total	13.3	51.4	84.7	**139**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-10,13 QC Batch ID: WG1604051-4 QC Sample: L2207185-01 Client ID: PB-36-04-SS01						
Lead, Total	13.3	14.0	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 11 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-01	Date Collected:	02/10/22 12:10
Client ID:	PB-36-04-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-02	Date Collected:	02/10/22 12:30
Client ID:	PB-36-09-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-03	Date Collected:	02/10/22 12:40
Client ID:	PB-36-11-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.6		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-04	Date Collected:	02/10/22 12:50
Client ID:	PB-36-14-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.4		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-05 Date Collected: 02/10/22 13:10
Client ID: PB-35-06-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA **Lab Number:** L2207185
Project Number: 200.00135.005.03 **Report Date:** 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-06 Date Collected: 02/10/22 13:20
Client ID: PB-35-09-SS01 Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.2		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name:	PES REFINERY-SOIL CHARACTERIZA	**Lab Number:**	L2207185
Project Number:	200.00135.005.03	**Report Date:**	02/17/22

SAMPLE RESULTS

Lab ID:	L2207185-07	Date Collected:	02/10/22 13:30
Client ID:	PB-35-10-SS01	Date Received:	02/10/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-08
Client ID: PB-35-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:40
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-09
Client ID: PB-35-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/10/22 13:50
Date Received: 02/10/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.0		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-10
Date Collected: 02/10/22 14:00
Client ID: PB-35-14-SS01
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Project Name: PES REFINERY-SOIL CHARACTERIZA
Lab Number: L2207185
Project Number: 200.00135.005.03
Report Date: 02/17/22

SAMPLE RESULTS

Lab ID: L2207185-13
Date Collected: 02/10/22 00:00
Client ID: DUP-26
Date Received: 02/10/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.1		%	0.100	NA	1	-	02/11/22 08:24	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-10,13 QC Batch ID: WG1603893-1 QC Sample: L2207184-01 Client ID: DUP Sample						
Solids, Total	80.4	82.4	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-01A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-01B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-01D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-01E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-01F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-02A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-02B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-02D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-02E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-02F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-03A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260HLW(14)
L2207185-03B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-03D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)
L2207185-03E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-03F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-04A	Vial MeOH preserved	C	NA		2.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-04B	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04C	Vial water preserved	C	NA		2.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-04D	Plastic 2oz unpreserved for TS	C	NA		2.2	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2207185-04E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.2	Y	Absent		PB-TI(180)
L2207185-04F	Glass 250ml/8oz unpreserved	C	NA		2.2	Y	Absent		PA-PAH(14)
L2207185-05A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-05B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-05D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-05E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-05F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-06B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-06F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-07A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-07B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-07D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-07E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-07F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-08A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-08B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-08D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-08E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-08F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-09B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-SOIL CHARACTERIZA
Project Number: 200.00135.005.03

Lab Number: L2207185
Report Date: 02/17/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207185-09C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-09F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207185-10B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260H(14),PA-8260HLW(14)
L2207185-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-10F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2207185-11A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11B	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11C	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-11D	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11E	Vial Na2S2O3 preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-11F	Plastic 250ml HNO3 preserved	B	<2	<2	3.2	Y	Absent		PB-6020T-PPB(180)
L2207185-11G	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-11H	Amber 250ml unpreserved	B	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207185-12A	Vial HCl preserved	B	NA		3.2	Y	Absent		PA-8260(14)
L2207185-12B	Vial HCl preserved	B	NA		3.2	Y	Absent		8011(14)
L2207185-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207185-13B	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13C	Vial water preserved	B	NA		3.2	Y	Absent	11-FEB-22 09:20	PA-8260HLW(14)
L2207185-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2207185-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2207185-13F	Glass 250ml/8oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207185

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery Soil Characterization
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07185-01	PB-36-04-SS01	2/10	1220	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-36-09-SS01		1230			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-36-11-SS01		1240			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-36-14-SS01		1250			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB-35-06-SS01		1310			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	PB-35-09-SS01		1320			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-07	PB-35-10-SS01		1330			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-08	PB-35-11-SS01		1340			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-09	PB-35-13-SS01		1350			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-10	PB-35-14-SS01		1400			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	ST AAY	2/10/22 1530
ST [signature]	2/10/22 1510	[signature]	2/10/22 1510
[signature] AAL	2/10/22	Anthony Flace	2/10/22 2030
Anthony Flace	2/10/22	[signature] AAL	2/11/22 2005
[signature] AAL	2/11/22 2025	[signature]	2/11/22 0205

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/11/22

ALPHA Job #: L2207185

Project Information

Project Name: Philadelphia Refinery - Soil Characterization
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	Total # Bottles
07185-11	FB-220210	2/10	1500	W	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-12	TB-220210	2/10	-	W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-13	DUP-26	2/10	-	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/10 15:10	ST - AAL	2/10/22 15:10
[signature]	2/10/22 1810	[signature] AAL	2/10/22 1810
[signature] AAL	2/10/22	Anthony Rivera	2/10/22 2030
Anthony Rivera	2/10/22	[signature] AAL	2/11/22 0005
[signature] AAL	2/11/22 0205	[signature]	2/11/22 0205

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)-NJ (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6. and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

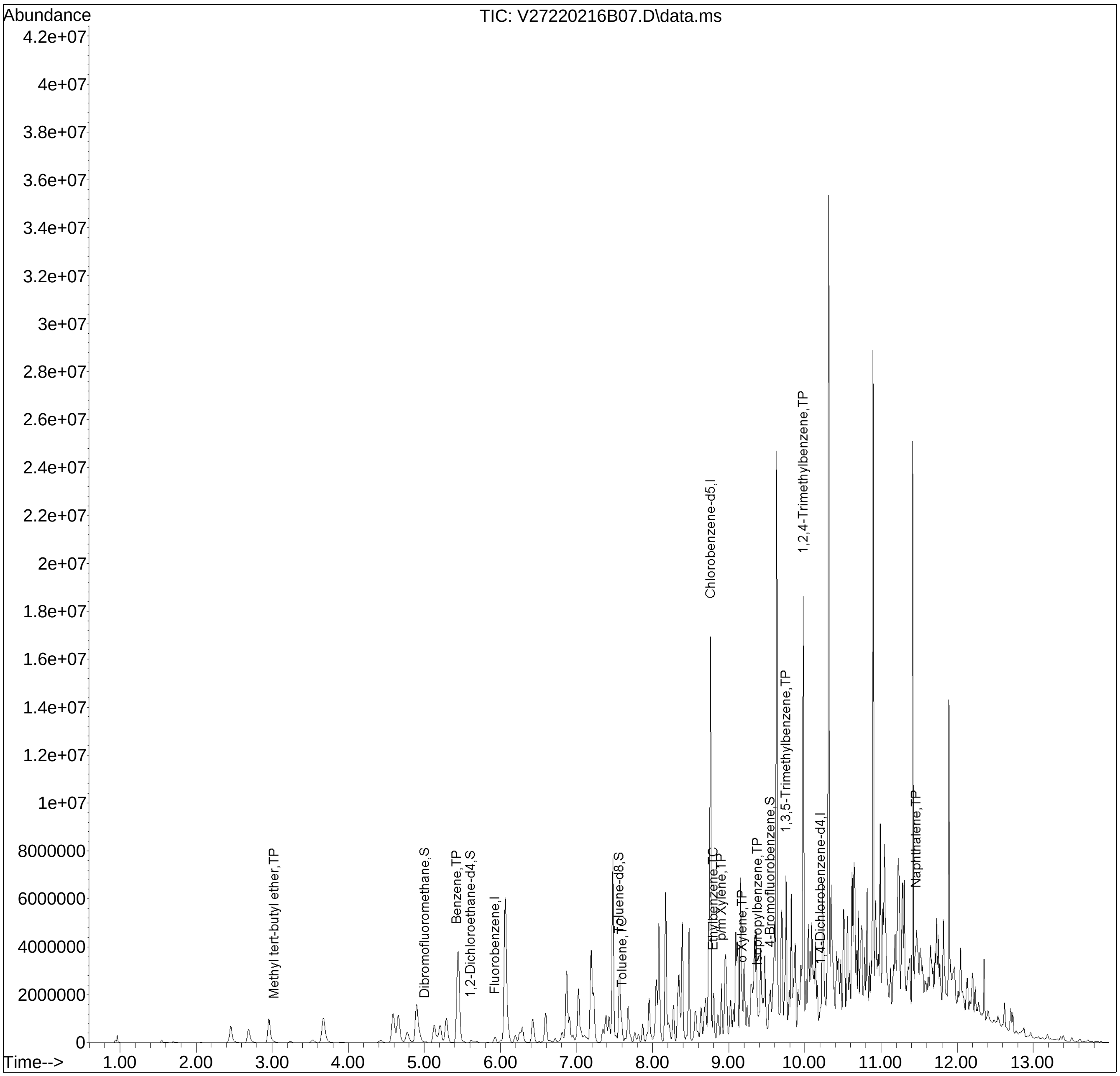
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220216B\
Data File : V27220216B07.D
Acq On    : 16 Feb 2022  11:49 am
Operator  : VOA127:KD
Sample    : l2207185-02D2,31H,5.79,5,0.040,,a,r2f
Misc      : WG1606084,ICAL18638
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Feb 16 15:22:48 2022
Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•
```

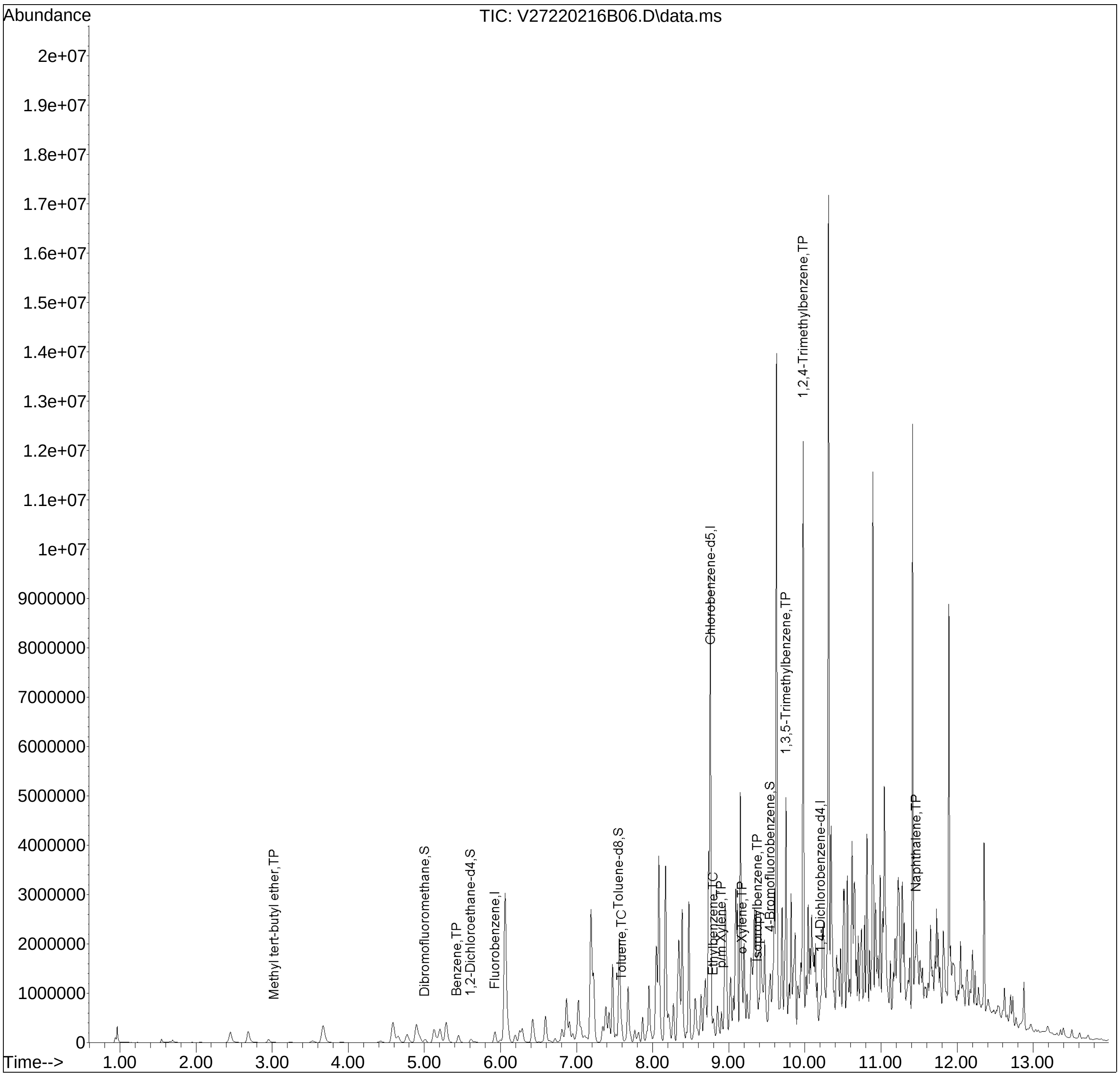


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220216B\
Data File : V27220216B06.D
Acq On : 16 Feb 2022 11:29 am
Operator : VOA127:KD
Sample : l2207185-03,31H,5.96,5,0.100,,a,r2f
Misc : WG1606084,ICAL18638
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 17 11:39:46 2022
Quant Method : I:\VOLATILES\VOA127\2022\220216B\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list16B\V27220216B02.D•

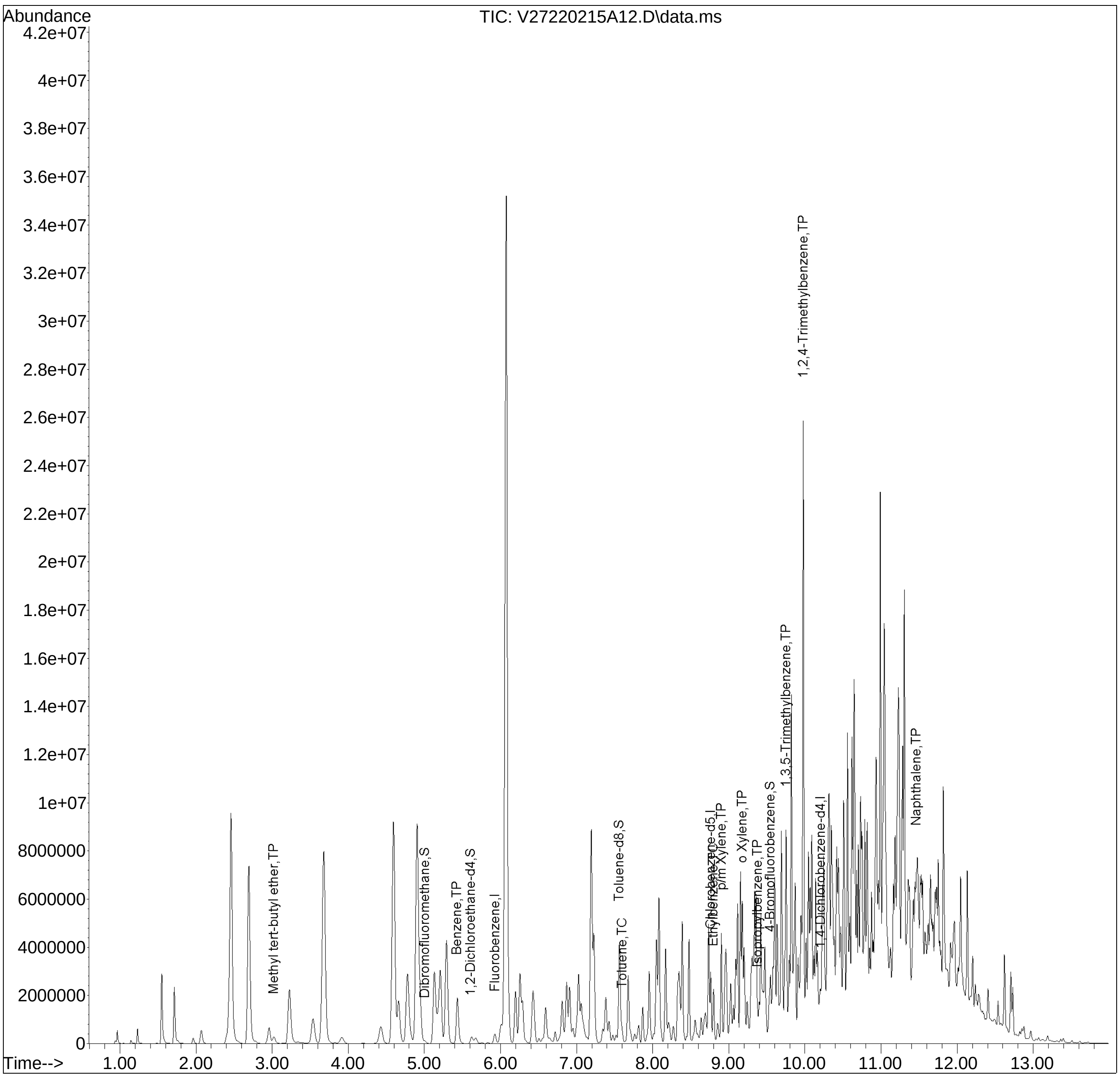


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A12.D
Acq On : 15 Feb 2022 03:54 pm
Operator : VOA127:KJD
Sample : l2207185-06,31,5.95,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Feb 15 20:53:06 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•



Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A11.D
Acq On    : 15 Feb 2022  03:34 pm
Operator  : VOA127:KJD
Sample    : l2207185-07,31,4.29,5,,b,r2f
Misc      : WG1605212,ICAL18638
ALS Vial  : 11   Sample Multiplier: 1

Quant Time: Feb 15 20:51:48 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•
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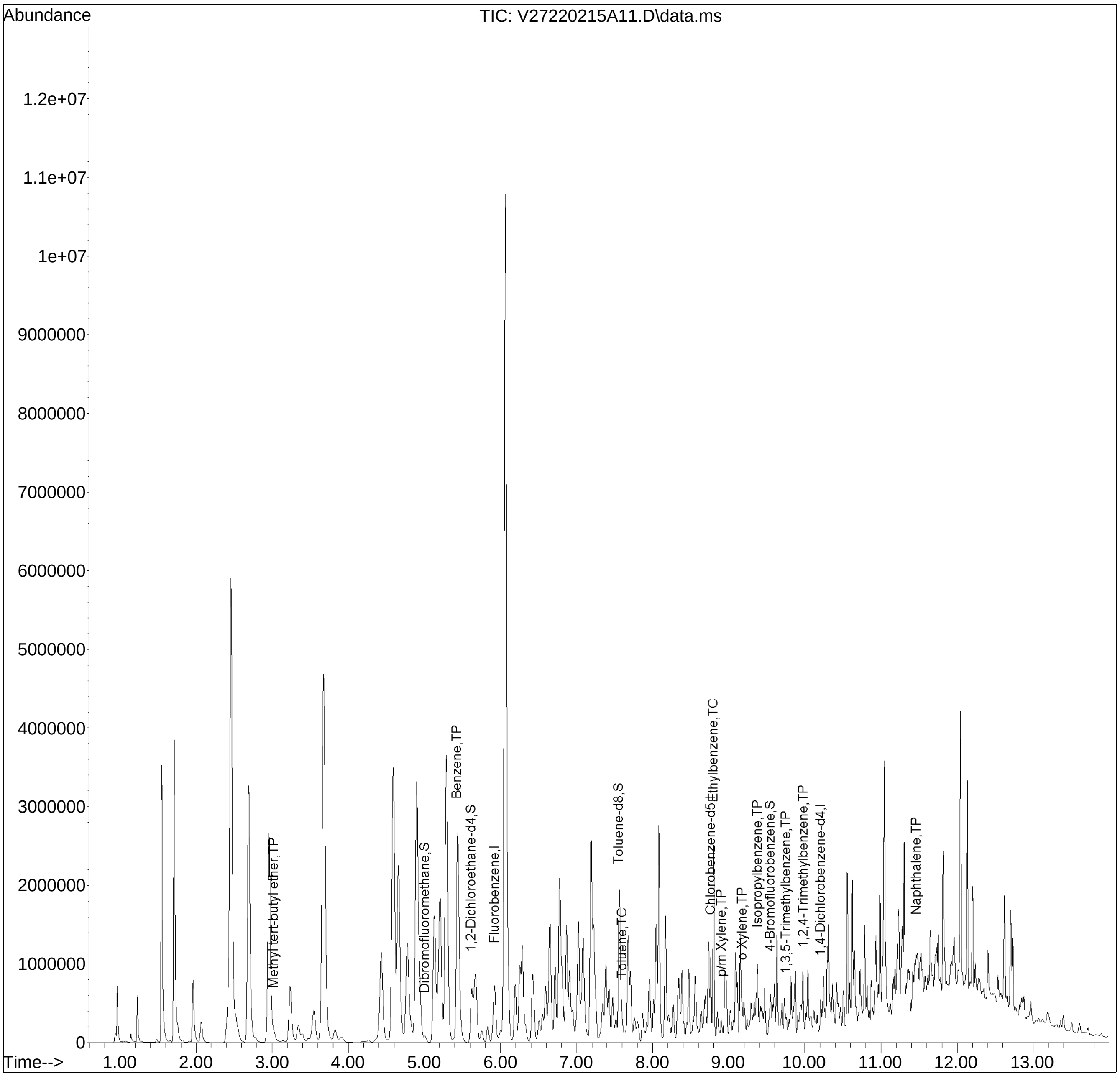
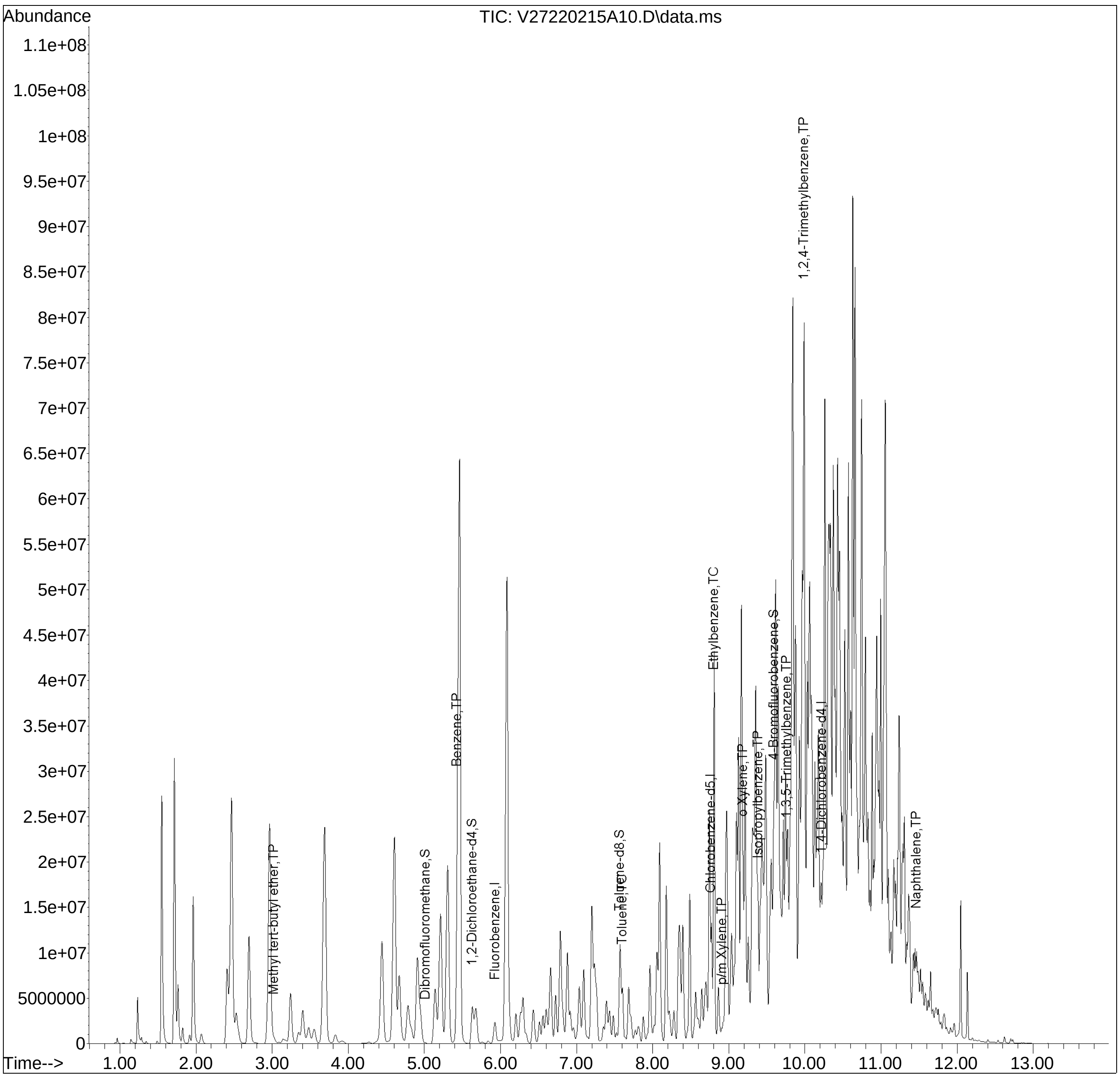


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A10.D
Acq On : 15 Feb 2022 03:13 pm
Operator : VOA127:KJD
Sample : l2207185-08,31,3.45,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 10 Sample Multiplier: 1

Quant Time: Feb 15 20:50:52 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

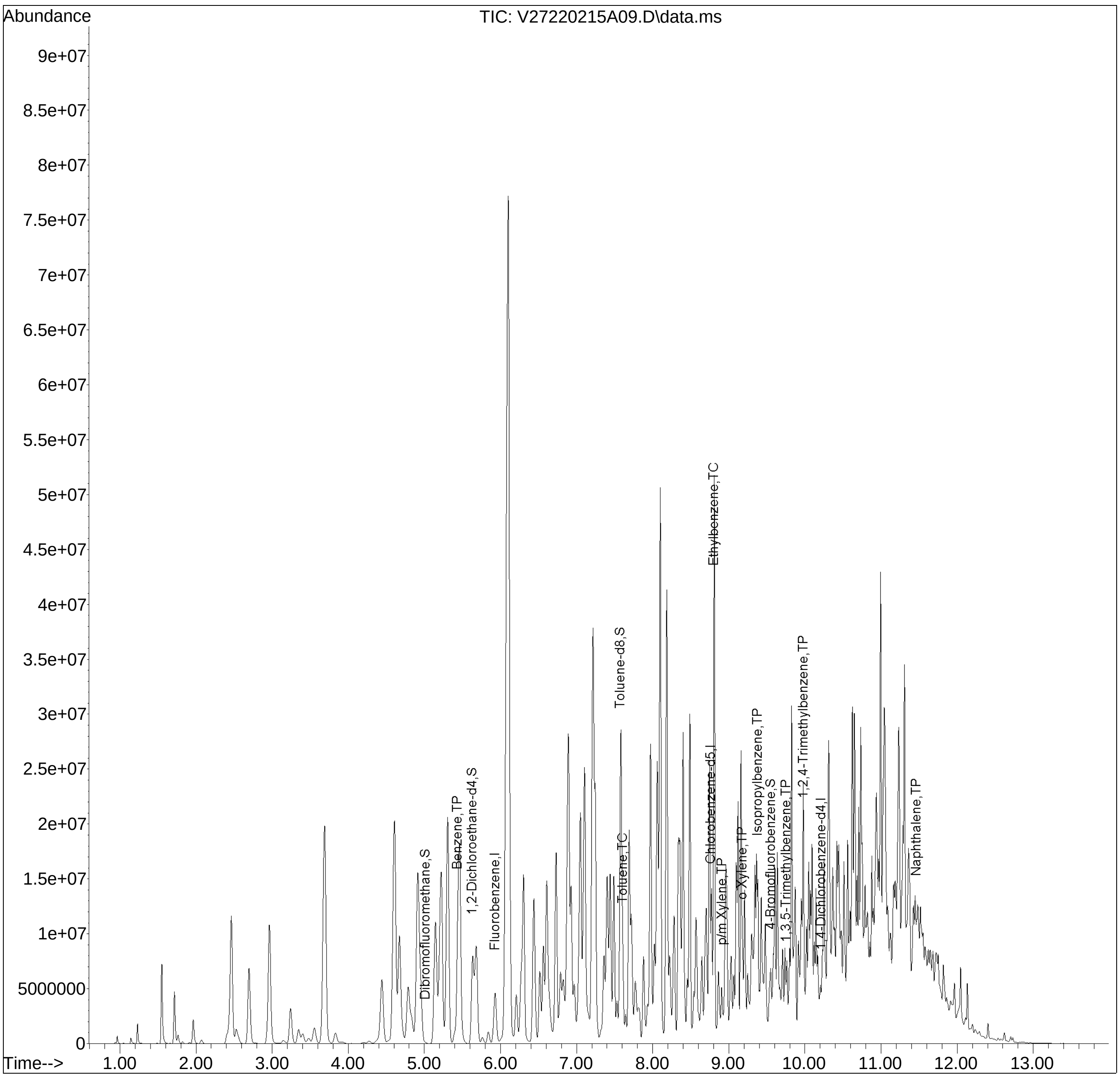


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A09.D
Acq On : 15 Feb 2022 02:53 pm
Operator : VOA127:KJD
Sample : l2207185-09,31,5.72,5,,b,r2f
Misc : WG1605212,ICAL18638
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Feb 15 20:48:19 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

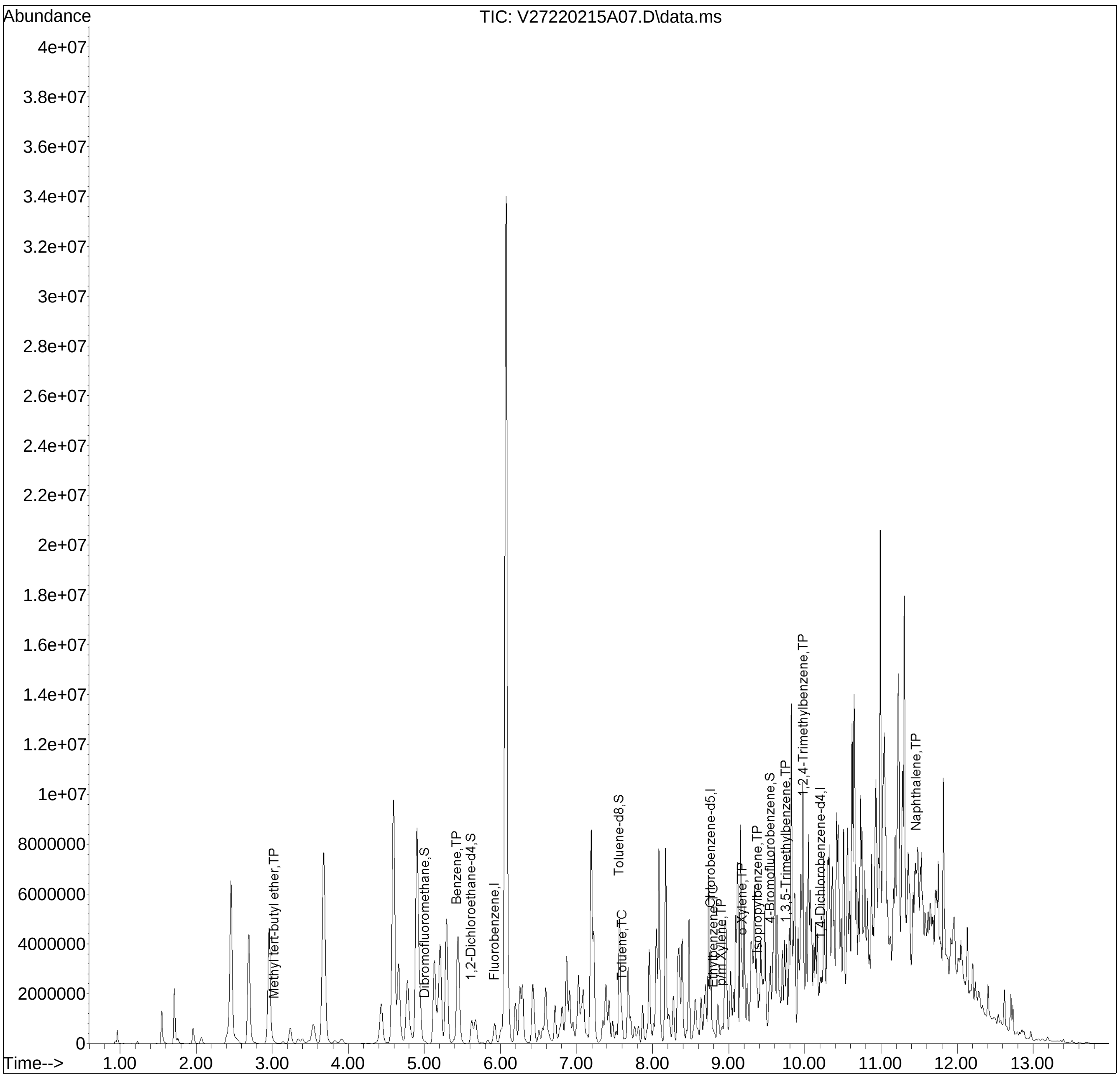


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A07.D
Acq On    : 15 Feb 2022  02:12 pm
Operator  : VOA127:KJD
Sample    : l2207185-10,31,11.40,5,,b,r2f
Misc      : WG1605212,ICAL18638
ALS Vial  : 7   Sample Multiplier: 1

Quant Time: Feb 15 14:33:01 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•
```



ANALYTICAL REPORT

Lab Number:	L2207566
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207566-01	PB-40-12R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 09:45	02/11/22
L2207566-02	PB-40-12R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 09:55	02/11/22
L2207566-03	PB-40-12R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:00	02/11/22
L2207566-04	PB-34-03R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/11/22 10:30	02/11/22
L2207566-05	PB-34-03R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 10:40	02/11/22
L2207566-06	PB-34-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 10:50	02/11/22
L2207566-07	PB-34-11R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/11/22 11:20	02/11/22
L2207566-08	PB-34-11R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/11/22 11:30	02/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2207566-02, -07, and -08.

Report Submission

February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207566-08.

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207566-02: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (139%) and 4-bromofluorobenzene (146%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207566-02: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

The WG1605224-3 MS recovery, performed on L2207566-01, is outside the acceptance criteria for lead (63%). A post digestion spike was performed and yielded an unacceptable recovery for lead (60%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-02	Date Collected:	02/11/22 09:55
Client ID:	PB-40-12R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 23:07
Analyst: KJD
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.031		mg/kg	0.0020	0.00020	1
Benzene	0.0037		mg/kg	0.00049	0.00016	1
Toluene	0.0011		mg/kg	0.00098	0.00053	1
1,2-Dibromoethane	ND		mg/kg	0.00049	0.00028	1
Ethylbenzene	0.00051	J	mg/kg	0.00098	0.00014	1
p/m-Xylene	0.0010	J	mg/kg	0.0020	0.00055	1
o-Xylene	0.0025		mg/kg	0.00098	0.00028	1
Xylenes, Total	0.0035	J	mg/kg	0.00098	0.00028	1
Isopropylbenzene	0.022		mg/kg	0.00098	0.00011	1
1,3,5-Trimethylbenzene	0.0038		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.031		mg/kg	0.0020	0.00032	1
Naphthalene	0.0025	J	mg/kg	0.0039	0.00063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	**139**	Q	70-130
4-Bromofluorobenzene	**146**	Q	70-130
Dibromofluoromethane	92		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-07
Client ID: PB-34-11R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:20
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 22:17
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.16	0.016	1
Benzene	1.4		mg/kg	0.039	0.013	1
Toluene	2.3		mg/kg	0.078	0.042	1
1,2-Dibromoethane	ND		mg/kg	0.039	0.023	1
Ethylbenzene	7.3		mg/kg	0.078	0.011	1
p/m-Xylene	28.		mg/kg	0.16	0.044	1
o-Xylene	3.8		mg/kg	0.078	0.023	1
Xylenes, Total	32.		mg/kg	0.078	0.023	1
Isopropylbenzene	0.56		mg/kg	0.078	0.0085	1
1,3,5-Trimethylbenzene	15.		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	35.	E	mg/kg	0.16	0.026	1
Naphthalene	5.6		mg/kg	0.31	0.050	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-08 D	Date Collected:	02/11/22 11:30
Client ID:	PB-34-11R-14.0-14.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/23/22 17:41
Analyst: AJK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.0	0.60	50
Benzene	180		mg/kg	1.5	0.49	50
Toluene	4.7		mg/kg	3.0	1.6	50
1,2-Dibromoethane	ND		mg/kg	1.5	0.87	50
Ethylbenzene	160		mg/kg	3.0	0.42	50
p/m-Xylene	480		mg/kg	6.0	1.7	50
o-Xylene	5.7		mg/kg	3.0	0.87	50
Xylenes, Total	480		mg/kg	3.0	0.87	50
Isopropylbenzene	20.		mg/kg	3.0	0.32	50
1,3,5-Trimethylbenzene	100		mg/kg	6.0	0.58	50
1,2,4-Trimethylbenzene	340		mg/kg	6.0	1.0	50
Naphthalene	120		mg/kg	12	1.9	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	89		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 07 Batch: WG1606450-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 15:11
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02 Batch: WG1606451-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 09:21
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08 Batch: WG1608829-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	128		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 07 Batch: WG1606450-3 WG1606450-4								
Methyl tert butyl ether	85		85		66-130	0		30
Benzene	85		84		70-130	1		30
Toluene	88		86		70-130	2		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	88		87		70-130	1		30
p/m-Xylene	94		93		70-130	1		30
o-Xylene	93		92		70-130	1		30
Isopropylbenzene	100		100		70-130	0		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	97		97		70-130	0		30
Naphthalene	92		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02 Batch: WG1606451-3 WG1606451-4								
Methyl tert butyl ether	85		85		66-130	0		30
Benzene	85		84		70-130	1		30
Toluene	88		86		70-130	2		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	88		87		70-130	1		30
p/m-Xylene	94		93		70-130	1		30
o-Xylene	93		92		70-130	1		30
Isopropylbenzene	100		100		70-130	0		30
1,3,5-Trimethylbenzene	98		98		70-130	0		30
1,2,4-Trimethylbenzene	97		97		70-130	0		30
Naphthalene	92		95		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		103		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	104		105		70-130
Dibromofluoromethane	99		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08 Batch: WG1608829-3 WG1608829-4								
Methyl tert butyl ether	**62**	Q	77		66-130	22		30
Benzene	87		74		70-130	16		30
Toluene	102		79		70-130	25		30
1,2-Dibromoethane	96		105		70-130	9		30
Ethylbenzene	95		90		70-130	5		30
p/m-Xylene	99		94		70-130	5		30
o-Xylene	81		88		70-130	8		30
Isopropylbenzene	96		109		70-130	13		30
1,3,5-Trimethylbenzene	94		109		70-130	15		30
1,2,4-Trimethylbenzene	92		96		70-130	4		30
Naphthalene	99		120		70-130	19		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		78		70-130
Toluene-d8	104		97		70-130
4-Bromofluorobenzene	94		80		70-130
Dibromofluoromethane	91		95		70-130

METALS

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-01	Date Collected:	02/11/22 09:45
Client ID:	PB-40-12R-0.0-0.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	79%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.08		mg/kg	2.47	0.132	1	02/15/22 20:00	02/17/22 09:56	EPA 3050B	1,6010D	GD

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-02	Date Collected:	02/11/22 09:55
Client ID:	PB-40-12R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	31.2		mg/kg	11.5	0.618	5	02/15/22 20:00	02/18/22 13:31	EPA 3050B	1,6010D	GD

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-04
Date Collected: 02/11/22 10:30
Client ID: PB-34-03R-0.0-0.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	488		mg/kg	12.7	0.680	5	02/15/22 20:00	02/17/22 19:25	EPA 3050B	1,6010D	DL

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-05	Date Collected:	02/11/22 10:40
Client ID:	PB-34-03R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	83%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	47.2		mg/kg	2.28	0.122	1	02/15/22 20:00	02/17/22 19:11	EPA 3050B	1,6010D	DL

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02,04-05 Batch: WG1605224-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03
Lab Number: L2207566
Report Date: 12/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5												
Lead, Total	7.08	51.4	39.5	**63**	Q	-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207566

Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: PB-40-12R-0.0-0.5						
Lead, Total	7.08	7.13	mg/kg	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-SITE INVESTIGATIO | **Lab Number:** L2207566
Project Number: 200.00135.005.03 | **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-01 | Date Collected: 02/11/22 09:45
Client ID: PB-40-12R-0.0-0.5 | Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.1		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207566
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207566-02	Date Collected:	02/11/22 09:55
Client ID:	PB-40-12R-6.0-6.5	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.6		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-04
Date Collected: 02/11/22 10:30
Client ID: PB-34-03R-0.0-0.5
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.2		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207566
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-05
Client ID: PB-34-03R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 10:40
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.7		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-07 Date Collected: 02/11/22 11:20
Client ID: PB-34-11R-6.0-6.5 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.0		%	0.100	NA	1	-	02/12/22 08:41	121,2540G	RI

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207566
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207566-08
Client ID: PB-34-11R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:30
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2207566
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07 QC Batch ID: WG1604273-1 QC Sample: L2207568-01 Client ID: DUP Sample						
Solids, Total	84.8	85.0	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 08 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 12/02/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-01A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-01B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-02D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207566-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	HOLD-8260HLW(14)
L2207566-03D	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-04A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-04B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-05A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207566-05B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		TS(7)
L2207566-06A	Metals Only-Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		HOLD-METAL(180)
L2207566-06B	Plastic 2oz unpreserved for TS	C	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207566-07A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207566-07B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-07D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)
L2207566-08A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)

*Values in parentheses indicate holding time in days

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207566
Report Date: 12/02/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207566-08B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW-BTEX(14)
L2207566-08D	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

Date Rec'd in Lab: 2/12/22

ALPHA Job #: L2207566

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193

Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	Sample Specific Comments	TOTAL # BOTTLES
07566-01	PB-40-12R-0.0-0.5	2/11	0945	S	TS	☑	☐	☐	☐	☐	☐		2
-02	PB-40-12R-6.0-6.5		0955			☑	☑	☐	☐	☐	☐		5
-03	PB-40-12R-14.0-14.5		1000			☑	☑	☐	☐	☐	☐	HOLD	5
-04	PB-34-03R-0.0-0.5		1030			☑	☐	☐	☐	☐	☐		2
-05	PB-34-03R-6.0-6.5		1040			☑	☐	☐	☐	☐	☐		2
-06	PB-34-03R-14.0-14.5		1050			☑	☐	☐	☐	☐	☐	HOLD	2
-07	PB-34-11R-6.0-6.5		1120			☐	☑	☐	☐	☐	☐		4
-08	PB-34-11R-14.0-14.5		1130			☐	☑	☐	☐	☐	☐	HOLD	4

Container Type

Preservative

Rec'd [signature] 2/12/22 0155

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/11 1400	Tom Clark ARM	2-11-22 1800
Tom Clark ARM 2-11-22		Anthony Pierce	2/11/22
Anthony Pierce	2/11/22	[signature] AAL	2/12/22 0005

[signature] AAL 2/12/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

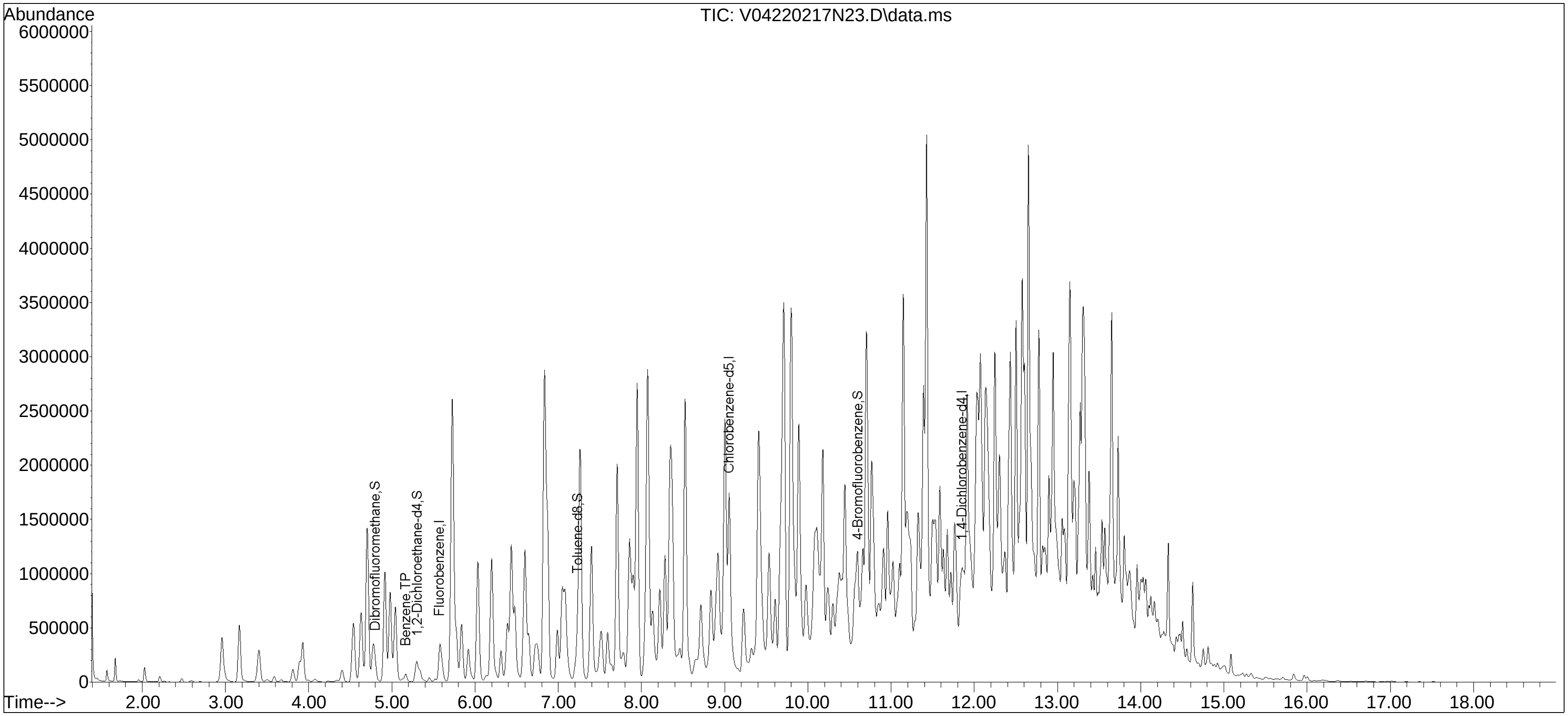
FORM NO: 01-01(HC) (rev. 9-JAN-12)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220217N\
Data File : V04220217N23.D
Acq On : 17 Feb 2022 11:07 pm
Operator : VOA104:AJK
Sample : L2207566-02,31,6.06,5,,B,R2F
Misc : WG1606451,ICAL18563
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 18 00:01:35 2022
Quant Method : I:\VOLATILES\VOA104\2022\220217N\V104_211214A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List : 8260-Benzene - benzene only2\220217N\V04220217N01.D•



ANALYTICAL REPORT

Lab Number:	L2207567
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY SOIL CHA
Project Number:	200.00135.005.03
Report Date:	02/18/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207567-01	PB-34-04-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:40	02/11/22
L2207567-02	PB-34-08-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:45	02/11/22
L2207567-03	PB-34-09-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:50	02/11/22
L2207567-04	PB-34-10-SS01	SOIL	PHILADELPHIA, PA	02/11/22 11:55	02/11/22
L2207567-05	PB-34-13-SS01	SOIL	PHILADELPHIA, PA	02/11/22 12:00	02/11/22
L2207567-06	FB-220211	WATER	PHILADELPHIA, PA	02/11/22 12:10	02/11/22
L2207567-07	TB-220211	WATER	PHILADELPHIA, PA	02/11/22 00:00	02/11/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207567-01D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (136%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-01D, -02D, and -04D: The sample has elevated detection limits due to the dilution required by the elevated concentrations of non-target compounds in the sample.

L2207567-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-03: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207567-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207567-04D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (162%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207567-03 through -05: The sample has elevated detection limits for all elements, with the exception of mercury, due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Sebastian Corbin

Title: Technical Director/Representative Date: 02/18/22

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-01 D	Date Collected:	02/11/22 11:40
Client ID:	PB-34-04-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 19:39
Analyst: KJD
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.23	0.023	2
Benzene	0.39		mg/kg	0.057	0.019	2
1,2-Dichloroethane	ND		mg/kg	0.11	0.029	2
Toluene	ND		mg/kg	0.11	0.062	2
1,2-Dibromoethane	ND		mg/kg	0.057	0.033	2
Ethylbenzene	0.033	J	mg/kg	0.11	0.016	2
p/m-Xylene	ND		mg/kg	0.23	0.063	2
o-Xylene	ND		mg/kg	0.11	0.033	2
Xylenes, Total	ND		mg/kg	0.11	0.033	2
Isopropylbenzene	0.99		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	0.030	J	mg/kg	0.23	0.022	2
1,2,4-Trimethylbenzene	0.063	J	mg/kg	0.23	0.038	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**136**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-02 D	Date Collected:	02/11/22 11:45
Client ID:	PB-34-08-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:00
Analyst: KJD
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	2
Benzene	ND		mg/kg	0.065	0.022	2
1,2-Dichloroethane	ND		mg/kg	0.13	0.034	2
Toluene	ND		mg/kg	0.13	0.071	2
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	2
Ethylbenzene	0.042	J	mg/kg	0.13	0.018	2
p/m-Xylene	ND		mg/kg	0.26	0.073	2
o-Xylene	ND		mg/kg	0.13	0.038	2
Xylenes, Total	ND		mg/kg	0.13	0.038	2
Isopropylbenzene	2.8		mg/kg	0.13	0.014	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.26	0.025	2
1,2,4-Trimethylbenzene	0.057	J	mg/kg	0.26	0.044	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	129		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-03	Date Collected:	02/11/22 11:50
Client ID:	PB-34-09-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:20
Analyst: MKS
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
1,2-Dichloroethane	ND		mg/kg	0.066	0.017	1
Toluene	ND		mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.011	J	mg/kg	0.066	0.0093	1
p/m-Xylene	ND		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	ND		mg/kg	0.066	0.019	1
Isopropylbenzene	0.079		mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04 D
Client ID: PB-34-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 11:55
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/15/22 20:41
Analyst: MKS
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.60	0.060	5
Benzene	ND		mg/kg	0.15	0.050	5
1,2-Dichloroethane	ND		mg/kg	0.30	0.077	5
Toluene	ND		mg/kg	0.30	0.16	5
1,2-Dibromoethane	ND		mg/kg	0.15	0.087	5
Ethylbenzene	0.048	J	mg/kg	0.30	0.042	5
p/m-Xylene	ND		mg/kg	0.60	0.17	5
o-Xylene	ND		mg/kg	0.30	0.087	5
Xylenes, Total	ND		mg/kg	0.30	0.087	5
Isopropylbenzene	0.089	J	mg/kg	0.30	0.032	5
1,3,5-Trimethylbenzene	ND		mg/kg	0.60	0.058	5
1,2,4-Trimethylbenzene	ND		mg/kg	0.60	0.10	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	77		70-130
Toluene-d8	122		70-130
4-Bromofluorobenzene	**162**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Client ID: PB-34-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 12:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 20:43
Analyst: JC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0013	J	mg/kg	0.0018	0.00018	1
Benzene	0.016		mg/kg	0.00045	0.00015	1
1,2-Dichloroethane	ND		mg/kg	0.00090	0.00023	1
Toluene	0.0039		mg/kg	0.00090	0.00049	1
1,2-Dibromoethane	ND		mg/kg	0.00045	0.00026	1
Ethylbenzene	0.042		mg/kg	0.00090	0.00013	1
p/m-Xylene	0.020		mg/kg	0.0018	0.00050	1
o-Xylene	0.010		mg/kg	0.00090	0.00026	1
Xylenes, Total	0.030		mg/kg	0.00090	0.00026	1
Isopropylbenzene	0.046		mg/kg	0.00090	0.00009	1
1,3,5-Trimethylbenzene	0.0074		mg/kg	0.0018	0.00017	1
1,2,4-Trimethylbenzene	0.080		mg/kg	0.0018	0.00030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	127		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-06	Date Collected:	02/11/22 12:10
Client ID:	FB-220211	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/14/22 10:52
Analytical Date:	02/14/22 16:26		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06
Client ID: FB-220211
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 12:10
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:10
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA

Lab Number: L2207567

Project Number: 200.00135.005.03

Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
Client ID: TB-220211
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/14/22 16:35
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	B

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-07
Client ID: TB-220211
Sample Location: PHILADELPHIA, PA

Date Collected: 02/11/22 00:00
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/14/22 14:33
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/14/22 13:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/14/22 10:52

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 06-07 Batch: WG1604654-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	B

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/14/22 11:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605324-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 13:16
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-04 Batch: WG1605520-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 12:48
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 05 Batch: WG1606097-5					
Methyl tert butyl ether	0.00020	J	mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	105		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 06-07 Batch: WG1604654-2									
1,2-Dibromoethane	86		-		80-120	-		20	B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605324-3 WG1605324-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	96		97		70-130	1		20
Toluene	100		100		70-130	0		20
Ethylbenzene	100		100		70-130	0		20
p/m-Xylene	100		105		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	99		100		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03
Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-04 Batch: WG1605520-3 WG1605520-4								
Methyl tert butyl ether	82		83		66-130	1		30
Benzene	94		95		70-130	1		30
1,2-Dichloroethane	81		82		70-130	1		30
Toluene	96		97		70-130	1		30
1,2-Dibromoethane	78		79		70-130	1		30
Ethylbenzene	98		99		70-130	1		30
p/m-Xylene	103		104		70-130	1		30
o-Xylene	101		102		70-130	1		30
Isopropylbenzene	101		101		70-130	0		30
1,3,5-Trimethylbenzene	102		103		70-130	1		30
1,2,4-Trimethylbenzene	98		99		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	101		102		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 05 Batch: WG1606097-3 WG1606097-4								
Methyl tert butyl ether	78		78		66-130	0		30
Benzene	80		80		70-130	0		30
1,2-Dichloroethane	94		95		70-130	1		30
Toluene	82		82		70-130	0		30
1,2-Dibromoethane	92		93		70-130	1		30
Ethylbenzene	83		84		70-130	1		30
p/m-Xylene	90		90		70-130	0		30
o-Xylene	87		88		70-130	1		30
Isopropylbenzene	95		96		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	92		91		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		105		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567

Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-01	Date Collected:	02/11/22 11:40
Client ID:	PB-34-04-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 18:39
Analytical Date:	02/18/22 07:14		
Analyst:	IM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.037	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	55		30-120
4-Terphenyl-d14	58		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
Client ID: PB-34-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:45
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/18/22 08:51
Analyst: IM
Percent Solids: 83%
Extraction Method: EPA 3546
Extraction Date: 02/17/22 18:39

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	50		23-120
2-Fluorobiphenyl	54		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-03	Date Collected:	02/11/22 11:50
Client ID:	PB-34-09-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 18:39
Analytical Date:	02/18/22 06:50		
Analyst:	IM		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567

Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-04	Date Collected:	02/11/22 11:55
Client ID:	PB-34-10-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 18:39
Analytical Date:	02/18/22 03:10		
Analyst:	IM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.048	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	69		18-120

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-05	Date Collected:	02/11/22 12:00
Client ID:	PB-34-13-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/17/22 18:39
Analytical Date:	02/18/22 09:16		
Analyst:	IM		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.29		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**143**	Q	23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	77		18-120

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-06	Date Collected:	02/11/22 12:10
Client ID:	FB-220211	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/17/22 18:52
Analytical Date:	02/18/22 14:03		
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	70		15-120
4-Terphenyl-d14	74		41-149

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/17/22 13:34	Extraction Date:	02/16/22 22:53
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1605855-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/18/22 13:44
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/17/22 18:52

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606288-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	84		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA

Project Number: 200.00135.005.03

Lab Number: L2207567

Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1605855-2 WG1605855-3								
Naphthalene	70		63		40-140	11		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	70		64		23-120
2-Fluorobiphenyl	71		67		30-120
4-Terphenyl-d14	74		67		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606288-2 WG1606288-3								
Naphthalene	76		92		40-140	19		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	80		98		23-120
2-Fluorobiphenyl	77		96		15-120
4-Terphenyl-d14	82		99		41-149

METALS

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-01	Date Collected:	02/11/22 11:40
Client ID:	PB-34-04-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.00		mg/kg	2.41	0.129	1	02/15/22 20:00	02/17/22 19:16	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02 Date Collected: 02/11/22 11:45
Client ID: PB-34-08-SS01 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.27		mg/kg	2.34	0.126	1	02/15/22 20:00	02/17/22 19:20	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03 Date Collected: 02/11/22 11:50
Client ID: PB-34-09-SS01 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 76%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.87	J	mg/kg	12.6	0.674	5	02/15/22 20:00	02/17/22 21:12	EPA 3050B	1,6010D	DL

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-04	Date Collected:	02/11/22 11:55
Client ID:	PB-34-10-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	8.27	J	mg/kg	11.3	0.604	5	02/15/22 20:00	02/17/22 21:17	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA | **Lab Number:** L2207567
Project Number: 200.00135.005.03 | **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID:	L2207567-05	Date Collected:	02/11/22 12:00
Client ID:	PB-34-13-SS01	Date Received:	02/11/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	44.3		mg/kg	10.9	0.586	5	02/15/22 20:00	02/17/22 21:22	EPA 3050B	1,6010D	DL

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-06 Date Collected: 02/11/22 12:10
Client ID: FB-220211 Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	0.6813	J	ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 13:37	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY SOIL CHA **Lab Number:** L2207567
Project Number: 200.00135.005.03 **Report Date:** 02/18/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 06 Batch: WG1604932-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/15/22 06:20	02/15/22 11:23	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1605224-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/15/22 20:00	02/17/22 09:32	1,6010D	GD

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1604932-2								
Lead, Total	100		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1605224-2 SRM Lot Number: D113-540								
Lead, Total	91		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-3 QC Sample: L2206752-03 Client ID: MS Sample												
Lead, Total	ND	530	468.4	88		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-3 QC Sample: L2207566-01 Client ID: MS Sample												
Lead, Total	7.08	51.4	39.5	**63**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1604932-4 QC Sample: L2206752-03 Client ID: DUP Sample						
Lead, Total	ND	ND	ug/l	NC		20
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1605224-4 QC Sample: L2207566-01 Client ID: DUP Sample						
Lead, Total	7.08	7.13	mg/kg	1		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-01
Date Collected: 02/11/22 11:40
Client ID: PB-34-04-SS01
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-02
Client ID: PB-34-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:45
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.8		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-03
Client ID: PB-34-09-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/11/22 11:50
Date Received: 02/11/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.1		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-04
Date Collected: 02/11/22 11:55
Client ID: PB-34-10-SS01
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.3		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Project Name: PHILADELPHIA REFINERY SOIL CHA
Lab Number: L2207567
Project Number: 200.00135.005.03
Report Date: 02/18/22

SAMPLE RESULTS

Lab ID: L2207567-05
Date Collected: 02/11/22 12:00
Client ID: PB-34-13-SS01
Date Received: 02/11/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.8		%	0.100	NA	1	-	02/12/22 08:27	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY SOIL CHA
Project Number: 200.00135.005.03

Lab Number: L2207567
Report Date: 02/18/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1604272-1 QC Sample: L2207458-01 Client ID: DUP Sample						
Solids, Total	92.6	91.7	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207567-01A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-01B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-01D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-01E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-02A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-02B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-02D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-02E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-03A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-03B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-03D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-03E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-04A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-04B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-04D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-04E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-05A	Vial MeOH preserved	C	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207567-05B	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)
L2207567-05C	Vial water preserved	C	NA		2.1	Y	Absent	12-FEB-22 05:50	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207567-05D	Glass 60mL/2oz unpreserved	C	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207567-05E	Plastic 120ml unpreserved	C	NA		2.1	Y	Absent		PB-TI(180)
L2207567-06A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06C	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-06D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06E	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-06F	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06G	Amber 250ml unpreserved	C	7	7	2.1	Y	Absent		PA-PAHSIM-LVI(7)
L2207567-06H	Plastic 250ml HNO3 preserved	C	<2	<2	2.1	Y	Absent		PB-6020T-PPB(180)
L2207567-07A	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07B	Vial HCl preserved	C	NA		2.1	Y	Absent		PA-8260(14)
L2207567-07C	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)
L2207567-07D	Vial Na2S2O3 preserved	C	NA		2.1	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Project Name:	PHILADELPHIA REFINERY SOIL CHA	**Lab Number:**	L2207567
Project Number:	200.00135.005.03	**Report Date:**	02/18/22

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: *DU Report with 'J' Qualifiers*

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF COUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/12/22

ALPHA Job #: L2207567

Project Information

Project Name: Philadelphia Refinery
SOIL CHARACTERIZATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program

Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07567-01	PB-34-04-SS01	2/11	1140	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-34-08-SS01	↓	1145	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-34-09-SS01	↓	1150	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-34-10-SS01	↓	1155	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	PB-34-13-SS01	↓	1200	S	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	FB-220211	↓	1210	W	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	TB-220211	↓	-	W	↓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
				Container Type		G	G	G	-	-	-	-	-	-	-	-	-		
				Preservative		F	A	A	-	-	-	-	-	-	-	-	-		

Rec'd [illegible] 2/12/22 0155

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/11 1500	S. T[illegible] AAL	2/11/22 15:40
TomClark AAL 2-11-22	2/11/22 1800	TomClark AAL	2-11-22 1800
Anthony [illegible] 2/11/22		Anthony [illegible]	2/11/22 2000
[signature] AAL 2/12/22 0155		[signature] AAL	2/12/22 0555

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

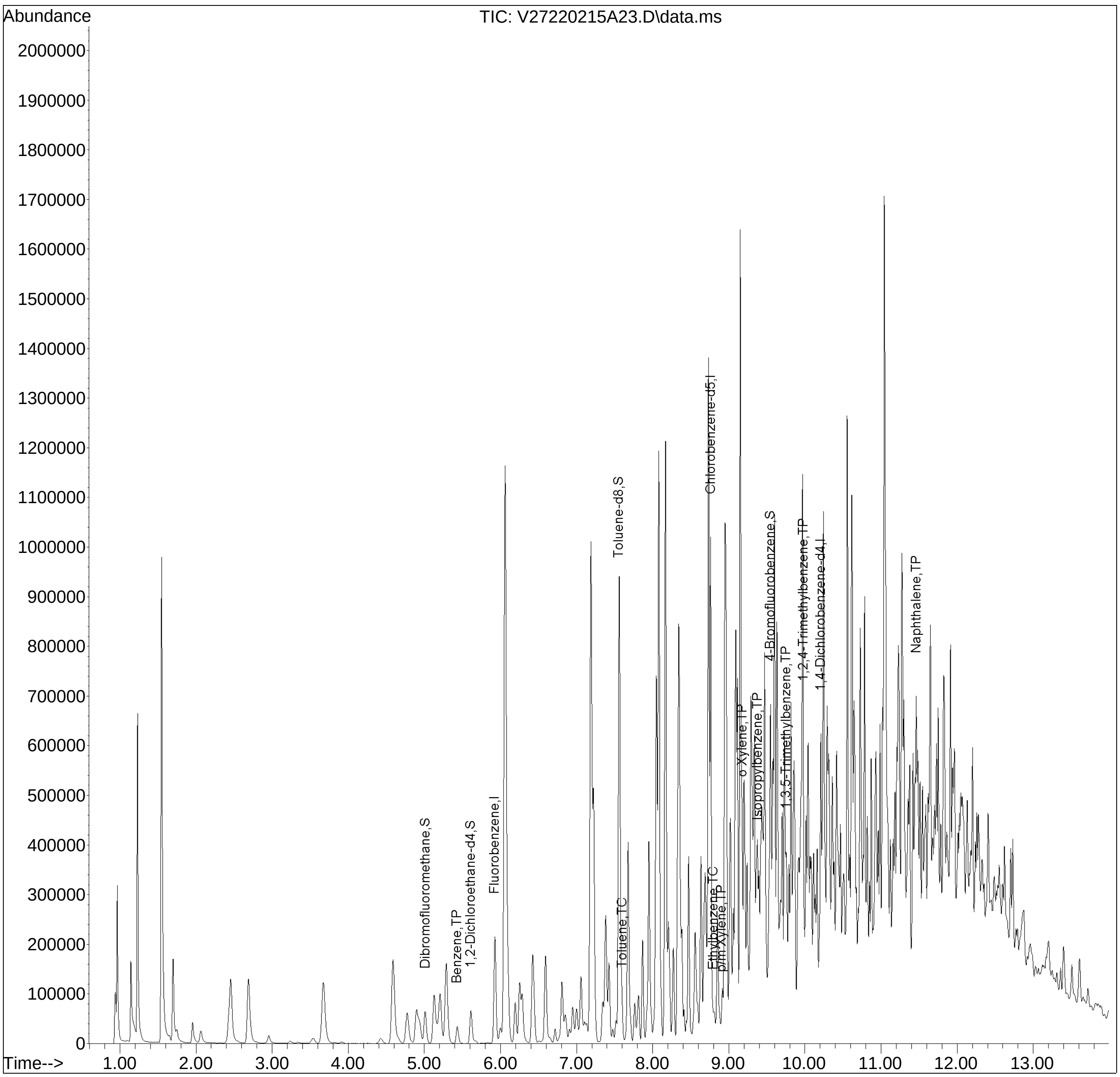
6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A23.D
Acq On   : 15 Feb 2022 07:39 pm
Operator : VOA127:KJD
Sample   : l2207567-01D,31H,6.60,5,0.050,,a,r2f
Misc   : WG1605520,ICAL18638
ALS Vial : 23   Sample Multiplier: 1

Quant Time: Feb 15 21:09:50 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•



Quantitation Report (QT Reviewed)

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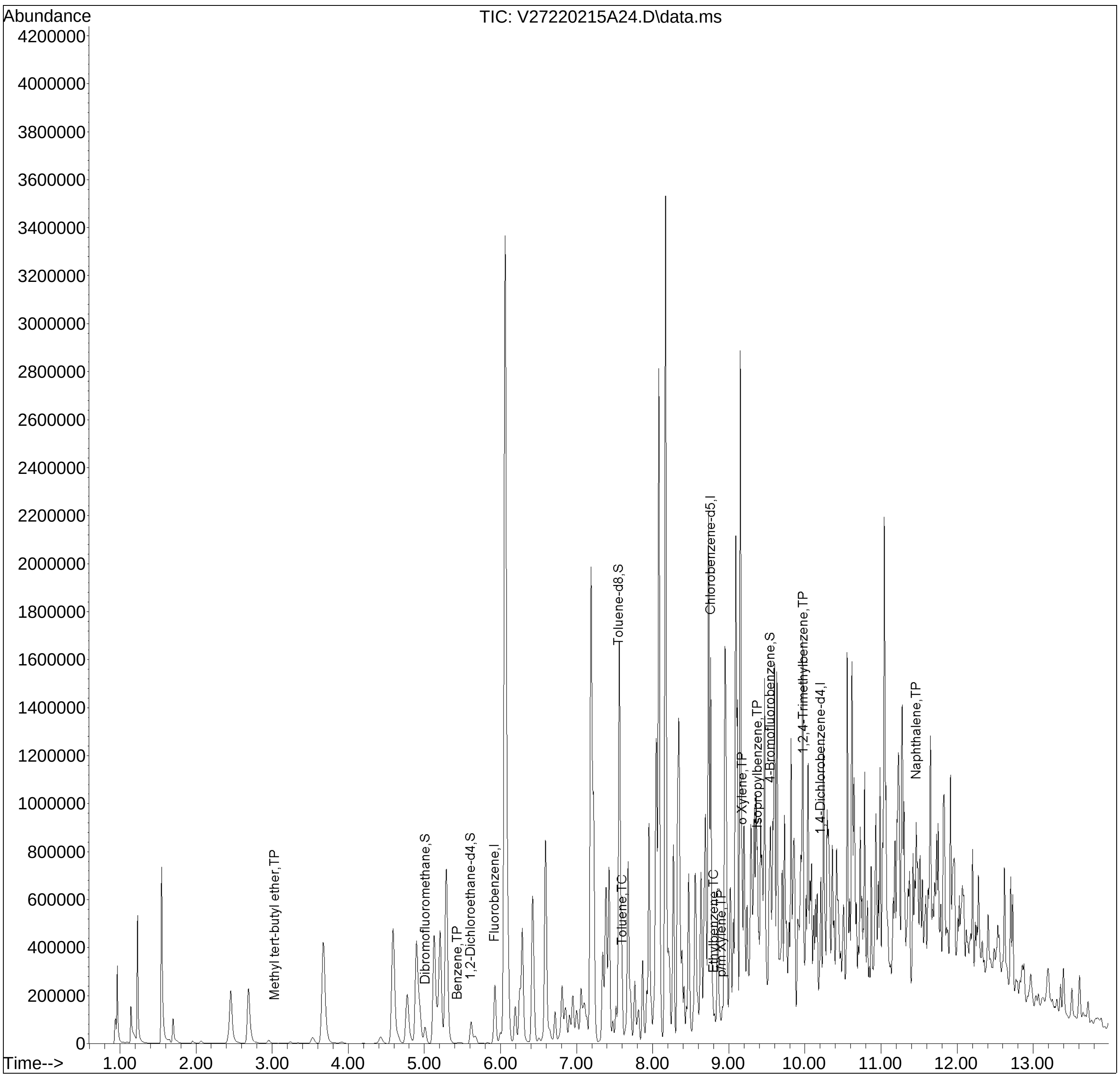
Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A24.D
Acq On    : 15 Feb 2022  08:00 pm
Operator  : VOA127:KJD
Sample    : l2207567-02D,31H,5.48,5,0.050,,a,r2f
Misc      : WG1605520,ICAL18638
ALS Vial  : 24   Sample Multiplier: 1

Quant Time: Feb 15 21:10:28 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•
```

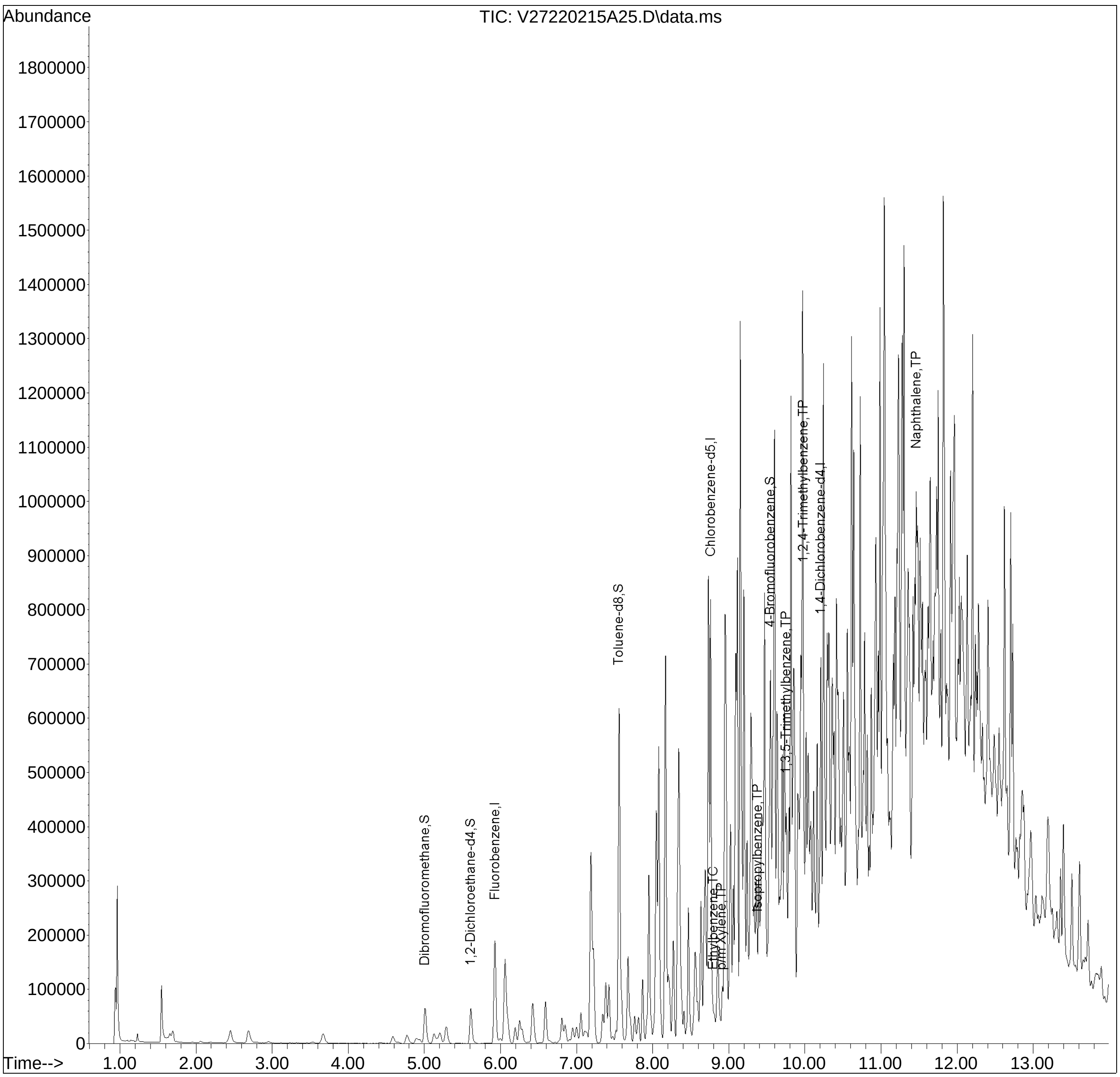


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A25.D
Acq On : 15 Feb 2022 08:20 pm
Operator : VOA127:MKS
Sample : l2207567-03,31H,6.54,5,0.100,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 25 Sample Multiplier: 1

Quant Time: Feb 16 09:22:39 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•

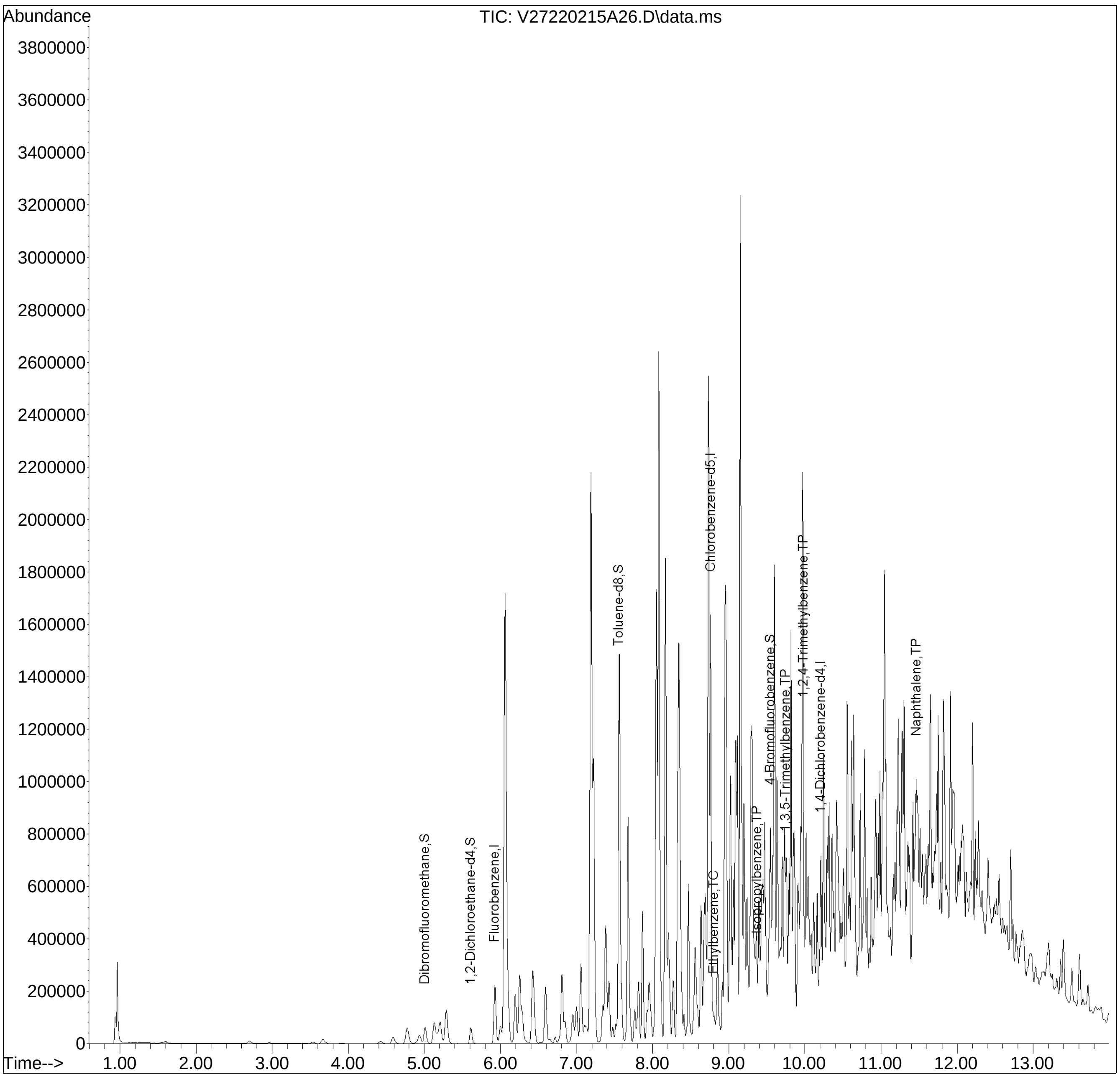


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2022\220215A\
Data File : V27220215A26.D
Acq On : 15 Feb 2022 08:41 pm
Operator : VOA127:MKS
Sample : l2207567-04D,31H,5.89,5,0.020,,a,r2f
Misc : WG1605520,ICAL18638
ALS Vial : 26 Sample Multiplier: 1

Quant Time: Feb 16 09:23:12 2022
Quant Method : I:\VOLATILES\VOA127\2022\220215A\V127_220110N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 11 14:36:58 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list15A\V27220215A02.D•



ANALYTICAL REPORT

Lab Number:	L2207791
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207791-01	PB-83-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 13:45	02/14/22
L2207791-02	PB-83-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 14:15	02/14/22
L2207791-03	PB-42-09R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/14/22 14:45	02/14/22
L2207791-04	PB-42-09R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/14/22 15:00	02/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2207791-01, -02, and -04.

Report Submission

February 25, 2022: This final report includes the results of the Volatile Organics analysis performed on L2207791-01.

February 18, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207791-01 Date Collected: 02/14/22 13:45
Client ID: PB-83-01R-14.0-14.5 Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 02:12
Analyst: KDU
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.90		mg/kg	0.037	0.012	1
Toluene	ND		mg/kg	0.075	0.041	1
Ethylbenzene	0.015	J	mg/kg	0.075	0.010	1
p/m-Xylene	ND		mg/kg	0.15	0.042	1
o-Xylene	ND		mg/kg	0.075	0.022	1
Xylenes, Total	ND		mg/kg	0.075	0.022	1
Naphthalene	0.072	J	mg/kg	0.30	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207791-02
Client ID: PB-83-01R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 14:15
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 05:56
Analyst: KJD
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.030	J	mg/kg	0.16	0.016	1
Benzene	1.6		mg/kg	0.039	0.013	1
Toluene	ND		mg/kg	0.079	0.043	1
1,2-Dibromoethane	ND		mg/kg	0.039	0.023	1
Ethylbenzene	0.020	J	mg/kg	0.079	0.011	1
p/m-Xylene	ND		mg/kg	0.16	0.044	1
o-Xylene	0.032	J	mg/kg	0.079	0.023	1
Xylenes, Total	0.032	J	mg/kg	0.079	0.023	1
Isopropylbenzene	0.025	J	mg/kg	0.079	0.0086	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.16	0.015	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.16	0.026	1
Naphthalene	ND		mg/kg	0.31	0.051	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207791-04	Date Collected:	02/14/22 15:00
Client ID:	PB-42-09R-6.0-6.5	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/16/22 00:21
Analyst: KJD
Percent Solids: 74%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0023	0.00023	1
Benzene	0.18		mg/kg	0.00057	0.00019	1
Toluene	ND		mg/kg	0.0011	0.00062	1
1,2-Dibromoethane	ND		mg/kg	0.00057	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0023	0.00064	1
o-Xylene	0.0032		mg/kg	0.0011	0.00033	1
Xylenes, Total	0.0032		mg/kg	0.0011	0.00033	1
Isopropylbenzene	0.0016		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.0019	J	mg/kg	0.0023	0.00022	1
1,2,4-Trimethylbenzene	0.0038		mg/kg	0.0023	0.00038	1
Naphthalene	0.0012	J	mg/kg	0.0046	0.00074	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207791
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1605583-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207791
Project Number: 200.00135.005.03
Report Date: 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 21:21
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1605584-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/23/22 20:19
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1608967-5					
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207791
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1605583-3 WG1605583-4								
Methyl tert butyl ether	89		89		66-130	0		30
Benzene	98		95		70-130	3		30
Toluene	98		96		70-130	2		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	99		96		70-130	3		30
p/m-Xylene	105		103		70-130	2		30
o-Xylene	106		101		70-130	5		30
Isopropylbenzene	99		96		70-130	3		30
1,3,5-Trimethylbenzene	98		94		70-130	4		30
1,2,4-Trimethylbenzene	98		94		70-130	4		30
Naphthalene	100		98		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	92		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207791
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1605584-3 WG1605584-4								
Methyl tert butyl ether	89		89		66-130	0		30
Benzene	98		95		70-130	3		30
Toluene	98		96		70-130	2		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	99		96		70-130	3		30
p/m-Xylene	105		103		70-130	2		30
o-Xylene	106		101		70-130	5		30
Isopropylbenzene	99		96		70-130	3		30
1,3,5-Trimethylbenzene	98		94		70-130	4		30
1,2,4-Trimethylbenzene	98		94		70-130	4		30
Naphthalene	100		98		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		92		70-130
Toluene-d8	98		97		70-130
4-Bromofluorobenzene	93		91		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207791
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1608967-3 WG1608967-4								
Benzene	82		82		70-130	0		30
Toluene	82		81		70-130	1		30
Ethylbenzene	78		77		70-130	1		30
p/m-Xylene	85		83		70-130	2		30
o-Xylene	84		83		70-130	1		30
Naphthalene	92		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	93		92		70-130
4-Bromofluorobenzene	86		87		70-130
Dibromofluoromethane	98		98		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207791-01
Client ID: PB-83-01R-14.0-14.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 13:45
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	74.0		%	0.100	NA	1	-	02/21/22 19:46	121,2540G	TR

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207791
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207791-02
Date Collected: 02/14/22 14:15
Client ID: PB-83-01R-6.0-6.5
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	79.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207791-04
Client ID: PB-42-09R-6.0-6.5
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	73.7		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207791
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,04 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: DUP Sample						
Solids, Total	83.0	83.1	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1607452-1 QC Sample: L2206601-06 Client ID: DUP Sample						
Solids, Total	86.4	86.7	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207791-01A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-01B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-01D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-02A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-02B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-02D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)
L2207791-03A	Vial MeOH preserved	A	NA		2.1	Y	Absent		HOLD-8260HLW(14)
L2207791-03B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	HOLD-8260HLW(14)
L2207791-03D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		HOLD-WETCHEM()
L2207791-04A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW-BTEX(14)
L2207791-04B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:35	PA-8260HLW-BTEX(14)
L2207791-04D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207791

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: PES Refinery ~~- Delineation~~ AST CLOSURE - SITE INVESTIGATION
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)
5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info
PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list per attached

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	Sample Specific Comments	TOTAL # BOTTLES
07791-01	PB-83-01R-14.0-14.5	2/14	1345	S	TS	☐	☑	☐	☐	☐	☐	HOLD	4
-02	PB-83-01R-6.0-6.5	2/14	1415	S	TS	☐	☑	☐	☐	☐	☐		4
-03	PB-~~83~~ 42-04R-14.0-14.5	2/14	1445	S	TS	☐	☑	☐	☐	☐	☐	HOLD	4
-04	PB-42-04R-6.0-6.5	2/14	1500	S	TS	☐	☑	☐	☐	☐	☐		4

Container Type: - - - - - - - - - - - -
Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14/22 1615	[signature]	2/14/22 1615
[signature]	2/14/22 1900	[signature]	2/14 1900
[signature]	2/14/22 2100	[signature]	2/14/22 2100
[signature]	2/14/22	[signature]	2/15/22 0005

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HH) (rev. 5-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2207792
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	03/01/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207792-01	PB-43-01-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:15	02/14/22
L2207792-02	PB-43-02-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:30	02/14/22
L2207792-03	PB-43-03-SS01	SOIL	PHILADELPHIA, PA	02/14/22 09:45	02/14/22
L2207792-04	PB-43-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:00	02/14/22
L2207792-05	PB-43-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:10	02/14/22
L2207792-06	PB-43-07-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:20	02/14/22
L2207792-07	PB-43-08-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:30	02/14/22
L2207792-08	PB-43-10-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:40	02/14/22
L2207792-09	PB-43-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 10:50	02/14/22
L2207792-10	PB-83-04-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:30	02/14/22
L2207792-11	PB-83-05-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:40	02/14/22
L2207792-12	PB-83-06-SS01	SOIL	PHILADELPHIA, PA	02/14/22 11:50	02/14/22
L2207792-13	PB-83-11-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:00	02/14/22
L2207792-14	PB-85-09-SS01	SOIL	PHILADELPHIA, PA	02/14/22 12:30	02/14/22
L2207792-15	FB-220214	WATER	PHILADELPHIA, PA	02/14/22 15:30	02/14/22
L2207792-16	TB-220214	WATER	PHILADELPHIA, PA	02/14/22 00:00	02/14/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

March 01, 2022: The Volatile Organics analyte list has been amended on L2207792-12, -13, and -14. In addition, the results of the Metals analysis was removed from L2207792-01 through -14.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207792-02: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported.

L2207792-02 (Low): The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (538%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-03: The surrogate recoveries are outside the acceptance criteria for toluene-d8 (150%) and 4-bromofluorobenzene (331%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-06: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (134%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-06 and -09: The analysis of Volatile Organics by EPA Method 5035/8260 Low Level could not be performed due to the elevated concentrations of non-target compounds in the sample.

L2207792-07: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (463%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-08: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (230%);

Case Narrative (continued)

however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-09: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (144%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-10: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (66%) due to interference with the Internal Standard.

L2207792-10: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (224%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-11: The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (55%) due to interference with the Internal Standard.

L2207792-11: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (637%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207792-14: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (154%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2207792-12: The sample has elevated detection limits due to the dilution required by matrix interferences encountered during the concentration of the sample.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 03/01/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-01
Client ID: PB-43-01-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 09:15
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 12:43
Analyst: JC
Percent Solids: 83%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.0097		mg/kg	0.0027	0.00027	1
Benzene	0.00052	J	mg/kg	0.00068	0.00022	1
Toluene	ND		mg/kg	0.0014	0.00073	1
Ethylbenzene	ND		mg/kg	0.0014	0.00019	1
Isopropylbenzene	0.00022	J	mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-02	Date Collected:	02/14/22 09:30
Client ID:	PB-43-02-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:50
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.012	J	mg/kg	0.030	0.010	1
Toluene	0.033	J	mg/kg	0.061	0.033	1
Ethylbenzene	ND		mg/kg	0.061	0.0086	1
Isopropylbenzene	0.38		mg/kg	0.061	0.0066	1
1,3,5-Trimethylbenzene	0.020	J	mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.024	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	129		70-130
Dibromofluoromethane	84		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
Client ID: PB-43-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 12:07
Analyst: MKS
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00066	0.00022	1
Toluene	0.0012	J	mg/kg	0.0013	0.00071	1
Ethylbenzene	0.0016		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.50	E	mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.0032		mg/kg	0.0026	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**538**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-03	Date Collected:	02/14/22 09:45
Client ID:	PB-43-03-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 13:07
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00088	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	0.00016	J	mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.028		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00084	J	mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	**150**	Q	70-130
4-Bromofluorobenzene	**331**	Q	70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-04	Date Collected:	02/14/22 10:00
Client ID:	PB-43-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/24/22 13:32
Analyst: AJK
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00060	0.00020	1
Toluene	ND		mg/kg	0.0012	0.00066	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
Isopropylbenzene	0.00041	J	mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	110		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-05	Date Collected:	02/14/22 10:10
Client ID:	PB-43-06-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 14:28
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0017	0.00017	1
Benzene	0.00070		mg/kg	0.00042	0.00014	1
Toluene	ND		mg/kg	0.00085	0.00046	1
Ethylbenzene	0.00014	J	mg/kg	0.00085	0.00012	1
Isopropylbenzene	0.014		mg/kg	0.00085	0.00009	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0017	0.00016	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0017	0.00028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-06	Date Collected:	02/14/22 10:20
Client ID:	PB-43-07-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 11:24
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.14	0.014	1
Benzene	ND		mg/kg	0.036	0.012	1
Toluene	ND		mg/kg	0.072	0.039	1
Ethylbenzene	ND		mg/kg	0.072	0.010	1
Isopropylbenzene	0.35		mg/kg	0.072	0.0078	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.14	0.014	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.14	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**134**	Q	70-130
Dibromofluoromethane	93		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-07	Date Collected:	02/14/22 10:30
Client ID:	PB-43-08-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 09:24
Analyst: MKS
Percent Solids: 88%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	0.00024	J	mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
Toluene	0.00075	J	mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
Isopropylbenzene	0.10		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	0.00040	J	mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	**463**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
Client ID: PB-43-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:40
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 10:58
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.033	0.011	1
Toluene	0.042	J	mg/kg	0.065	0.035	1
Ethylbenzene	0.16		mg/kg	0.065	0.0092	1
Isopropylbenzene	2.6		mg/kg	0.065	0.0071	1
1,3,5-Trimethylbenzene	0.066	J	mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.16		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	**230**	Q	70-130
Dibromofluoromethane	87		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09 Date Collected: 02/14/22 10:50
Client ID: PB-43-11-SS01 Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 10:06
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	ND		mg/kg	0.044	0.015	1
Toluene	ND		mg/kg	0.088	0.048	1
Ethylbenzene	0.62		mg/kg	0.088	0.012	1
Isopropylbenzene	0.50		mg/kg	0.088	0.0096	1
1,3,5-Trimethylbenzene	0.051	J	mg/kg	0.18	0.017	1
1,2,4-Trimethylbenzene	0.15	J	mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	**144**	Q	70-130
Dibromofluoromethane	86		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-10
Client ID: PB-83-04-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 11:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 09:40
Analyst: JC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	0.46		mg/kg	0.032	0.010	1
Toluene	0.082		mg/kg	0.064	0.034	1
Ethylbenzene	1.0		mg/kg	0.064	0.0090	1
Isopropylbenzene	4.4		mg/kg	0.064	0.0069	1
1,3,5-Trimethylbenzene	1.1		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	0.21		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	**224**	Q	70-130
Dibromofluoromethane	**66**	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792

Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-11	Date Collected:	02/14/22 11:40
Client ID:	PB-83-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 13:35
Analyst: JC
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0035		mg/kg	0.00052	0.00017	1
Toluene	0.013		mg/kg	0.0010	0.00056	1
Ethylbenzene	0.0073		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.12		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.010		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.014		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**637**	Q	70-130
Dibromofluoromethane	**55**	Q	70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
Client ID: PB-83-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 15:21
Analyst: JC
Percent Solids: 78%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.0037		mg/kg	0.00053	0.00018	1
Toluene	0.0043		mg/kg	0.0010	0.00058	1
Ethylbenzene	0.0013		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.038		mg/kg	0.0010	0.00012	1
1,3,5-Trimethylbenzene	0.0019	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.0062		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	120		70-130
Dibromofluoromethane	82		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-13	Date Collected:	02/14/22 12:00
Client ID:	PB-83-11-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 13:09
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00055	0.00018	1
Toluene	ND		mg/kg	0.0011	0.00060	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	0.00021	J	mg/kg	0.0022	0.00021	1
1,2,4-Trimethylbenzene	0.00078	J	mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-14	Date Collected:	02/14/22 12:30
Client ID:	PB-85-09-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/26/22 09:14
Analyst: JC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	1.7		mg/kg	0.033	0.011	1
Toluene	0.70		mg/kg	0.067	0.036	1
Ethylbenzene	2.8		mg/kg	0.067	0.0094	1
Isopropylbenzene	2.6		mg/kg	0.067	0.0073	1
1,3,5-Trimethylbenzene	0.62		mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.48		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**154**	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
Client ID: FB-220214
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 15:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/15/22 10:38
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-16
Client ID: TB-220214
Sample Location: PHILADELPHIA, PA
Date Collected: 02/14/22 00:00
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/15/22 11:01
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/15/22 09:52
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15-16 Batch: WG1605333-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	104		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/24/22 09:22
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 03-04 Batch: WG1609126-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	111		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,06,08-10,14 Batch: WG1609759-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/26/22 08:48
Analyst: MV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01,05,11-13 Batch: WG1609760-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	97		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 02,07 Batch: WG1609768-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15-16 Batch: WG1605333-3 WG1605333-4								
Methyl tert butyl ether	110		100		63-130	10		20
Benzene	100		100		70-130	0		20
Toluene	110		110		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	105		104		70-130
Toluene-d8	99		101		70-130
4-Bromofluorobenzene	99		101		70-130
Dibromofluoromethane	101		102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207792

Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 03-04 Batch: WG1609126-3 WG1609126-4								
Methyl tert butyl ether	87		87		66-130	0		30
Benzene	86		84		70-130	2		30
Toluene	86		85		70-130	1		30
Ethylbenzene	85		83		70-130	2		30
Isopropylbenzene	92		91		70-130	1		30
1,3,5-Trimethylbenzene	93		92		70-130	1		30
1,2,4-Trimethylbenzene	95		94		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		103		70-130
Toluene-d8	98		96		70-130
4-Bromofluorobenzene	104		104		70-130
Dibromofluoromethane	100		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,06,08-10,14 Batch: WG1609759-3 WG1609759-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01,05,11-13 Batch: WG1609760-3 WG1609760-4								
Methyl tert butyl ether	103		105		66-130	2		30
Benzene	102		102		70-130	0		30
Toluene	94		94		70-130	0		30
Ethylbenzene	97		97		70-130	0		30
Isopropylbenzene	98		99		70-130	1		30
1,3,5-Trimethylbenzene	97		97		70-130	0		30
1,2,4-Trimethylbenzene	99		100		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		98		70-130
Toluene-d8	97		95		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 02,07 Batch: WG1609768-3 WG1609768-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30
Ethylbenzene	85		80		70-130	6		30
Isopropylbenzene	82		76		70-130	8		30
1,3,5-Trimethylbenzene	85		80		70-130	6		30
1,2,4-Trimethylbenzene	87		82		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-01
Client ID: PB-43-01-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:15
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 16:09
Analyst: CMM
Percent Solids: 83%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
Client ID: PB-43-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 16:34
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**131**	Q	23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-03
Client ID: PB-43-03-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:45
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 16:58
Analyst: CMM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	83		30-120
4-Terphenyl-d14	96		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-04	Date Collected:	02/14/22 10:00
Client ID:	PB-43-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 17:22		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	90		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-05	Date Collected:	02/14/22 10:10
Client ID:	PB-43-06-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 17:46		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	65		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-06	Date Collected:	02/14/22 10:20
Client ID:	PB-43-07-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 18:11		
Analyst:	CMM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**147**	Q	23-120
2-Fluorobiphenyl	86		30-120
4-Terphenyl-d14	86		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-07
Client ID: PB-43-08-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 18:35
Analyst: CMM
Percent Solids: 88%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**176**	Q	23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	63		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-08	Date Collected:	02/14/22 10:40
Client ID:	PB-43-10-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 18:59		
Analyst:	CMM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**174**	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-09	Date Collected:	02/14/22 10:50
Client ID:	PB-43-11-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 19:23		
Analyst:	CMM		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.24		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	96		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	64		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-10	Date Collected:	02/14/22 11:30
Client ID:	PB-83-04-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 19:48		
Analyst:	CMM		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	71		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-11	Date Collected:	02/14/22 11:40
Client ID:	PB-83-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:55
Analytical Date:	02/26/22 20:12		
Analyst:	CMM		
Percent Solids:	85%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.80		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**121**	Q	23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	73		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207792
Project Number: 200.00135.005.03 **Report Date:** 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12
Client ID: PB-83-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 11:50
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/26/22 20:36
Analyst: CMM
Percent Solids: 78%

Extraction Method: EPA 3546
Extraction Date: 02/25/22 23:55

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	1.3	0.15	6

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**135**	Q	23-120
2-Fluorobiphenyl	108		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-13	Date Collected:	02/14/22 12:00
Client ID:	PB-83-11-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:56
Analytical Date:	02/26/22 21:01		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.9		mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**129**	Q	23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	75		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-14	Date Collected:	02/14/22 12:30
Client ID:	PB-85-09-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/25/22 23:56
Analytical Date:	02/26/22 21:25		
Analyst:	CMM		
Percent Solids:	84%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.19	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	75		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	74		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-15
Date Collected: 02/14/22 15:30
Client ID: FB-220214
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Extraction Method: EPA 3510C
Analytical Method: 1,8270D-SIM
Extraction Date: 02/19/22 11:38
Analytical Date: 02/20/22 11:27
Analyst: JJW

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 15 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/26/22 14:56	Extraction Date:	02/25/22 23:55
Analyst:	CMM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-14 Batch: WG1609255-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	83		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2207792

Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 15 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-14 Batch: WG1609255-2 WG1609255-3								
Naphthalene	75		77		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	71		70		23-120
2-Fluorobiphenyl	80		81		30-120
4-Terphenyl-d14	83		84		18-120

INORGANICS
&
MISCELLANEOUS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-01	Date Collected:	02/14/22 09:15
Client ID:	PB-43-01-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.0		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-02
Client ID: PB-43-02-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 09:30
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-03
Date Collected: 02/14/22 09:45
Client ID: PB-43-03-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-04	Date Collected:	02/14/22 10:00
Client ID:	PB-43-05-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-05
Client ID: PB-43-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:10
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-06	Date Collected:	02/14/22 10:20
Client ID:	PB-43-07-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.9		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-07
Date Collected: 02/14/22 10:30
Client ID: PB-43-08-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	87.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-08
Client ID: PB-43-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/14/22 10:40
Date Received: 02/14/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.8		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-09
Date Collected: 02/14/22 10:50
Client ID: PB-43-11-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.0		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-10	Date Collected:	02/14/22 11:30
Client ID:	PB-83-04-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-11
Date Collected: 02/14/22 11:40
Client ID: PB-83-05-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.5		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS

Lab Number: L2207792

Project Number: 200.00135.005.03

Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-12

Date Collected: 02/14/22 11:50

Client ID: PB-83-06-SS01

Date Received: 02/14/22

Sample Location: PHILADELPHIA, PA

Field Prep: Not Specified

Sample Depth:

Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.4		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207792
Project Number: 200.00135.005.03
Report Date: 03/01/22

SAMPLE RESULTS

Lab ID: L2207792-13
Date Collected: 02/14/22 12:00
Client ID: PB-83-11-SS01
Date Received: 02/14/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.1		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207792
Project Number:	200.00135.005.03	**Report Date:**	03/01/22

SAMPLE RESULTS

Lab ID:	L2207792-14	Date Collected:	02/14/22 12:30
Client ID:	PB-85-09-SS01	Date Received:	02/14/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.7		%	0.100	NA	1	-	02/15/22 06:37	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-14 QC Batch ID: WG1604967-1 QC Sample: L2207792-01 Client ID: PB-43-01-SS01						
Solids, Total	83.0	83.1	%	0		20

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-01A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-01B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-01D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-01E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-02A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207792-02B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260H(14),PA-8260HLW(14)
L2207792-02D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-02E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-03A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-03B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-03D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-03E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-04A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-04B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-04D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-04E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-05A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-05B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207792
Report Date: 03/01/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-05C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-05D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-05E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-06A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-06B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-06D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-06E	Glass 60mL/2oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-07A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-07B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-07D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-07E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-08A	Vial MeOH preserved	B	NA		2.3	Y	Absent		PA-8260HLW(14)
L2207792-08B	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08C	Vial water preserved	B	NA		2.3	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-08D	Plastic 120ml unpreserved	B	NA		2.3	Y	Absent		-
L2207792-08E	Glass 120ml/4oz unpreserved	B	NA		2.3	Y	Absent		TS(7),PA-PAH(14)
L2207792-09A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-09B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-09D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-09E	Glass 60mL/2oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-10A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-10B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-10D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-10E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207792-11A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-11B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-11D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-11E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-12A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-12B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-12D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-12E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-13A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-13B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-13D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-13E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-14A	Vial MeOH preserved	A	NA		2.1	Y	Absent		PA-8260HLW(14)
L2207792-14B	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14C	Vial water preserved	A	NA		2.1	Y	Absent	15-FEB-22 05:41	PA-8260HLW(14)
L2207792-14D	Plastic 120ml unpreserved	A	NA		2.1	Y	Absent		-
L2207792-14E	Glass 120ml/4oz unpreserved	A	NA		2.1	Y	Absent		TS(7),PA-PAH(14)
L2207792-15A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15C	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-15D	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-15E	Amber 250ml unpreserved	B	7	7	2.3	Y	Absent		PA-PAHSIM-LVI(7)
L2207792-16A	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)
L2207792-16B	Vial HCl preserved	B	NA		2.3	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: *DU Report with 'J' Qualifiers*

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207792

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery – AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

NOTE: Run NAP via 8270!

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
07792-01	PB-43-01-SS01	2/14	0915	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		3
-02	PB-43-02-SS01	↓	0930	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-03	PB-43-03-SS01	↓	0945	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-04	PB-43-05-SS01	↓	1000	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-05	PB-43-06-SS01	↓	1010	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-06	PB-43-07-SS01	↓	1020	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-07	PB-43-08-SS01	↓	1030	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-08	PB-43-10-SS01	↓	1040	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-09	PB-43-11-SS01	↓	1050	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
-10	PB-43-04-SS01	↓	1130	↓	↓	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		↓
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14 1615	[signature]	2/14/22 1615
[signature]	2/14/22 1700	[signature]	2-14-22
[signature]	2-14-22	[signature]	2/14/22 2100
[signature]	2/14/22	[signature]	2/15/22 0000
[signature]	2/15/22 0??		2/15/22 0710

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF COUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 02/15/22

ALPHA Job #: L2207792

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: Philadelphia Refinery - AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com
☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (4)		Sample Specific Comments	TOTAL # BOTTLES
07792-11	PB-83-05-SS01	2/14	1140	S	TS	☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		1
-12	PB-83-06-SS01		1150	S		☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-13	PB-83-11-SS01		1200	S		☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-14	PB-85-09-SS01		1230	S		☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-15	FB-220214		1530			☐	☐	☒	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-16	TB-220214			-		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☒	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/14 1615	[signature]	2/14/22 16[illegible]
[signature]	2/14/22 2100	Anthony Green	2/14/22 2100
Anthony Green	2/14/22	[signature] AAL	2/15/22 0005
[signature] AAL	2/15/22 0210	[signature]	2/15/22 [illegible]

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

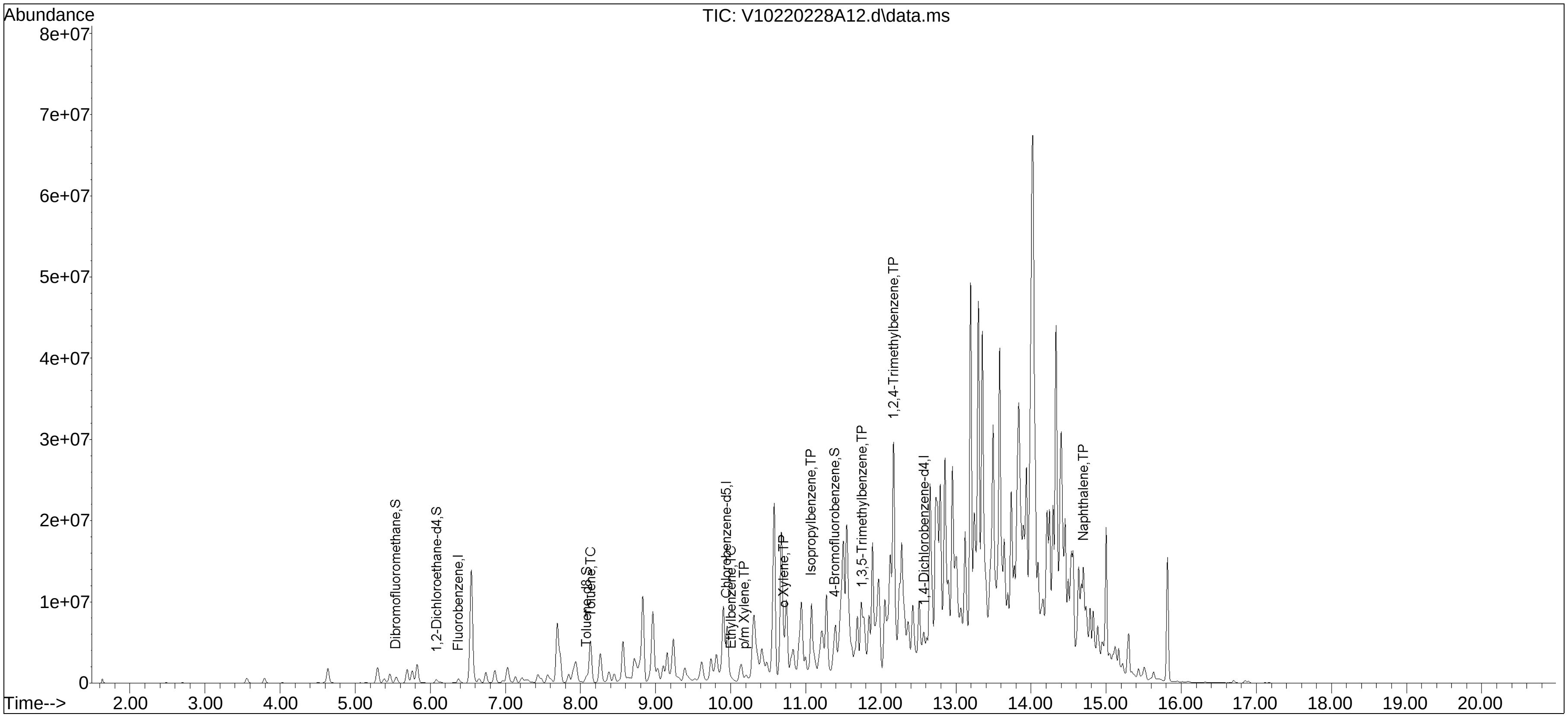
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA110\2022\220228A\
Data File : V10220228A12.d
Acq On    : 28 Feb 2022  12:07 pm
Operator  : VOA110:MKS
Sample    : L2207792-02,31,4.54,5,,C,R2F
Misc      : WG1609768,ICAL18690
ALS Vial  : 12   Sample Multiplier: 1

Quant Time: Feb 28 12:55:03 2022
Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•
```

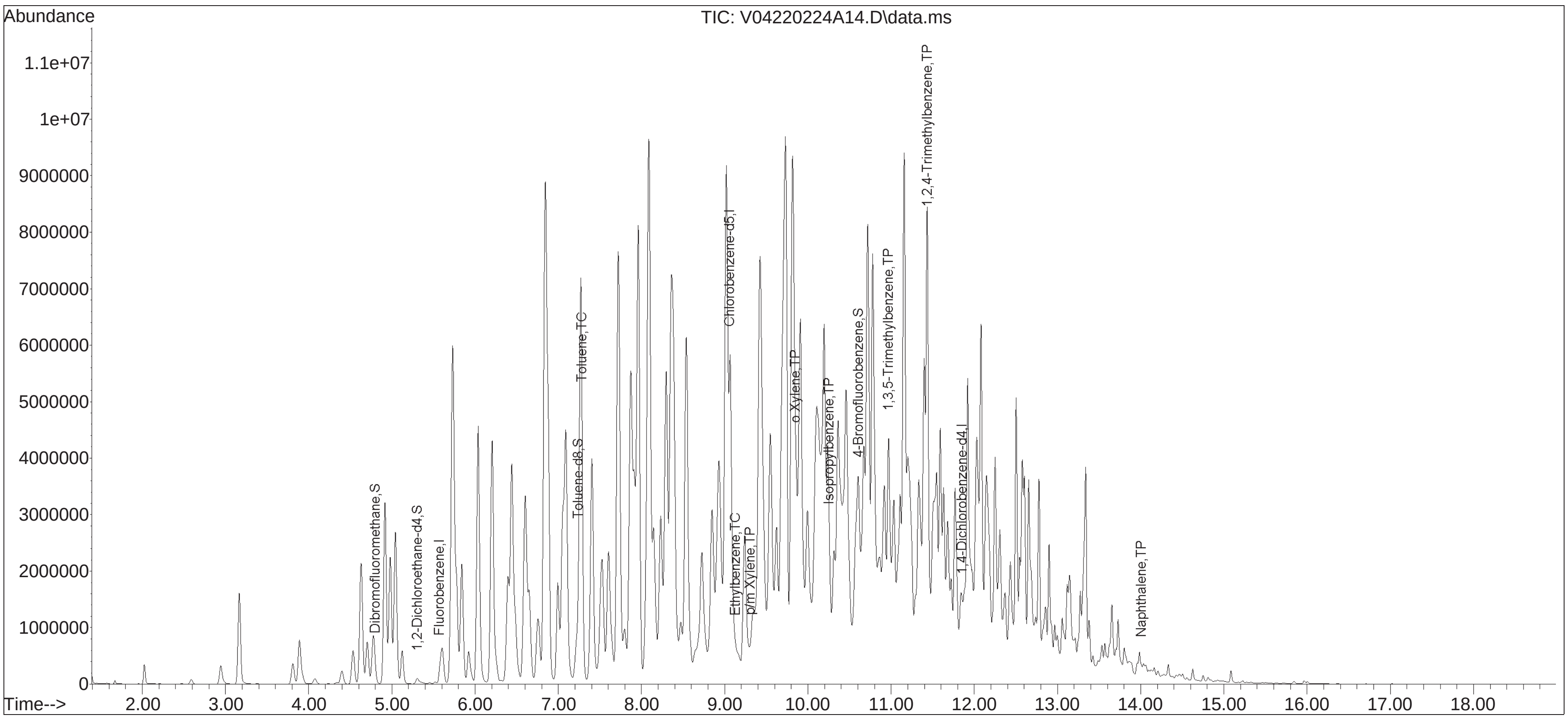


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA104\2022\220224A\
Data File : V04220224A14.D
Acq On : 24 Feb 2022 1:07 pm
Operator : VOA104:AJK
Sample : L2207792-03,31,6.37,5,,B,R2F
Misc : WG1609126,ICAL18563
ALS Vial : 14 Sample Multiplier: 1

Quant Time: Feb 28 07:28:57 2022
Quant Method : I:\VOLATILES\VOA104\2022\220224A\V104_211214A_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Dec 14 09:33:11 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list24A\V04220224A01.D•

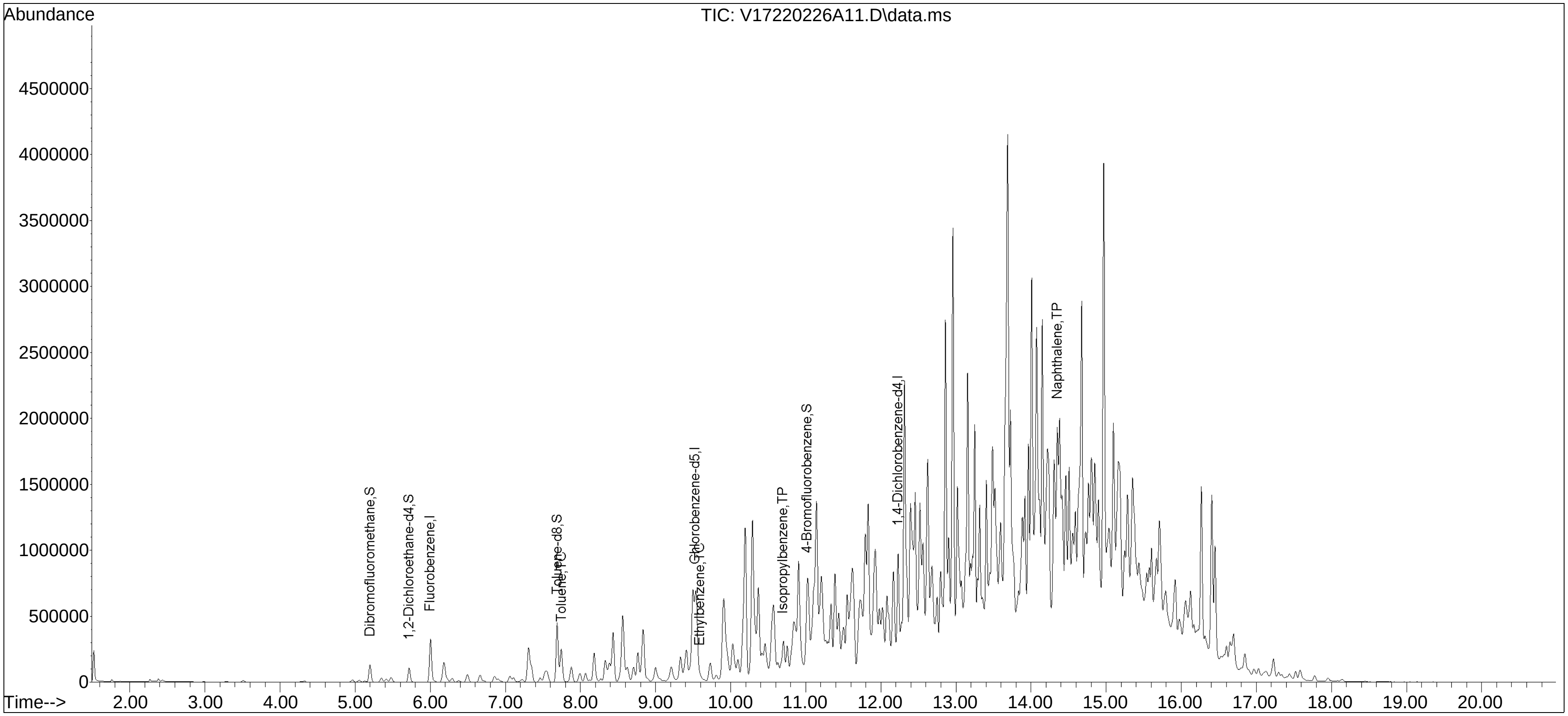


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A11.D
Acq On : 26 Feb 2022 11:24 am
Operator : VOA117:JC
Sample : L2207792-06,31H,5.04,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 11 Sample Multiplier: 1

Quant Time: Feb 28 10:36:13 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

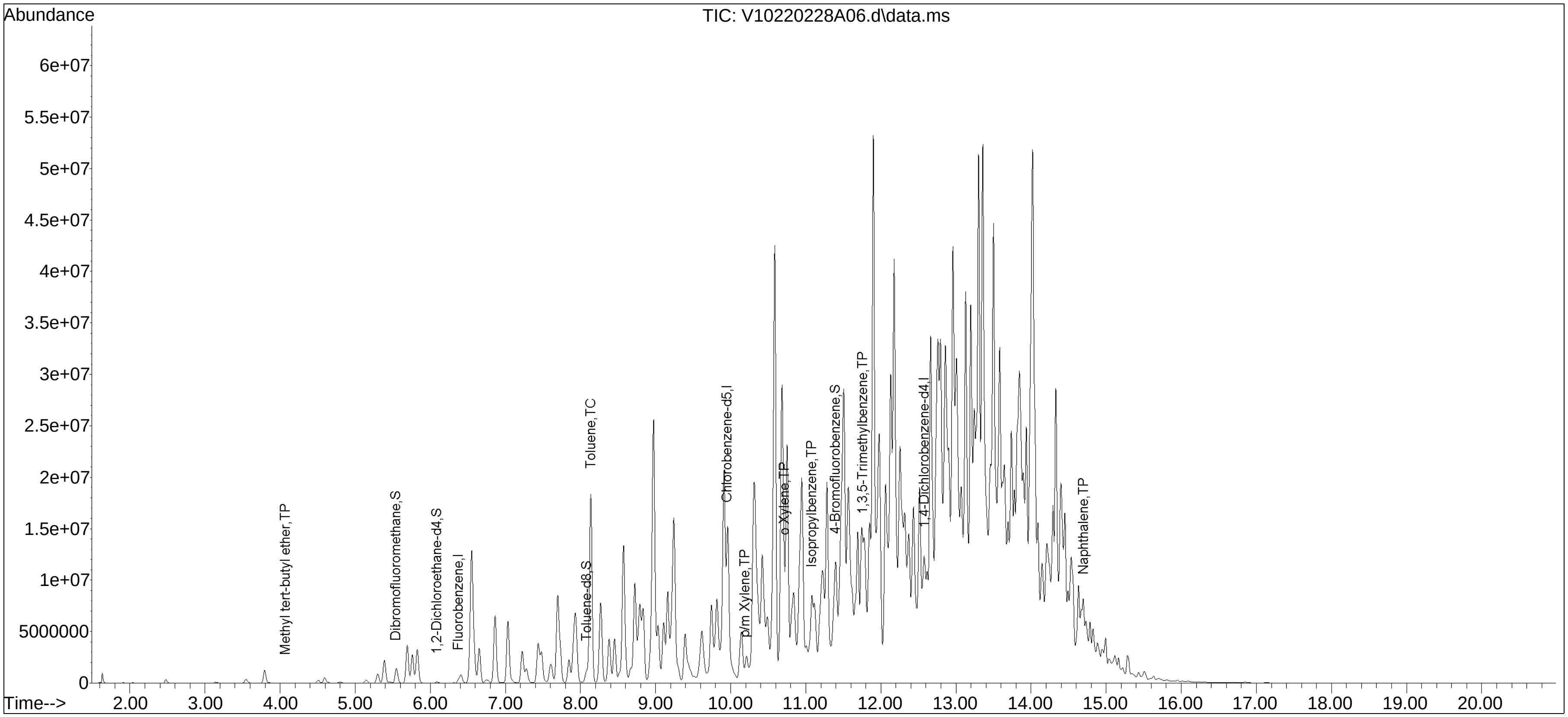


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2022\220228A\
Data File : V10220228A06.d
Acq On : 28 Feb 2022 9:24 am
Operator : VOA110:MKS
Sample : L2207792-07,31,6.08,5,,B,R2F
Misc : WG1609768,ICAL18690
ALS Vial : 6 Sample Multiplier: 1

Quant Time: Feb 28 12:52:38 2022
Quant Method : I:\VOLATILES\VOA110\2022\220228A\V110_220125N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Jan 26 10:00:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V10220228A01.d•

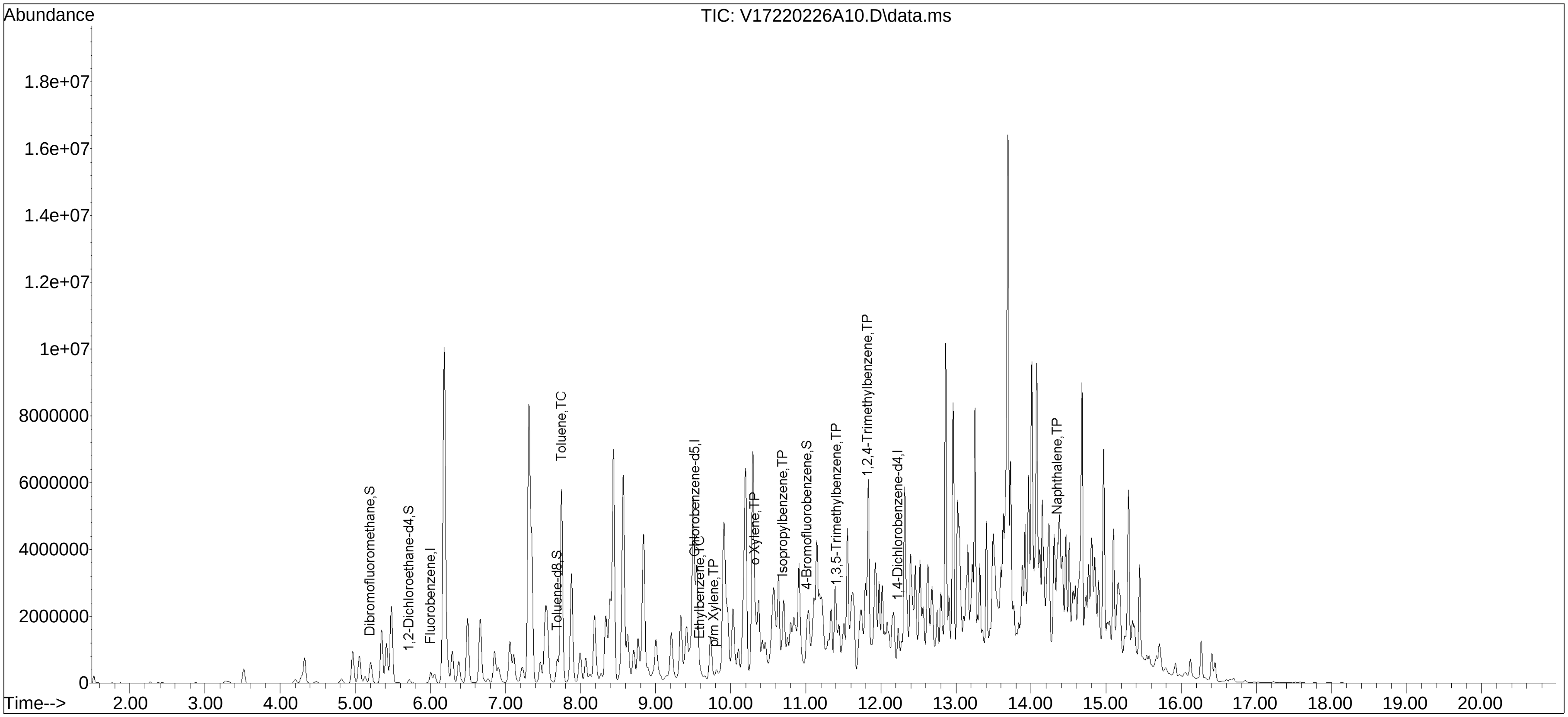


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A10.D
Acq On    : 26 Feb 2022  10:58 am
Operator  : VOA117:JC
Sample    : L2207792-08,31H,5.65,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 10   Sample Multiplier: 1

Quant Time: Feb 28 10:35:43 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

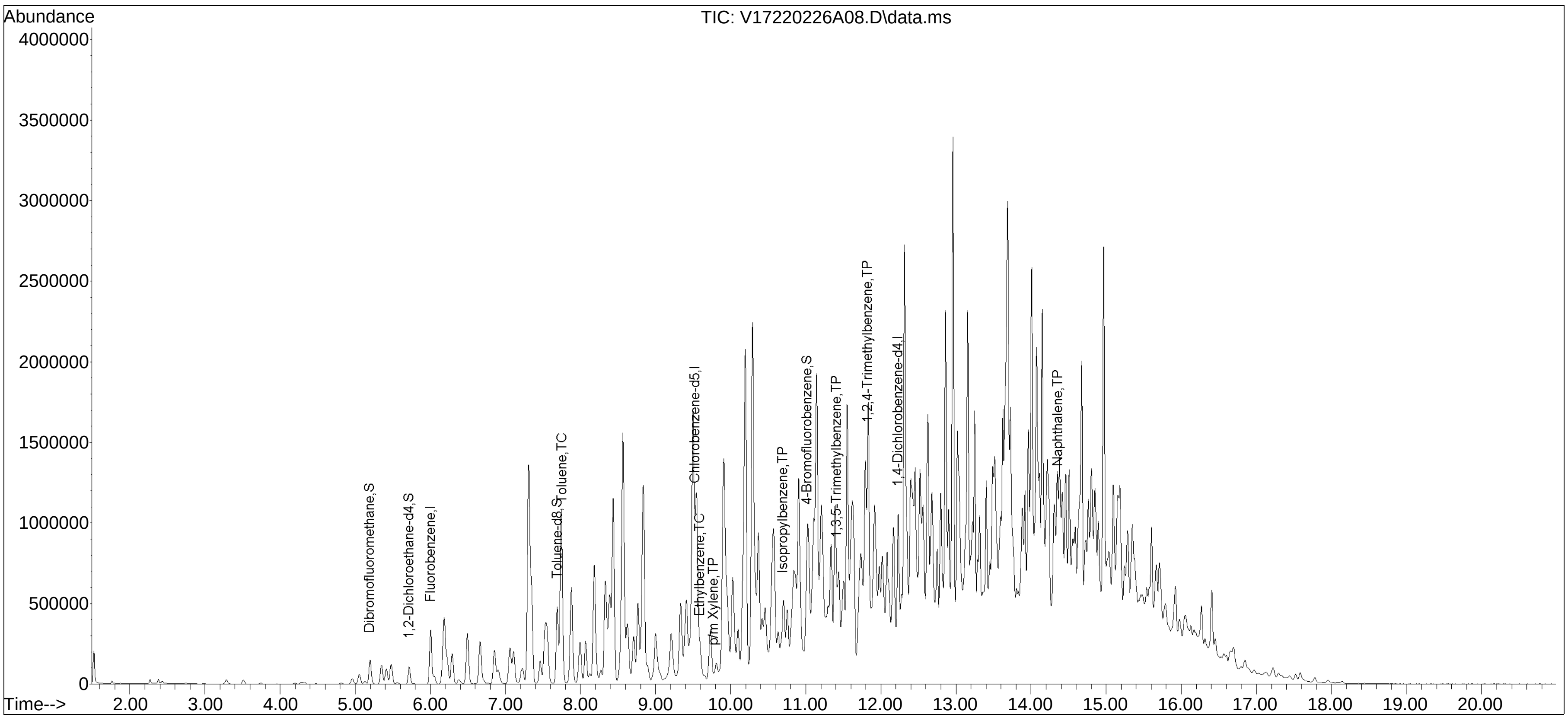


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A08.D
Acq On    : 26 Feb 2022  10:06 am
Operator  : VOA117:JC
Sample    : L2207792-09,31H,3.93,5,0.100,,A,R2F
Misc      : WG1609759,ICAL18616
ALS Vial  : 8   Sample Multiplier: 1

Quant Time: Feb 28 10:34:58 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•
```

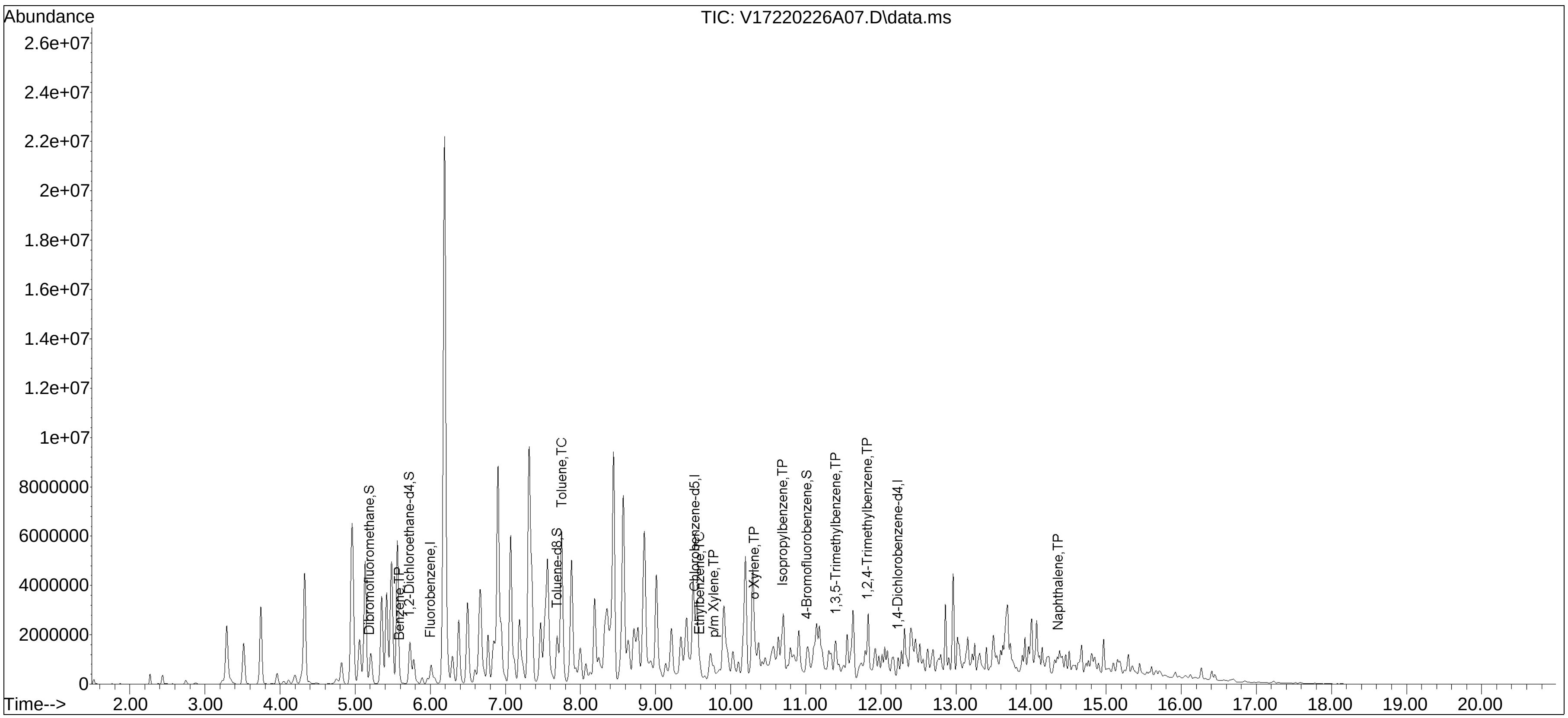


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A07.D
Acq On : 26 Feb 2022 09:40 am
Operator : VOA117:JC
Sample : L2207792-10,31H,5.22,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 28 10:33:49 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

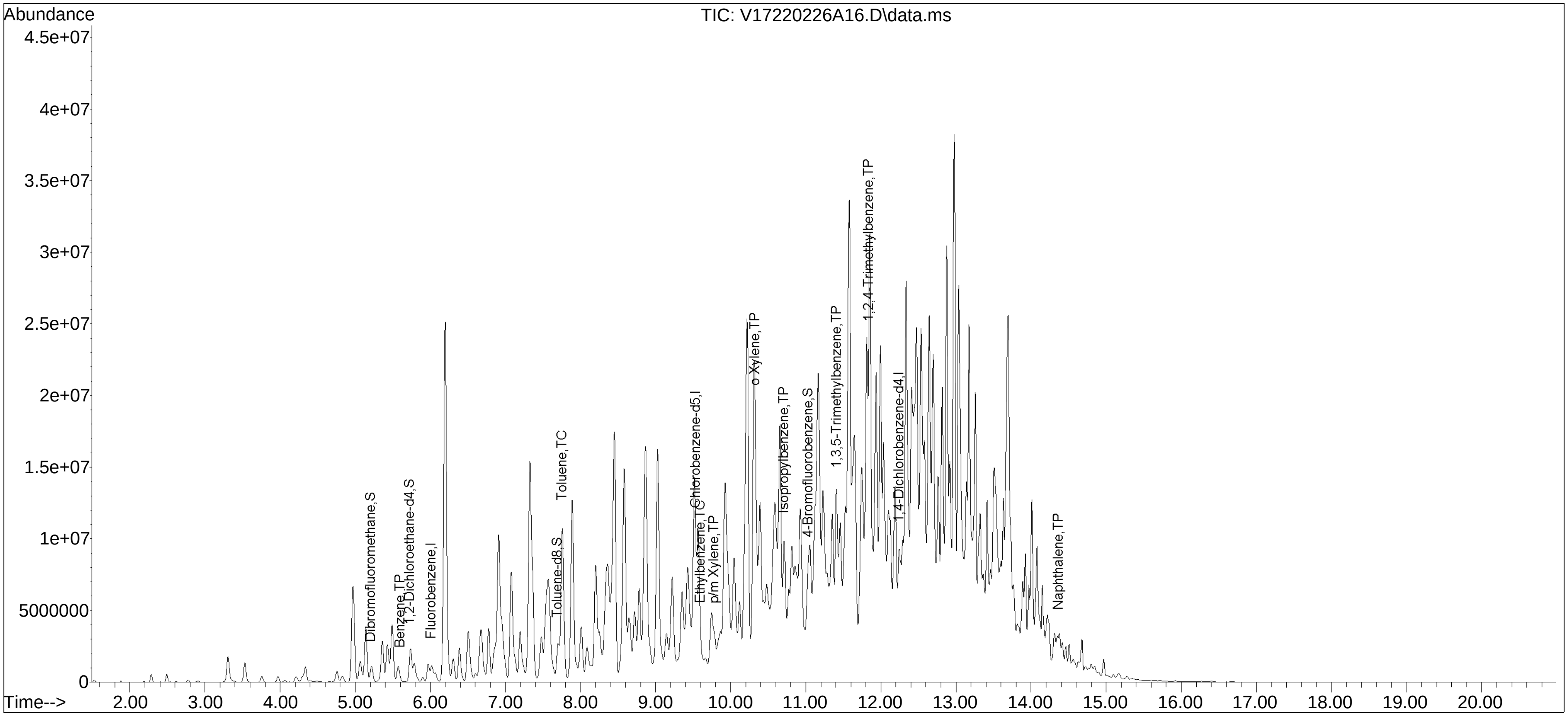


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A16.D
Acq On : 26 Feb 2022 01:35 pm
Operator : VOA117:JC
Sample : L2207792-11,31,5.68,5,,B,R2F
Misc : WG1609760,ICAL18616
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Feb 28 10:39:50 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•

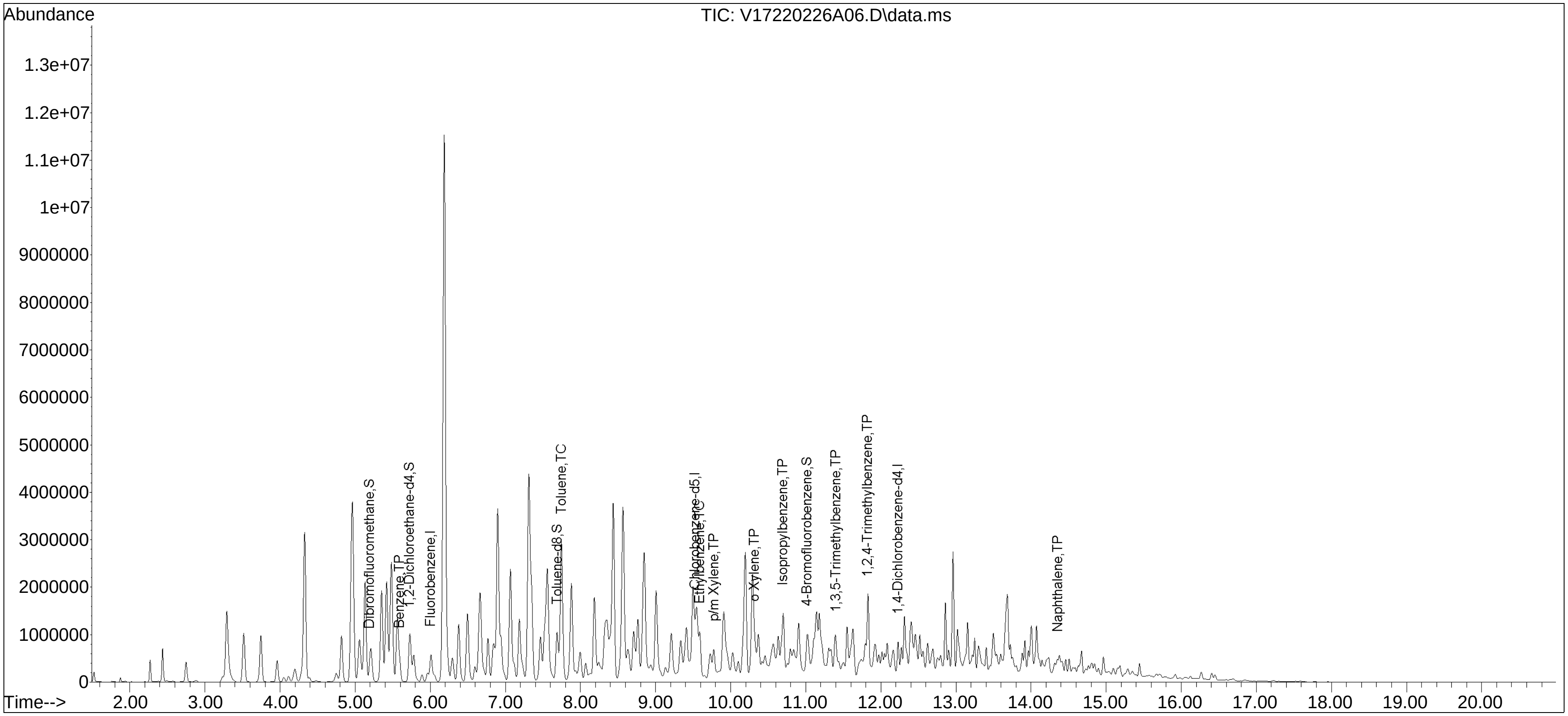


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA117\2022\220226A\
Data File : V17220226A06.D
Acq On : 26 Feb 2022 09:14 am
Operator : VOA117:JC
Sample : L2207792-14,31H,5.23,5,0.100,,A,R2F
Misc : WG1609759,ICAL18616
ALS Vial : 7 Sample Multiplier: 1

Quant Time: Feb 28 10:33:10 2022
Quant Method : I:\VOLATILES\VOA117\2022\220226A\V117_220103N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Jan 04 09:06:06 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list26A\V17220226A01.D•



ANALYTICAL REPORT

Lab Number:	L2207973
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-SITE INVESTIGATIO
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207973-01	PB-84-04R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 09:15	02/15/22
L2207973-02	PB-84-04R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 09:25	02/15/22
L2207973-03	PB-84-04R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 09:35	02/15/22
L2207973-04	PB-128-05R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:00	02/15/22
L2207973-05	PB-128-05R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:10	02/15/22
L2207973-06	PB-128-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 13:20	02/15/22
L2207973-07	PB-129-01R-0.0-0.5	SOIL	PHILADELPHIA, PA	02/15/22 13:40	02/15/22
L2207973-08	PB-129-01R-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 13:50	02/15/22
L2207973-09	PB-129-01R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:00	02/15/22
L2207973-10	PB-129-18-6.0-6.5	SOIL	PHILADELPHIA, PA	02/15/22 14:20	02/15/22
L2207973-11	PB-129-18-14.0-14.5	SOIL	PHILADELPHIA, PA	02/15/22 14:30	02/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2207973-02, -05, and -10.

Report Submission

March 02, 2022: This final report includes the results of the Total Lead analysis performed on L2207973-06.

February 22, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207973-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (336%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207973-05: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (149%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207973-10: The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (16%) and the surrogate recovery for 4-bromofluorobenzene (1002%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis; however, since the IS response was below method criteria, all associated compounds are considered to have a potentially high bias. The results of both analyses are reported.

L2207973-10: Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to sample non-homogeneity.

Case Narrative (continued)

Total Metals

The WG1606094-3 MS recovery, performed on L2207973-04, is outside the acceptance criteria for lead (50%). A post digestion spike was performed and yielded an unacceptable recovery for lead (50%). The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ORGANICS

VOLATILES

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-02	Date Collected:	02/15/22 09:25
Client ID:	PB-84-04R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 04:10
Analyst: KJD
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.28		mg/kg	0.031	0.010	1
Toluene	ND		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.43		mg/kg	0.062	0.0088	1
p/m-Xylene	0.32		mg/kg	0.12	0.035	1
o-Xylene	0.075		mg/kg	0.062	0.018	1
Xylenes, Total	0.40		mg/kg	0.062	0.018	1
Isopropylbenzene	6.0		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	6.4		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	61.	E	mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	**336**	Q	70-130
Dibromofluoromethane	89		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-05
Client ID: PB-128-05R-6.0-6.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 13:10
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:08
Analyst: KJD
Percent Solids: 73%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.20	0.020	1
Benzene	0.11		mg/kg	0.051	0.017	1
Toluene	0.14		mg/kg	0.10	0.056	1
1,2-Dibromoethane	ND		mg/kg	0.051	0.030	1
Ethylbenzene	0.21		mg/kg	0.10	0.014	1
p/m-Xylene	0.57		mg/kg	0.20	0.057	1
o-Xylene	0.25		mg/kg	0.10	0.030	1
Xylenes, Total	0.82		mg/kg	0.10	0.030	1
Isopropylbenzene	0.96		mg/kg	0.10	0.011	1
1,3,5-Trimethylbenzene	0.18	J	mg/kg	0.20	0.020	1
1,2,4-Trimethylbenzene	0.35		mg/kg	0.20	0.034	1
Naphthalene	0.44		mg/kg	0.41	0.066	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	112		70-130
4-Bromofluorobenzene	**149**	Q	70-130
Dibromofluoromethane	90		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-10	Date Collected:	02/15/22 14:20
Client ID:	PB-129-18-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 03:21
Analyst: AJK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.69	E	mg/kg	0.00053	0.00018	1
Toluene	0.44	E	mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00053	0.00031	1
Ethylbenzene	2.0	E	mg/kg	0.0011	0.00015	1
p/m-Xylene	5.3	E	mg/kg	0.0021	0.00059	1
o-Xylene	0.79	E	mg/kg	0.0011	0.00031	1
Isopropylbenzene	11.	E	mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	14.	E	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	20.	E	mg/kg	0.0021	0.00035	1
Naphthalene	1.2	E	mg/kg	0.0042	0.00069	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	**1000**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-10	Date Collected:	02/15/22 14:20
Client ID:	PB-129-18-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:33
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.048		mg/kg	0.031	0.010	1
Toluene	0.082		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.29		mg/kg	0.062	0.0088	1
p/m-Xylene	0.88		mg/kg	0.12	0.035	1
o-Xylene	0.12		mg/kg	0.062	0.018	1
Xylenes, Total	1.0		mg/kg	0.062	0.018	1
Isopropylbenzene	0.71		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	0.78		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	3.9		mg/kg	0.12	0.021	1
Naphthalene	0.90		mg/kg	0.25	0.041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	93		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:48
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05,10 Batch: WG1607642-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	94		70-130

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 10 Batch: WG1607679-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033
Naphthalene	ND		mg/kg	0.0040	0.00065

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/18/22 19:26
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1607683-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	94		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05,10 Batch: WG1607642-3 WG1607642-4								
Methyl tert butyl ether	84		81		66-130	4		30
Benzene	96		93		70-130	3		30
Toluene	99		96		70-130	3		30
1,2-Dibromoethane	91		88		70-130	3		30
Ethylbenzene	99		96		70-130	3		30
p/m-Xylene	103		100		70-130	3		30
o-Xylene	100		98		70-130	2		30
Isopropylbenzene	105		103		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30
Naphthalene	100		97		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		88		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	106		97		70-130
Dibromofluoromethane	95		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO

Project Number: 200.00135.005.03

Lab Number: L2207973

Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 10 Batch: WG1607679-3 WG1607679-4								
Methyl tert butyl ether	81		81		66-130	0		30
Benzene	100		100		70-130	0		30
Toluene	104		104		70-130	0		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	104		105		70-130	1		30
p/m-Xylene	111		112		70-130	1		30
o-Xylene	110		110		70-130	0		30
Isopropylbenzene	107		110		70-130	3		30
1,3,5-Trimethylbenzene	103		108		70-130	5		30
1,2,4-Trimethylbenzene	102		108		70-130	6		30
Naphthalene	100		102		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1607683-3 WG1607683-4								
Methyl tert butyl ether	81		81		66-130	0		30
Benzene	100		100		70-130	0		30
Toluene	104		104		70-130	0		30
1,2-Dibromoethane	95		95		70-130	0		30
Ethylbenzene	104		105		70-130	1		30
p/m-Xylene	111		112		70-130	1		30
o-Xylene	110		110		70-130	0		30
Isopropylbenzene	107		110		70-130	3		30
1,3,5-Trimethylbenzene	103		108		70-130	5		30
1,2,4-Trimethylbenzene	102		108		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		86		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	94		93		70-130
Dibromofluoromethane	94		93		70-130

SEMIVOLATILES

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-01	Date Collected:	02/15/22 09:15
Client ID:	PB-84-04R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 17:07		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	64		18-120

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-02	Date Collected:	02/15/22 09:25
Client ID:	PB-84-04R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 16:43		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	57		23-120
2-Fluorobiphenyl	52		30-120
4-Terphenyl-d14	59		18-120

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/19/22 10:37	Extraction Date:	02/18/22 18:57
Analyst:	SZ		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

METALS

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-04	Date Collected:	02/15/22 13:00
Client ID:	PB-128-05R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.38		mg/kg	2.01	0.108	1	02/17/22 15:03	02/17/22 23:12	EPA 3050B	1,6010D	MC

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-05	Date Collected:	02/15/22 13:10
Client ID:	PB-128-05R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	73%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	1780		mg/kg	2.60	0.140	1	02/17/22 15:03	02/17/22 23:02	EPA 3050B	1,6010D	MC

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-06	Date Collected:	02/15/22 13:20
Client ID:	PB-128-05R-14.0-14.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 52%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	38.1		mg/kg	3.80	0.204	1	02/23/22 22:40	03/02/22 11:39	EPA 3050B	1,6010D	EW

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-07 Date Collected: 02/15/22 13:40
Client ID: PB-129-01R-0.0-0.5 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 71%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	231		mg/kg	2.69	0.144	1	02/17/22 15:03	02/17/22 23:07	EPA 3050B	1,6010D	MC

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-08	Date Collected:	02/15/22 13:50
Client ID:	PB-129-01R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	76%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	202		mg/kg	2.52	0.135	1	02/17/22 15:03	02/17/22 23:46	EPA 3050B	1,6010D	MC

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 04-05,07-08 Batch: WG1606094-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 06 Batch: WG1608436-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/23/22 22:40	03/02/22 12:27	1,6010D	EW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		
Total Metals - Mansfield Lab Associated sample(s): 06 Batch: WG1608436-2 SRM Lot Number: D113-540								
Lead, Total	94		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 12/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5												
Lead, Total	6.38	42.8	27.9	**50**	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-3 QC Sample: L2208032-14 Client ID: MS Sample												
Lead, Total	438	231	540	**44**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 04-05,07-08 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: PB-128-05R-0.0-0.5						
Lead, Total	6.38	6.72	mg/kg	5		20
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-4 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	552	mg/kg	**23**	Q	20

Lab Serial Dilution Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 12/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 06 QC Batch ID: WG1608436-6 QC Sample: L2208032-14 Client ID: DUP Sample						
Lead, Total	438	518	mg/kg	18		20

INORGANICS
&
MISCELLANEOUS

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-01	Date Collected:	02/15/22 09:15
Client ID:	PB-84-04R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-02
Date Collected: 02/15/22 09:25
Client ID: PB-84-04R-6.0-6.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-04
Date Collected: 02/15/22 13:00
Client ID: PB-128-05R-0.0-0.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.1		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-05	Date Collected:	02/15/22 13:10
Client ID:	PB-128-05R-6.0-6.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.7		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-06 Date Collected: 02/15/22 13:20
Client ID: PB-128-05R-14.0-14.5 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	51.9		%	0.100	NA	1	-	02/23/22 12:55	121,2540G	RI

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

SAMPLE RESULTS

Lab ID:	L2207973-07	Date Collected:	02/15/22 13:40
Client ID:	PB-129-01R-0.0-0.5	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	70.6		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO **Lab Number:** L2207973
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-08 Date Collected: 02/15/22 13:50
Client ID: PB-129-01R-6.0-6.5 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	75.9		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PES REFINERY-SITE INVESTIGATIO
Lab Number: L2207973
Project Number: 200.00135.005.03
Report Date: 12/02/22

SAMPLE RESULTS

Lab ID: L2207973-10
Date Collected: 02/15/22 14:20
Client ID: PB-129-18-6.0-6.5
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.3		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Lab Duplicate Analysis
Batch Quality Control

Project Name: PES REFINERY-SITE INVESTIGATIO
Project Number: 200.00135.005.03

Lab Number: L2207973
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05,07-08,10 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: PB-84-04R-0.0-0.5						
Solids, Total	81.1	80.9	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 06 QC Batch ID: WG1608366-1 QC Sample: L2206606-08 Client ID: DUP Sample						
Solids, Total	81.0	81.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207973-01A	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207973-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-02D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-02E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		PA-PAH(14)
L2207973-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-03D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-03E	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		HOLD-8270(14)
L2207973-04A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-04B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW-BTEX(14)
L2207973-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW-BTEX(14)
L2207973-05D	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-05E	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-05F	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-06B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-06F	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207973-06G	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-06H	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-07A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-07B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-08A	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207973-08B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		TS(7)
L2207973-09A	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		HOLD-METAL(180)
L2207973-09B	Plastic 2oz unpreserved for TS	A	NA		3.2	Y	Absent		HOLD-WETCHEM()
L2207973-10A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2207973-10B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260H(14),PA-8260HLW(14)
L2207973-10D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		TS(7)
L2207973-11A	Vial MeOH preserved	A	NA		3.2	Y	Absent		HOLD-8260HLW(14)
L2207973-11B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	HOLD-8260HLW(14)
L2207973-11D	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		HOLD-WETCHEM()

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name:	PES REFINERY-SITE INVESTIGATIO	**Lab Number:**	L2207973
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207973

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Project Information

Project Name: PES Refinery - ~~Delineation~~ Site Investigation

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED) 5-Day

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

Run NAP via 8270 I

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	Ethylbenzene	Xylenes			Sample Specific Comments	Total # Bottles
07973-01	PB-34-04R-0.0-0.5	2/15	0915	S	TS	☐	☐	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐		1
-02	PB-34-04R-6.0-6.5		0925	S		☐	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐		5
-03	PB-34-04R-14.0-14.5		0935	S		☐	✓	☐	☐	☐	✓	☐	☐	☐	☐	☐	☐	HOLD	5
-04	PB-128-05R-0.0-0.5		1300	S		✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-05	PB-128-05R-6.0-6.5		1310	S		✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-06	PB-128-05R-14.0-14.5		1320	S		✓	✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	6
-07	PB-129-01R-0.0-0.5		1340	S		✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-08	PB-129-01R-6.0-6.5		1350	S		✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		2
-09	PB-129-01R-14.0-14.5		1400	S		✓	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	HOLD	2
-10	PB-129-13-6.0-6.5		1420	S		☐	✓	✓	☐	☐	☐	✓	✓	✓	✓	☐	☐		4
					Container Type	-	-	-	-	-	-	-	-	-	-	-	-		
					Preservative	-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	2/15 1525	ST AAL	2/15/22 1535
[illegible signature]	2/15/22 1800	[illegible signature]	2/15 1800
[illegible signature]	2/15 2100	Yulhiann Uleer	2/15/22 2100
Yulhiann Uleer	2/15/22	[illegible signature] AAL	2/16/22 2345

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207973

Project Information

Project Name: PES Refinery ~~Delineation~~ SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED)

Due Date: 5-DAY Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list per attached TS

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene	1,2,4-TMB	1,3,5-TMB	ETHYLBENZENE	XYLENES			Sample Specific Comments	TOTAL # BOTTLES
07973-11	PR-129-18-14.0-14.5 ~~DUP-24~~	2/15	1430	S	TS	☐	☑	☑	☐	☐	☐	☑	☑	☑	☑	☐	☐	HOLD	4

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Container Type	-
Preservative	-

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/15 1535	ST AAL	2/15/22 1534
[signature]	2/16/22 10:-	[signature]	2/18 1800
[signature]	2-15-22 2100	Anthony Green	2/15/22 2100
Anthony Green	2/15/22	AAL	2/15/22 2345
AAL	2/16/22 0135	[signature]	2/16/22 0135

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

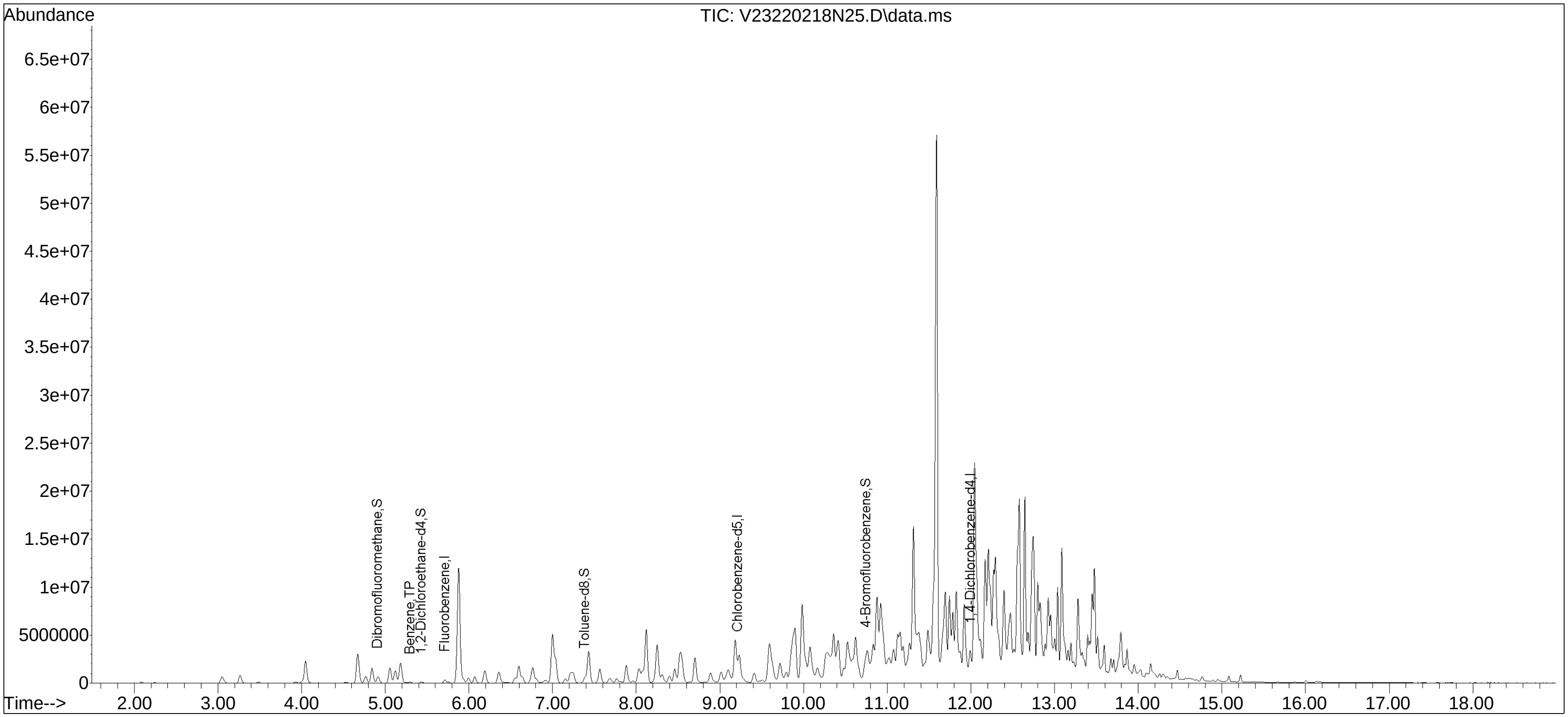
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N25.D
Acq On   : 19 Feb 2022 04:10 am
Operator : VOA123:AJK
Sample   : l2207973-02,31H,6.04,5,0.100,,a,r2f
Misc   : WG1607683,ICAL18401
ALS Vial : 25   Sample Multiplier: 1

Quant Time: Feb 20 21:51:22 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List   : 8260-Benzene - benzene only2\220218N\V23220218N01.D•

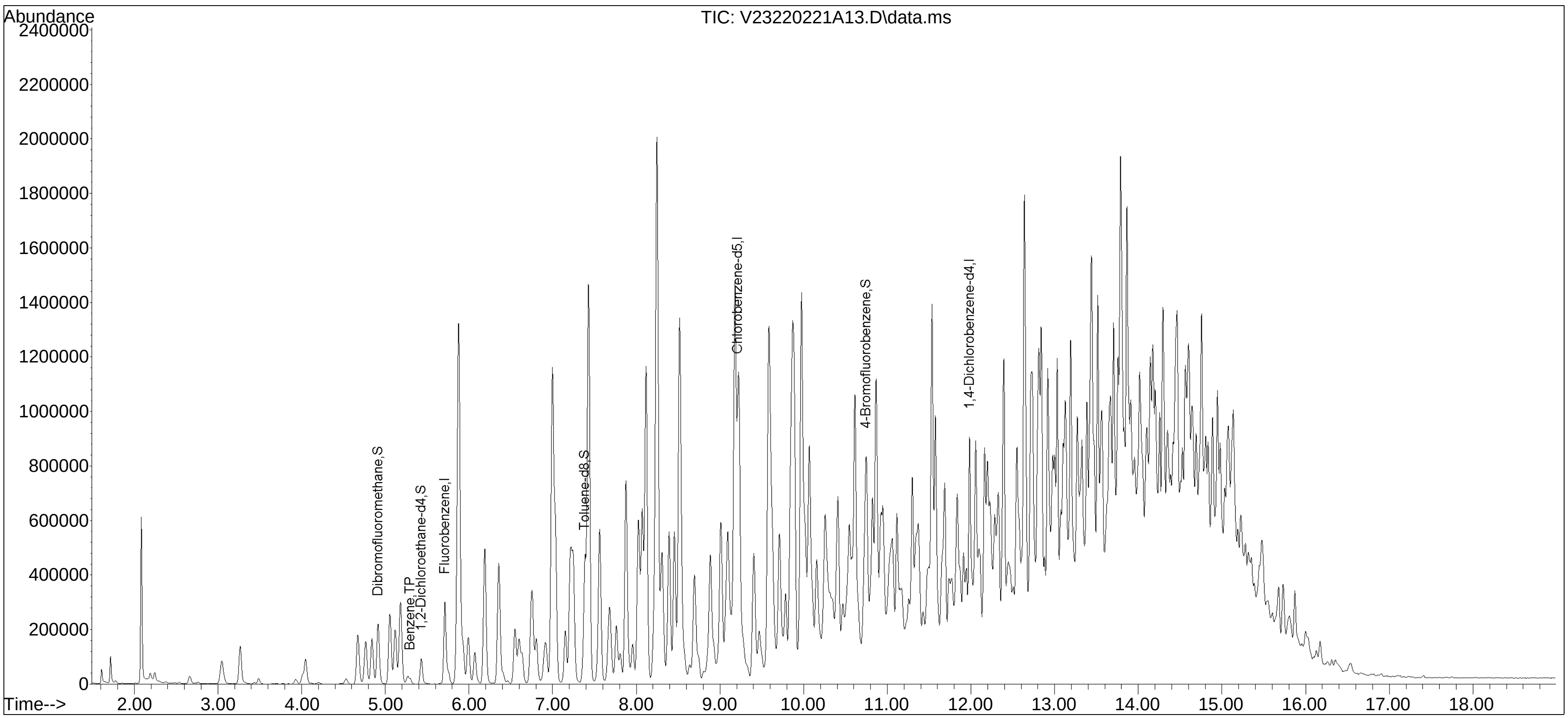


Quantitation Report (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA123\2022\220221A\
Data File : V23220221A13.D
Acq On    : 21 Feb 2022  12:08 pm
Operator  : VOA123:JC
Sample    : l2207973-05,31H,4.11,5,0.100,,a,r2f
Misc      : WG1607642,ICAL18401
ALS Vial  : 13   Sample Multiplier: 1

Quant Time: Feb 22 07:55:44 2022
Quant Method : I:\VOLATILES\VOA123\2022\220221A\V123_211020N_8260D.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List     : 8260-Benzene - benzene only2\220221A\V23220221A01.D•
```

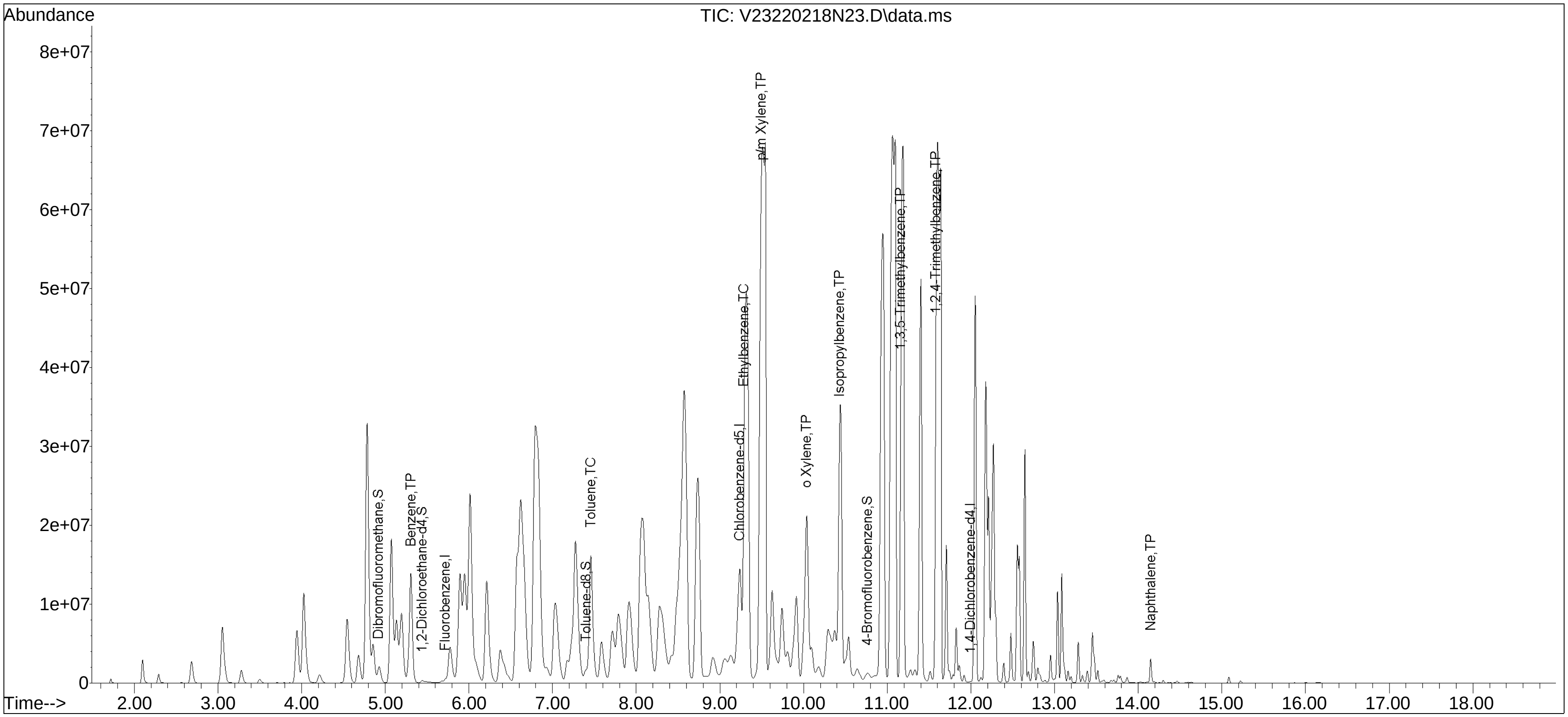


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\220218N\
Data File : V23220218N23.D
Acq On : 19 Feb 2022 03:21 am
Operator : VOA123:AJK
Sample : l2207973-10,31,5.10,5,,b,r2f
Misc : WG1607679,ICAL18401
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 22 10:46:47 2022
Quant Method : I:\VOLATILES\VOA123\2022\220218N\V123_211020N_8260D.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Thu Oct 21 08:44:24 2021
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list18N\V23220218N01.D•



ANALYTICAL REPORT

Lab Number:	L2207974
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	02/22/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2207974-01	PB-84-11-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:30	02/15/22
L2207974-02	PB-84-13-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:40	02/15/22
L2207974-03	PB-84-14-SS01	SOIL	PHILADELPHIA, PA	02/15/22 10:50	02/15/22
L2207974-04	PB-84-17-SS01	SOIL	PHILADELPHIA, PA	02/15/22 11:00	02/15/22
L2207974-05	DUP-27	SOIL	PHILADELPHIA, PA	02/15/22 00:00	02/15/22
L2207974-06	FB-220215	WATER	PHILADELPHIA, PA	02/15/22 14:40	02/15/22
L2207974-07	TB-220215	WATER	PHILADELPHIA, PA	02/15/22 00:00	02/15/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2207974-01: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (679%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207974-03: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (171%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2207974-04: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (331%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Total Metals

L2207974-01, -02 and -04: The sample has an elevated detection limit for lead due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Sebastian Corbin

Title: Technical Director/Representative Date: 02/22/22

ORGANICS

VOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-01	Date Collected:	02/15/22 10:30
Client ID:	PB-84-11-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 18:21
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	0.00024	J	mg/kg	0.00052	0.00017	1
Toluene	0.0010		mg/kg	0.0010	0.00057	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
Isopropylbenzene	0.078		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	0.00090	J	mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	0.078		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	**679**	Q	70-130
Dibromofluoromethane	79		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-02	Date Collected:	02/15/22 10:40
Client ID:	PB-84-13-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 18:45
Analyst: JC
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00068		mg/kg	0.00063	0.00021	1
Toluene	0.0014		mg/kg	0.0013	0.00069	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
Isopropylbenzene	0.0024		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0025	0.00042	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	114		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	87		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 19:10
Analyst: JC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0028	0.00028	1
Benzene	ND		mg/kg	0.00070	0.00023	1
Toluene	ND		mg/kg	0.0014	0.00076	1
Ethylbenzene	ND		mg/kg	0.0014	0.00020	1
Isopropylbenzene	0.022		mg/kg	0.0014	0.00015	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0028	0.00027	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0028	0.00047	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**171**	Q	70-130
Dibromofluoromethane	94		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-04	Date Collected:	02/15/22 11:00
Client ID:	PB-84-17-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/19/22 19:34
Analyst: JC
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00028	J	mg/kg	0.00050	0.00017	1
Toluene	0.0015		mg/kg	0.0010	0.00054	1
Ethylbenzene	ND		mg/kg	0.0010	0.00014	1
Isopropylbenzene	0.017		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	0.0010	J	mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**331**	Q	70-130
Dibromofluoromethane	76		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-05 D2	Date Collected:	02/15/22 00:00
Client ID:	DUP-27	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/18/22 03:50
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	530		mg/kg	7.6	1.3	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	97		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974

Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05 D
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 00:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/17/22 18:05
Analyst: AJK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.5	0.15	10
Benzene	1.4		mg/kg	0.38	0.13	10
Toluene	2.8		mg/kg	0.76	0.41	10
Ethylbenzene	19.		mg/kg	0.76	0.11	10
Isopropylbenzene	17.		mg/kg	0.76	0.083	10
1,3,5-Trimethylbenzene	130		mg/kg	1.5	0.15	10
1,2,4-Trimethylbenzene	550	E	mg/kg	1.5	0.25	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-06	Date Collected:	02/15/22 14:40
Client ID:	FB-220215	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/16/22 14:52
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-07	Date Collected:	02/15/22 00:00
Client ID:	TB-220215	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Water
Analytical Method:	1,8260C
Analytical Date:	02/16/22 15:15
Analyst:	LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/16/22 09:28
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06-07 Batch: WG1605848-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 21:07
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 09:14
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1606362-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/19/22 11:15
Analyst: TMS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-04 Batch: WG1607753-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	89		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06-07 Batch: WG1605848-3 WG1605848-4								
Methyl tert butyl ether	94		95		63-130	1		20
Benzene	99		100		70-130	1		20
Toluene	96		97		70-130	1		20
Ethylbenzene	94		96		70-130	2		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		100		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	97		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207974
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-3 WG1606362-4								
Methyl tert butyl ether	85		85		66-130	0		30
Benzene	94		90		70-130	4		30
Toluene	96		91		70-130	5		30
Ethylbenzene	97		91		70-130	6		30
Isopropylbenzene	98		92		70-130	6		30
1,3,5-Trimethylbenzene	97		91		70-130	6		30
1,2,4-Trimethylbenzene	96		90		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		89		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	87		86		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1606362-8 WG1606362-9								
Methyl tert butyl ether	86		85		66-130	1		30
Benzene	95		93		70-130	2		30
Toluene	97		95		70-130	2		30
Ethylbenzene	96		94		70-130	2		30
Isopropylbenzene	95		95		70-130	0		30
1,3,5-Trimethylbenzene	96		95		70-130	1		30
1,2,4-Trimethylbenzene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		86		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	87		87		70-130
Dibromofluoromethane	98		97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-04 Batch: WG1607753-3 WG1607753-4								
Methyl tert butyl ether	90		89		66-130	1		30
Benzene	101		102		70-130	1		30
Toluene	105		106		70-130	1		30
Ethylbenzene	106		106		70-130	0		30
Isopropylbenzene	108		108		70-130	0		30
1,3,5-Trimethylbenzene	106		108		70-130	2		30
1,2,4-Trimethylbenzene	103		105		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	87		87		70-130
Toluene-d8	96		97		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	95		97		70-130

SEMIVOLATILES

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-01	Date Collected:	02/15/22 10:30
Client ID:	PB-84-11-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 16:20		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-02	Date Collected:	02/15/22 10:40
Client ID:	PB-84-13-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 15:57		
Analyst:	CMM		
Percent Solids:	72%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.17	J	mg/kg	0.23	0.028	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	58		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 15:33		
Analyst:	CMM		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	75		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
Client ID: PB-84-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 11:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/20/22 15:10
Analyst: CMM
Percent Solids: 79%

Extraction Method: EPA 3546
Extraction Date: 02/19/22 17:11

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	45		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	59		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-05	Date Collected:	02/15/22 00:00
Client ID:	DUP-27	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/19/22 17:11
Analytical Date:	02/20/22 14:46		
Analyst:	CMM		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.34		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	66		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-06	Date Collected:	02/15/22 14:40
Client ID:	FB-220215	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/20/22 07:30
Analytical Date:	02/21/22 13:39		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	114		15-120
4-Terphenyl-d14	99		41-149

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270D	Extraction Method:	EPA 3546
Analytical Date:	02/19/22 10:37	Extraction Date:	02/18/22 18:57
Analyst:	SZ		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-05 Batch: WG1606759-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	72		25-120
Phenol-d6	72		10-120
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	65		30-120
2,4,6-Tribromophenol	67		10-136
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/20/22 11:08
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/19/22 11:38

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 06 Batch: WG1606911-1					
Naphthalene	ND		ug/l	0.10	0.05

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	69		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	76		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-05 Batch: WG1606759-2 WG1606759-3								
Naphthalene	61		63		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	69		72		25-120
Phenol-d6	71		75		10-120
Nitrobenzene-d5	74		78		23-120
2-Fluorobiphenyl	65		69		30-120
2,4,6-Tribromophenol	71		79		10-136
4-Terphenyl-d14	66		71		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 06 Batch: WG1606911-2 WG1606911-3								
Naphthalene	52		46		40-140	12		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	57		49		23-120
2-Fluorobiphenyl	56		50		15-120
4-Terphenyl-d14	58		53		41-149

METALS

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-01 Date Collected: 02/15/22 10:30
Client ID: PB-84-11-SS01 Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	65.9		mg/kg	11.6	0.624	5	02/17/22 15:03	02/18/22 13:35	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
Client ID: PB-84-13-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 10:40
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	68.8		mg/kg	13.3	0.712	5	02/17/22 15:03	02/18/22 13:40	EPA 3050B	1,6010D	GD

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2207974
Project Number:	200.00135.005.03	**Report Date:**	02/22/22

SAMPLE RESULTS

Lab ID:	L2207974-03	Date Collected:	02/15/22 10:50
Client ID:	PB-84-14-SS01	Date Received:	02/15/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	81%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	290		mg/kg	2.33	0.125	1	02/17/22 15:03	02/18/22 00:01	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
Date Collected: 02/15/22 11:00
Client ID: PB-84-17-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 79%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.81	J	mg/kg	12.0	0.642	5	02/17/22 15:03	02/18/22 13:45	EPA 3050B	1,6010D	GD

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 00:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.96		mg/kg	2.08	0.111	1	02/17/22 15:03	02/18/22 00:10	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2207974
Project Number: 200.00135.005.03 **Report Date:** 02/22/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-05 Batch: WG1606094-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/17/22 15:03	02/17/22 22:48	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 Batch: WG1606094-2 SRM Lot Number: D113-540								
Lead, Total	84		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1606094-3 QC Sample: L2207973-04 Client ID: MS Sample												
Lead, Total	6.38	42.8	27.9	**50**	Q	-	-		75-125	-		20

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-05 QC Batch ID: WG1606094-4 QC Sample: L2207973-04 Client ID: DUP Sample						
Lead, Total	6.38	6.72	mg/kg	5		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-01
Date Collected: 02/15/22 10:30
Client ID: PB-84-11-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.4		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-02
Date Collected: 02/15/22 10:40
Client ID: PB-84-13-SS01
Date Received: 02/15/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	71.5		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-03
Client ID: PB-84-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 10:50
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.8		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-04
Client ID: PB-84-17-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/15/22 11:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	78.9		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2207974
Project Number: 200.00135.005.03
Report Date: 02/22/22

SAMPLE RESULTS

Lab ID: L2207974-05
Client ID: DUP-27
Sample Location: PHILADELPHIA, PA
Date Collected: 02/15/22 00:00
Date Received: 02/15/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.6		%	0.100	NA	1	-	02/16/22 10:45	121,2540G	CG

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2207974
Report Date: 02/22/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-05 QC Batch ID: WG1605562-1 QC Sample: L2207973-01 Client ID: DUP Sample						
Solids, Total	81.1	80.9	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207974-01A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-01B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-01D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-01E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-02A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-02B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-02D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-02E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-03A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-03B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-03D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-03E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-04A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-04B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-04D	Glass 60mL/2oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-04E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-05A	Vial MeOH preserved	A	NA		3.2	Y	Absent		PA-8260HLW(14)
L2207974-05B	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)
L2207974-05C	Vial water preserved	A	NA		3.2	Y	Absent	16-FEB-22 06:20	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2207974-05D	Glass 120ml/4oz unpreserved	A	NA		3.2	Y	Absent		TS(7),PA-PAH(14)
L2207974-05E	Plastic 120ml unpreserved	A	NA		3.2	Y	Absent		PB-TI(180)
L2207974-06A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06C	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-06D	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-06E	Amber 250ml unpreserved	A	7	7	3.2	Y	Absent		PA-PAHSIM-LVI(7)
L2207974-07A	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)
L2207974-07B	Vial HCl preserved	A	NA		3.2	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 02/16/22

ALPHA Job #: L2207974

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY
Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com
Run NAP w/ 8270

ANALYSIS

Analysis columns: (1) PADEP Shortlist 1-5 (see attached); (2) PADEP Shortlist 1 & 2 (see attached); (3) PADEP Shortlist 4 (see attached); (4) PADEP Shortlist 3-5 (see attached); (5) PADEP Shortlist 5 (see attached); (6) PADEP Shortlist 6 (see attached); (7) pH; (8) Benzene; (9) Cumene; (10) Tetraethylene Glycol; (11) VOC portion of PADEP Shortlist (4); (12) [blank]

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	Sample Specific Comments	TOTAL # BOTTLES
07974-01	PB-84-11-SS01	2/15	1030	S	TS	☐	☒	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	SHORTLIST 4	5
-02	PB-84-13-SS01		1040	S	TS	☐	☒	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-03	PB-84-14-SS01		1050	S	TS	☐	☒	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-04	PB-84-17-SS01		1100	S	TS	☐	☒	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-05	DUP-27		-	S	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-06	FB-220215		1440	W	TS	☐	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
-07	TB-220215		-	W	TS	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
Container Type						G	G	G	-	-	-	-	-	-	-	-	-		
Preservative						F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible signature]	2/15 1535	[illegible signature] AAL	2/15/22 15:35
[illegible signature] 1800	2/15/22	[illegible signature]	2/15/ 1800
[illegible signature]	2/15 2100	Anthony Green	2/15/22 2100
Anthony Green	2/15/22	[illegible signature] AAL	2/15/22 2345
[illegible signature] AAL	2/16/22 0135	[illegible signature]	2/16/22 0135

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

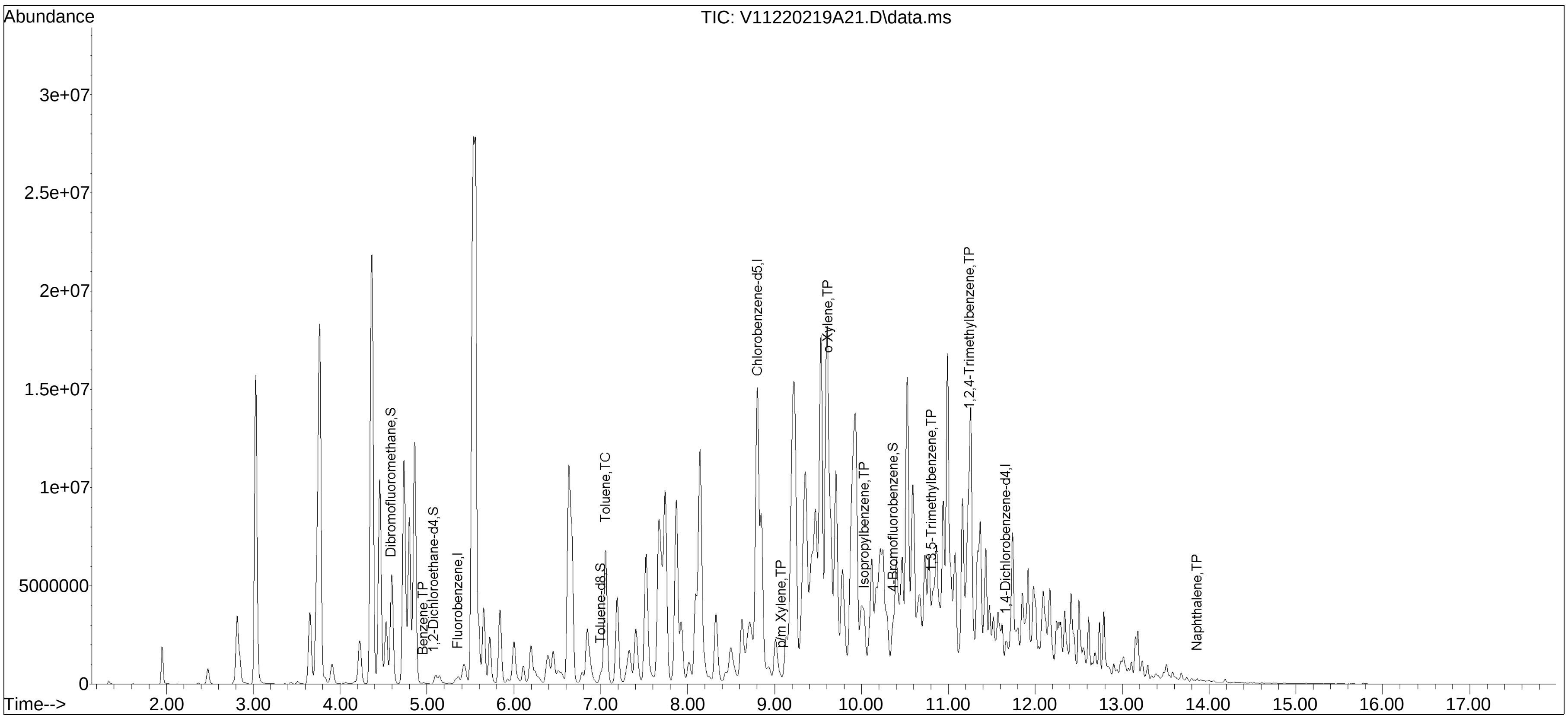
FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A21.D
Acq On   : 19 Feb 2022 06:21 pm
Operator : VOA111:JC
Sample   : L2207974-01,31,5.89,5,,B,R2F
Misc   : WG1607753,ICAL18728
ALS Vial : 21   Sample Multiplier: 1

Quant Time: Feb 21 12:06:03 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

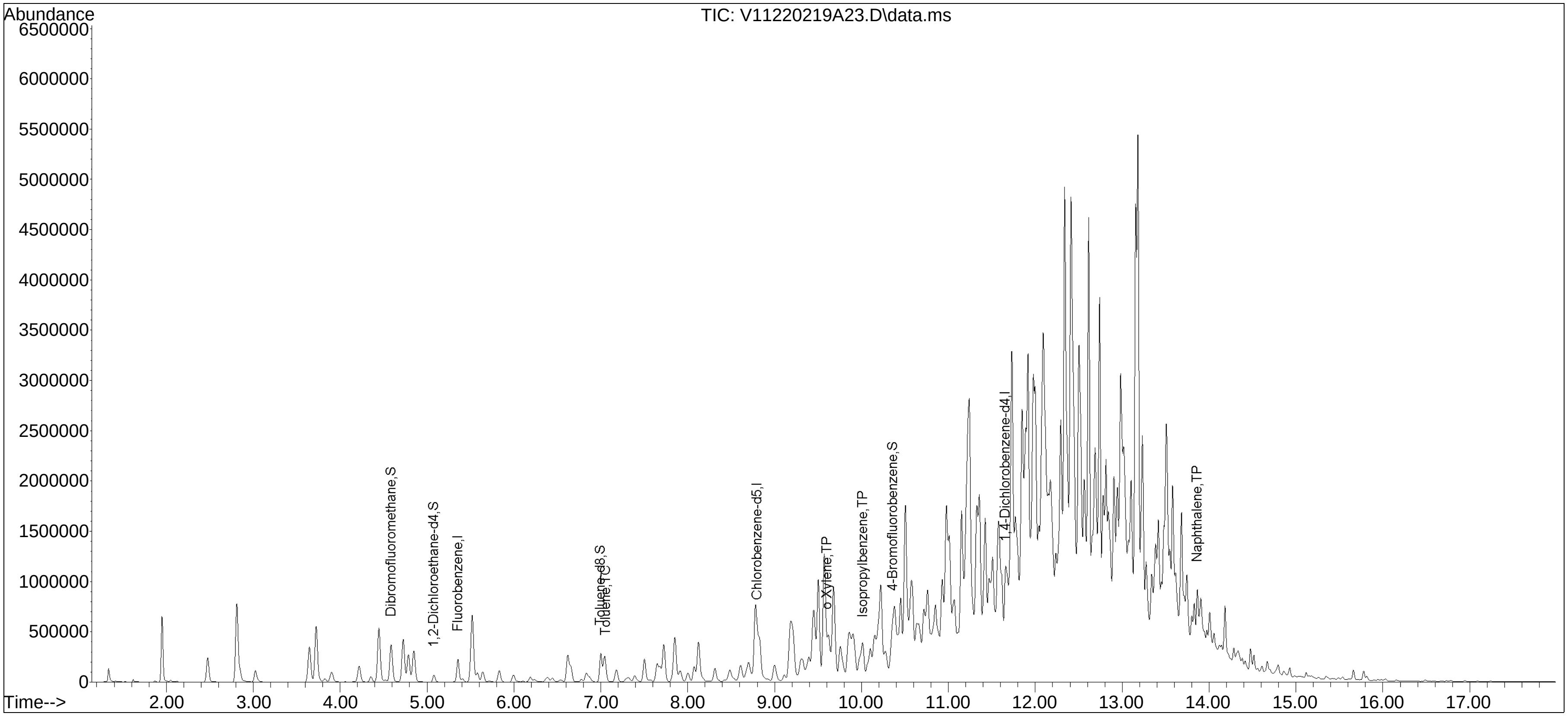


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A23.D
Acq On : 19 Feb 2022 07:10 pm
Operator : VOA111:JC
Sample : L2207974-03,31,4.40,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Feb 21 12:06:47 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•

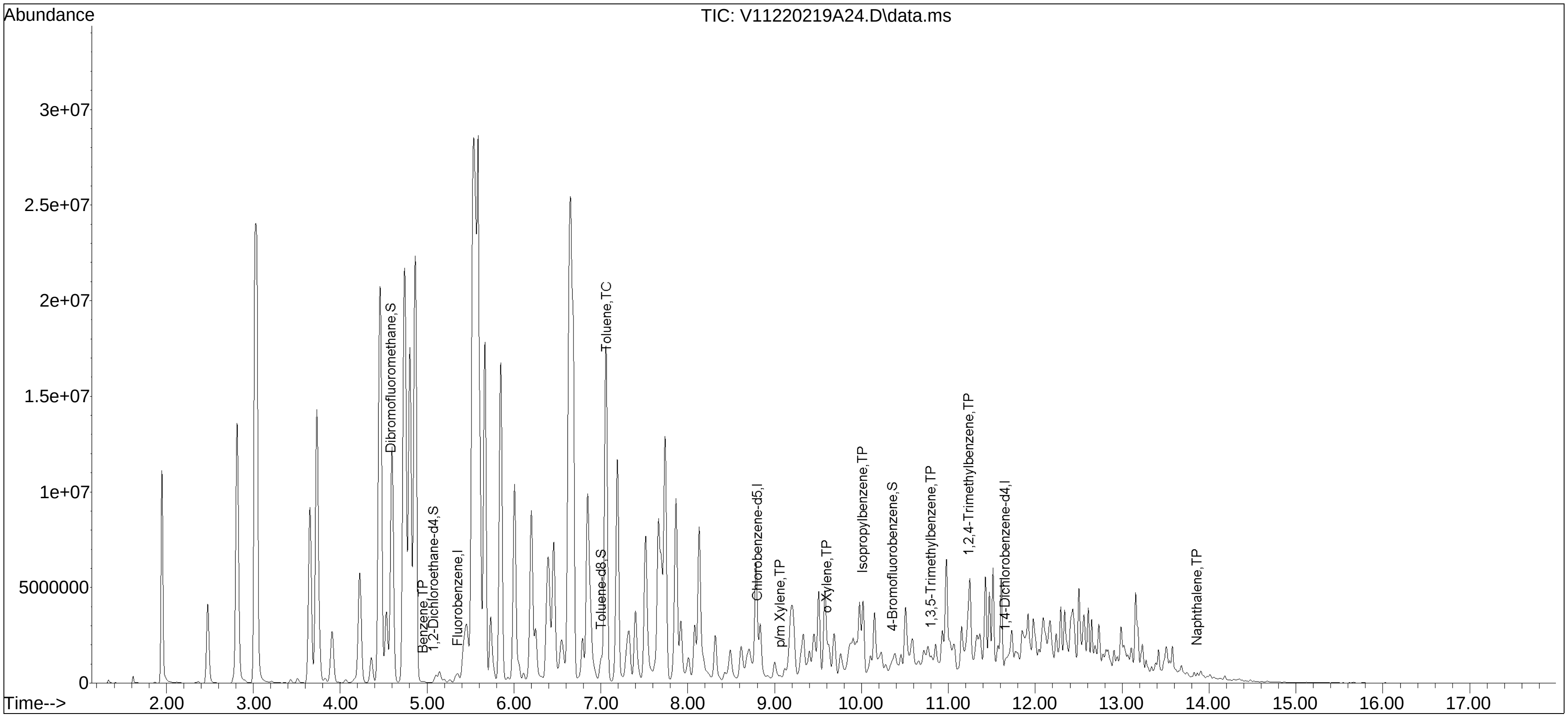


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA111\2022\220219A\
Data File : V11220219A24.D
Acq On : 19 Feb 2022 07:34 pm
Operator : VOA111:JC
Sample : L2207974-04,31,6.33,5,,B,R2F
Misc : WG1607753,ICAL18728
ALS Vial : 24 Sample Multiplier: 1

Quant Time: Feb 21 12:07:09 2022
Quant Method : I:\VOLATILES\VOA111\2022\220219A\V111_220202N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Feb 09 07:54:24 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list19A\V11220219A01.D•



ANALYTICAL REPORT

Lab Number:	L2208279
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-AST CLOS
Project Number:	200.00135.005.03
Report Date:	02/23/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2208279-01	PB-129-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:30	02/16/22
L2208279-02	PB-129-08-SS01	SOIL	PHILADELPHIA, PA	02/16/22 08:45	02/16/22
L2208279-03	PB-129-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:00	02/16/22
L2208279-04	PB-129-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 09:30	02/16/22
L2208279-05	PB-129-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:30	02/16/22
L2208279-06	PB-129-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:40	02/16/22
L2208279-07	PB-129-13-SS01	SOIL	PHILADELPHIA, PA	02/16/22 10:50	02/16/22
L2208279-08	PB-129-16-SS01	SOIL	PHILADELPHIA, PA	02/16/22 11:00	02/16/22
L2208279-09	PB-128-06-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:15	02/16/22
L2208279-10	PB-128-07-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:30	02/16/22
L2208279-11	PB-128-09-SS01	SOIL	PHILADELPHIA, PA	02/16/22 12:45	02/16/22
L2208279-12	PB-128-10-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:20	02/16/22
L2208279-13	PB-128-11-SS01	SOIL	PHILADELPHIA, PA	02/16/22 13:45	02/16/22
L2208279-14	PB-128-12-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:00	02/16/22
L2208279-15	PB-128-14-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:30	02/16/22
L2208279-16	PB-128-15-SS01	SOIL	PHILADELPHIA, PA	02/16/22 14:50	02/16/22
L2208279-17	FB-202216-1	WATER	PHILADELPHIA, PA	02/16/22 15:00	02/16/22
L2208279-18	FB-202216-2	WATER	PHILADELPHIA, PA	02/16/22 15:10	02/16/22
L2208279-19	TB-202216	WATER	PHILADELPHIA, PA	02/16/22 00:00	02/16/22
L2208279-20	DUP-28	SOIL	PHILADELPHIA, PA	02/16/22 00:00	02/16/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2208279-13: The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The results of both analyses are reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies.

Total Metals

The WG1606108-3 MS recovery, performed on L2208279-01, is outside the acceptance criteria for lead (54%). A post digestion spike was performed and yielded an unacceptable recovery of 53%. The serial dilution recovery was not applicable; therefore, this element fails the matrix test and the result reported in the native sample should be considered estimated.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 02/23/22

ORGANICS

VOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-01	Date Collected:	02/16/22 08:30
Client ID:	PB-129-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:23
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0022	0.00022	1
Benzene	ND		mg/kg	0.00056	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00029	1
Toluene	ND		mg/kg	0.0011	0.00061	1
1,2-Dibromoethane	ND		mg/kg	0.00056	0.00033	1
Ethylbenzene	ND		mg/kg	0.0011	0.00016	1
p/m-Xylene	ND		mg/kg	0.0022	0.00062	1
o-Xylene	ND		mg/kg	0.0011	0.00032	1
Xylenes, Total	ND		mg/kg	0.0011	0.00032	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0022	0.00022	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0022	0.00037	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-02	Date Collected:	02/16/22 08:45
Client ID:	PB-129-08-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:48
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0027	0.00027	1
Benzene	ND		mg/kg	0.00067	0.00022	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00034	1
Toluene	ND		mg/kg	0.0013	0.00072	1
1,2-Dibromoethane	ND		mg/kg	0.00067	0.00039	1
Ethylbenzene	ND		mg/kg	0.0013	0.00019	1
p/m-Xylene	ND		mg/kg	0.0027	0.00075	1
o-Xylene	ND		mg/kg	0.0013	0.00039	1
Xylenes, Total	ND		mg/kg	0.0013	0.00039	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0027	0.00026	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0027	0.00044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-03	Date Collected:	02/16/22 09:00
Client ID:	PB-129-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:12
Analyst: JC
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00047	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00047	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-04 D2	Date Collected:	02/16/22 09:30
Client ID:	PB-129-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:

Matrix:	Soil
Analytical Method:	1,8260C
Analytical Date:	02/22/22 23:56
Analyst:	JC
Percent Solids:	96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	6.0	0.60	20
Benzene	ND		mg/kg	1.5	0.49	20
1,2-Dichloroethane	ND		mg/kg	3.0	0.76	20
Toluene	23.		mg/kg	3.0	1.6	20
1,2-Dibromoethane	ND		mg/kg	1.5	0.87	20
Ethylbenzene	170		mg/kg	3.0	0.42	20
p/m-Xylene	1200		mg/kg	6.0	1.7	20
o-Xylene	440		mg/kg	3.0	0.87	20
Xylenes, Total	1600		mg/kg	3.0	0.87	20
Isopropylbenzene	26.		mg/kg	3.0	0.32	20
1,3,5-Trimethylbenzene	310		mg/kg	6.0	0.57	20
1,2,4-Trimethylbenzene	910	E	mg/kg	6.0	0.99	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	96		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS | **Lab Number:** L2208279
Project Number: 200.00135.005.03 | **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-04 D	Date Collected:	02/16/22 09:30
Client ID:	PB-129-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 12:38
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	1000		mg/kg	15	2.5	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-05	Date Collected:	02/16/22 10:30
Client ID:	PB-129-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:03
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	0.0028		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	0.00070	J	mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	98		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-06	Date Collected:	02/16/22 10:40
Client ID:	PB-129-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:27
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00022	1
Benzene	ND		mg/kg	0.00054	0.00018	1
1,2-Dichloroethane	ND		mg/kg	0.0011	0.00028	1
Toluene	ND		mg/kg	0.0011	0.00058	1
1,2-Dibromoethane	ND		mg/kg	0.00054	0.00031	1
Ethylbenzene	ND		mg/kg	0.0011	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00060	1
o-Xylene	ND		mg/kg	0.0011	0.00031	1
Xylenes, Total	ND		mg/kg	0.0011	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0011	0.00012	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00021	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00036	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	91		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
Client ID: PB-129-13-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:50
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 13:53
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	ND		mg/kg	0.00050	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00099	0.00025	1
Toluene	ND		mg/kg	0.00099	0.00054	1
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	ND		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	70		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-08	Date Collected:	02/16/22 11:00
Client ID:	PB-129-16-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 14:18
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	0.00063	J	mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	86		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-09	Date Collected:	02/16/22 12:15
Client ID:	PB-128-06-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 14:42
Analyst: JC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0024	0.00024	1
Benzene	ND		mg/kg	0.00059	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00030	1
Toluene	ND		mg/kg	0.0012	0.00064	1
1,2-Dibromoethane	ND		mg/kg	0.00059	0.00035	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.00094	J	mg/kg	0.0024	0.00066	1
o-Xylene	0.00035	J	mg/kg	0.0012	0.00034	1
Xylenes, Total	0.0013	J	mg/kg	0.0012	0.00034	1
Isopropylbenzene	ND		mg/kg	0.0012	0.00013	1
1,3,5-Trimethylbenzene	0.00067	J	mg/kg	0.0024	0.00023	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0024	0.00040	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	99		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-10	Date Collected:	02/16/22 12:30
Client ID:	PB-128-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 15:07
Analyst: JC
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	ND		mg/kg	0.00048	0.00016	1
1,2-Dichloroethane	ND		mg/kg	0.00095	0.00024	1
Toluene	ND		mg/kg	0.00095	0.00052	1
1,2-Dibromoethane	ND		mg/kg	0.00048	0.00028	1
Ethylbenzene	ND		mg/kg	0.00095	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00053	1
o-Xylene	ND		mg/kg	0.00095	0.00028	1
Xylenes, Total	ND		mg/kg	0.00095	0.00028	1
Isopropylbenzene	ND		mg/kg	0.00095	0.00010	1
1,3,5-Trimethylbenzene	0.0031		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	0.00094	J	mg/kg	0.0019	0.00032	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11 Date Collected: 02/16/22 12:45
Client ID: PB-128-09-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 15:32
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00089	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	0.0016	J	mg/kg	0.0018	0.00097	1
1,2-Dibromoethane	ND		mg/kg	0.00089	0.00052	1
Ethylbenzene	ND		mg/kg	0.0018	0.00025	1
p/m-Xylene	0.11		mg/kg	0.0036	0.0010	1
o-Xylene	0.18		mg/kg	0.0018	0.00052	1
Xylenes, Total	0.29		mg/kg	0.0018	0.00052	1
Isopropylbenzene	0.00038	J	mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	0.13		mg/kg	0.0036	0.00034	1
1,2,4-Trimethylbenzene	0.22		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	100		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-12
Client ID: PB-128-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:20
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 21:09
Analyst: MKS
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0033	0.00034	1
Benzene	ND		mg/kg	0.00083	0.00028	1
1,2-Dichloroethane	ND		mg/kg	0.0017	0.00043	1
Toluene	0.0016	J	mg/kg	0.0017	0.00090	1
1,2-Dibromoethane	ND		mg/kg	0.00083	0.00049	1
Ethylbenzene	ND		mg/kg	0.0017	0.00024	1
p/m-Xylene	0.0014	J	mg/kg	0.0033	0.00093	1
o-Xylene	0.00060	J	mg/kg	0.0017	0.00048	1
Xylenes, Total	0.0020	J	mg/kg	0.0017	0.00048	1
Isopropylbenzene	ND		mg/kg	0.0017	0.00018	1
1,3,5-Trimethylbenzene	0.00039	J	mg/kg	0.0033	0.00032	1
1,2,4-Trimethylbenzene	0.00080	J	mg/kg	0.0033	0.00056	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	99		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-13	Date Collected:	02/16/22 13:45
Client ID:	PB-128-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 17:35
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0025	0.00025	1
Benzene	0.00022	J	mg/kg	0.00062	0.00020	1
1,2-Dichloroethane	ND		mg/kg	0.0012	0.00032	1
Toluene	0.013		mg/kg	0.0012	0.00067	1
1,2-Dibromoethane	ND		mg/kg	0.00062	0.00036	1
Ethylbenzene	ND		mg/kg	0.0012	0.00017	1
p/m-Xylene	0.38		mg/kg	0.0025	0.00069	1
o-Xylene	0.29		mg/kg	0.0012	0.00036	1
Xylenes, Total	0.67		mg/kg	0.0012	0.00036	1
Isopropylbenzene	0.00062	J	mg/kg	0.0012	0.00014	1
1,3,5-Trimethylbenzene	0.19		mg/kg	0.0025	0.00024	1
1,2,4-Trimethylbenzene	0.43	E	mg/kg	0.0025	0.00041	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	98		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-13	Date Collected:	02/16/22 13:45
Client ID:	PB-128-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/22/22 23:31
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.18	0.018	1
Benzene	ND		mg/kg	0.046	0.015	1
1,2-Dichloroethane	ND		mg/kg	0.091	0.023	1
Toluene	ND		mg/kg	0.091	0.050	1
1,2-Dibromoethane	ND		mg/kg	0.046	0.027	1
Ethylbenzene	ND		mg/kg	0.091	0.013	1
p/m-Xylene	0.99		mg/kg	0.18	0.051	1
o-Xylene	0.69		mg/kg	0.091	0.026	1
Xylenes, Total	1.7		mg/kg	0.091	0.026	1
Isopropylbenzene	ND		mg/kg	0.091	0.010	1
1,3,5-Trimethylbenzene	0.58		mg/kg	0.18	0.018	1
1,2,4-Trimethylbenzene	1.4		mg/kg	0.18	0.030	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	94		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-14
Client ID: PB-128-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 14:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 16:21
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0036	0.00036	1
Benzene	ND		mg/kg	0.00091	0.00030	1
1,2-Dichloroethane	ND		mg/kg	0.0018	0.00046	1
Toluene	ND		mg/kg	0.0018	0.00098	1
1,2-Dibromoethane	ND		mg/kg	0.00091	0.00053	1
Ethylbenzene	ND		mg/kg	0.0018	0.00026	1
p/m-Xylene	ND		mg/kg	0.0036	0.0010	1
o-Xylene	ND		mg/kg	0.0018	0.00053	1
Xylenes, Total	ND		mg/kg	0.0018	0.00053	1
Isopropylbenzene	ND		mg/kg	0.0018	0.00020	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0036	0.00035	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0036	0.00060	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	100		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-15	Date Collected:	02/16/22 14:30
Client ID:	PB-128-14-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 16:46
Analyst: JC
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	ND		mg/kg	0.00079	0.00026	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	ND		mg/kg	0.0016	0.00086	1
1,2-Dibromoethane	ND		mg/kg	0.00079	0.00046	1
Ethylbenzene	ND		mg/kg	0.0016	0.00022	1
p/m-Xylene	ND		mg/kg	0.0032	0.00089	1
o-Xylene	ND		mg/kg	0.0016	0.00046	1
Xylenes, Total	ND		mg/kg	0.0016	0.00046	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00017	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00053	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	101		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16
Client ID: PB-128-15-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 14:50
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 17:11
Analyst: JC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0032	0.00032	1
Benzene	0.0037		mg/kg	0.00081	0.00027	1
1,2-Dichloroethane	ND		mg/kg	0.0016	0.00041	1
Toluene	0.012		mg/kg	0.0016	0.00088	1
1,2-Dibromoethane	ND		mg/kg	0.00081	0.00047	1
Ethylbenzene	0.00033	J	mg/kg	0.0016	0.00023	1
p/m-Xylene	0.0040		mg/kg	0.0032	0.00090	1
o-Xylene	0.00093	J	mg/kg	0.0016	0.00047	1
Xylenes, Total	0.0049	J	mg/kg	0.0016	0.00047	1
Isopropylbenzene	ND		mg/kg	0.0016	0.00018	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0032	0.00031	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0032	0.00054	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	76		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
Client ID: FB-202216-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/21/22 18:08
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/21/22 13:38

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
Client ID: FB-202216-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:11
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-18	Date Collected:	02/16/22 15:10
Client ID:	FB-202216-2	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	02/21/22 13:38
Analytical Date:	02/21/22 18:15		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18
Client ID: FB-202216-2
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:10
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:34
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	117		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-19
Client ID: TB-202216
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 00:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 02/21/22 18:21
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/21/22 13:38

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-19
Client ID: TB-202216
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 00:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260C
Analytical Date: 02/17/22 11:57
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	114		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	106		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:52
Analyst: KDU
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0026	0.00026	1
Benzene	ND		mg/kg	0.00064	0.00021	1
1,2-Dichloroethane	ND		mg/kg	0.0013	0.00033	1
Toluene	ND		mg/kg	0.0013	0.00070	1
1,2-Dibromoethane	ND		mg/kg	0.00064	0.00038	1
Ethylbenzene	ND		mg/kg	0.0013	0.00018	1
p/m-Xylene	ND		mg/kg	0.0026	0.00072	1
o-Xylene	ND		mg/kg	0.0013	0.00037	1
Xylenes, Total	ND		mg/kg	0.0013	0.00037	1
Isopropylbenzene	ND		mg/kg	0.0013	0.00014	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0026	0.00025	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0026	0.00043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	90		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 02/21/22 16:10
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 02/21/22 13:38

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 17-19 Batch: WG1606044-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/17/22 08:05
Analyst: PD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 17-19 Batch: WG1606325-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	107		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 20:44
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 12 Batch: WG1607828-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	96		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 11:25
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 20 Batch: WG1607845-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	103		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 01-03,05-11,13-16 Batch: WG1607862-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
1,2-Dichloroethane	ND		mg/kg	0.0010	0.00026
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	95		70-130

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/22/22 20:34
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04,13 Batch: WG1607863-10					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	95		70-130

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/21/22 08:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1607863-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
1,2-Dichloroethane	ND		mg/kg	0.050	0.013
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 17-19 Batch: WG1606044-2									
1,2-Dibromoethane	107		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 17-19 Batch: WG1606325-3 WG1606325-4								
Methyl tert butyl ether	100		110		63-130	10		20
Benzene	100		110		70-130	10		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	100		110		70-130	10		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		115		70-130	4		20
o-Xylene	110		110		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	109		115		70-130
Toluene-d8	100		101		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	103		106		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 12 Batch: WG1607828-3 WG1607828-4								
Methyl tert butyl ether	88		91		66-130	3		30
Benzene	101		100		70-130	1		30
1,2-Dichloroethane	91		92		70-130	1		30
Toluene	102		102		70-130	0		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	101		101		70-130	0		30
p/m-Xylene	106		106		70-130	0		30
o-Xylene	104		103		70-130	1		30
Isopropylbenzene	103		101		70-130	2		30
1,3,5-Trimethylbenzene	102		101		70-130	1		30
1,2,4-Trimethylbenzene	101		99		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	89		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 20 Batch: WG1607845-3 WG1607845-4								
Methyl tert butyl ether	82		79		66-130	4		30
Benzene	88		84		70-130	5		30
1,2-Dichloroethane	83		80		70-130	4		30
Toluene	86		83		70-130	4		30
1,2-Dibromoethane	102		99		70-130	3		30
Ethylbenzene	82		80		70-130	2		30
p/m-Xylene	89		86		70-130	3		30
o-Xylene	89		85		70-130	5		30
Isopropylbenzene	80		77		70-130	4		30
1,3,5-Trimethylbenzene	82		80		70-130	2		30
1,2,4-Trimethylbenzene	81		79		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		89		70-130
Toluene-d8	92		92		70-130
4-Bromofluorobenzene	84		85		70-130
Dibromofluoromethane	100		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS

Project Number: 200.00135.005.03

Lab Number: L2208279

Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 01-03,05-11,13-16 Batch: WG1607862-3 WG1607862-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1607863-3 WG1607863-4								
Methyl tert butyl ether	84		83		66-130	1		30
Benzene	94		91		70-130	3		30
1,2-Dichloroethane	86		84		70-130	2		30
Toluene	97		94		70-130	3		30
1,2-Dibromoethane	104		103		70-130	1		30
Ethylbenzene	97		94		70-130	3		30
p/m-Xylene	102		98		70-130	4		30
o-Xylene	98		96		70-130	2		30
Isopropylbenzene	99		94		70-130	5		30
1,3,5-Trimethylbenzene	97		93		70-130	4		30
1,2,4-Trimethylbenzene	96		91		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		89		70-130
Toluene-d8	97		96		70-130
4-Bromofluorobenzene	90		89		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04,13 Batch: WG1607863-8 WG1607863-9								
Methyl tert butyl ether	90		92		66-130	2		30
Benzene	102		100		70-130	2		30
1,2-Dichloroethane	93		93		70-130	0		30
Toluene	103		102		70-130	1		30
1,2-Dibromoethane	107		111		70-130	4		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	108		107		70-130	1		30
o-Xylene	104		104		70-130	0		30
Isopropylbenzene	106		103		70-130	3		30
1,3,5-Trimethylbenzene	104		102		70-130	2		30
1,2,4-Trimethylbenzene	103		101		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		91		70-130
Toluene-d8	96		96		70-130
4-Bromofluorobenzene	91		91		70-130
Dibromofluoromethane	97		97		70-130

SEMIVOLATILES

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-01	Date Collected:	02/16/22 08:30
Client ID:	PB-129-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 02:54		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	89		30-120
4-Terphenyl-d14	84		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-02	Date Collected:	02/16/22 08:45
Client ID:	PB-129-08-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 00:56		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	73		23-120
2-Fluorobiphenyl	79		30-120
4-Terphenyl-d14	72		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-03	Date Collected:	02/16/22 09:00
Client ID:	PB-129-09-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 08:00		
Analyst:	CMM		
Percent Solids:	94%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.021	1
Fluorene	ND		mg/kg	0.18	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.020	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.030	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.043	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	80		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04
Client ID: PB-129-10-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 09:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 02:07
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.17	0.021	1
Fluorene	0.027	J	mg/kg	0.17	0.016	1
Phenanthrene	0.055	J	mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	0.021	J	mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	82		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05
Client ID: PB-129-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 10:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 04:28
Analyst: CMM
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-06	Date Collected:	02/16/22 10:40
Client ID:	PB-129-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 03:17		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	84		30-120
4-Terphenyl-d14	70		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-07	Date Collected:	02/16/22 10:50
Client ID:	PB-129-13-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 01:20		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1
Fluorene	ND		mg/kg	0.17	0.017	1
Phenanthrene	ND		mg/kg	0.10	0.021	1
Anthracene	ND		mg/kg	0.10	0.034	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.029	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.042	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	55		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	82		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08
Client ID: PB-129-16-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 11:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 01:43
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.020	1
Fluorene	ND		mg/kg	0.17	0.016	1
Phenanthrene	ND		mg/kg	0.10	0.020	1
Anthracene	ND		mg/kg	0.10	0.033	1
Pyrene	ND		mg/kg	0.10	0.017	1
Benzo(a)anthracene	ND		mg/kg	0.10	0.019	1
Chrysene	ND		mg/kg	0.10	0.018	1
Benzo(b)fluoranthene	ND		mg/kg	0.10	0.028	1
Benzo(a)pyrene	ND		mg/kg	0.14	0.041	1
Benzo(ghi)perylene	ND		mg/kg	0.14	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	78		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-09
Client ID: PB-128-06-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:15
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 06:02
Analyst: CMM
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.23		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	78		30-120
4-Terphenyl-d14	71		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
Client ID: PB-128-07-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 05:15
Analyst: CMM
Percent Solids: 97%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.26		mg/kg	0.17	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	64		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	66		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11
Client ID: PB-128-09-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 12:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 04:52
Analyst: CMM
Percent Solids: 95%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.090	J	mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	71		30-120
4-Terphenyl-d14	62		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-12	Date Collected:	02/16/22 13:20
Client ID:	PB-128-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:24
Analytical Date:	02/22/22 04:04		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	70		23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	70		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
Client ID: PB-128-11-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 13:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270D
Analytical Date: 02/22/22 03:41
Analyst: CMM
Percent Solids: 96%

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:25

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.75		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	46		23-120
2-Fluorobiphenyl	74		30-120
4-Terphenyl-d14	72		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 07:36		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	63		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-15	Date Collected:	02/16/22 14:30
Client ID:	PB-128-14-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 02:30		
Analyst:	CMM		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	76		23-120
2-Fluorobiphenyl	85		30-120
4-Terphenyl-d14	80		18-120

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-16	Date Collected:	02/16/22 14:50
Client ID:	PB-128-15-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 08:23		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	64		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
Client ID: FB-202216-1
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 15:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 02/22/22 12:33
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/21/22 23:19

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	60		15-120
4-Terphenyl-d14	64		41-149

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-18	Date Collected:	02/16/22 15:10
Client ID:	FB-202216-2	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270D-SIM	Extraction Date:	02/21/22 23:19
Analytical Date:	02/22/22 12:50		
Analyst:	RP		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	65		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	65		41-149

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270D	Extraction Date:	02/21/22 13:25
Analytical Date:	02/22/22 05:39		
Analyst:	CMM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.17	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	40		23-120
2-Fluorobiphenyl	73		30-120
4-Terphenyl-d14	69		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D
Analytical Date: 02/21/22 23:46
Analyst: CMM

Extraction Method: EPA 3546
Extraction Date: 02/21/22 13:24

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-16,20 Batch: WG1607329-1					
Naphthalene	ND		mg/kg	0.16	0.020
Fluorene	ND		mg/kg	0.16	0.016
Phenanthrene	ND		mg/kg	0.099	0.020
Anthracene	ND		mg/kg	0.099	0.032
Pyrene	ND		mg/kg	0.099	0.016
Benzo(a)anthracene	ND		mg/kg	0.099	0.018
Chrysene	ND		mg/kg	0.099	0.017
Benzo(b)fluoranthene	ND		mg/kg	0.099	0.028
Benzo(a)pyrene	ND		mg/kg	0.13	0.040
Benzo(ghi)perylene	ND		mg/kg	0.13	0.019

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	92		30-120
4-Terphenyl-d14	90		18-120

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270D-SIM
Analytical Date: 02/22/22 10:39
Analyst: RP

Extraction Method: EPA 3510C
Extraction Date: 02/21/22 23:19

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 17-18 Batch: WG1607486-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	55		15-120
4-Terphenyl-d14	59		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-16,20 Batch: WG1607329-2 WG1607329-3								
Naphthalene	67		64		40-140	5		50
Fluorene	69		65		40-140	6		50
Phenanthrene	68		66		40-140	3		50
Anthracene	70		68		40-140	3		50
Pyrene	69		66		35-142	4		50
Benzo(a)anthracene	65		62		40-140	5		50
Chrysene	68		64		40-140	6		50
Benzo(b)fluoranthene	65		60		40-140	8		50
Benzo(a)pyrene	60		56		40-140	7		50
Benzo(ghi)perylene	64		59		40-140	8		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	62		58		23-120
2-Fluorobiphenyl	69		65		30-120
4-Terphenyl-d14	64		63		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 17-18 Batch: WG1607486-2 WG1607486-3								
Naphthalene	52		54		40-140	4		40
Fluorene	55		58		40-140	5		40
Phenanthrene	54		55		40-140	2		40
Anthracene	55		56		40-140	2		40
Pyrene	58		57		26-127	2		40
Benzo(a)anthracene	56		55		40-140	2		40
Chrysene	53		58		40-140	9		40
Benzo(b)fluoranthene	61		56		40-140	9		40
Benzo(a)pyrene	52		52		40-140	0		40
Benzo(ghi)perylene	58		57		40-140	2		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	58		59		23-120
2-Fluorobiphenyl	55		56		15-120
4-Terphenyl-d14	60		59		41-149

METALS

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-01	Date Collected:	02/16/22 08:30
Client ID:	PB-129-07-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.99		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 20:08	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02 Date Collected: 02/16/22 08:45
Client ID: PB-129-08-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.34		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:32	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
Date Collected: 02/16/22 09:00
Client ID: PB-129-09-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 94%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.60		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:37	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04 Date Collected: 02/16/22 09:30
Client ID: PB-129-10-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.98		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 20:42	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-05
Date Collected: 02/16/22 10:30
Client ID: PB-129-11-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.77		mg/kg	2.03	0.109	1	02/18/22 09:25	02/18/22 20:56	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-06	Date Collected:	02/16/22 10:40
Client ID:	PB-129-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.99		mg/kg	2.04	0.109	1	02/18/22 09:25	02/18/22 21:01	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07
Date Collected: 02/16/22 10:50
Client ID: PB-129-13-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	2.65		mg/kg	1.97	0.106	1	02/18/22 09:25	02/18/22 21:06	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279

Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08 Date Collected: 02/16/22 11:00
Client ID: PB-129-16-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.41		mg/kg	1.99	0.106	1	02/18/22 09:25	02/18/22 21:11	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-09	Date Collected:	02/16/22 12:15
Client ID:	PB-128-06-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.93		mg/kg	2.09	0.112	1	02/18/22 09:25	02/18/22 21:16	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
Date Collected: 02/16/22 12:30
Client ID: PB-128-07-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 97%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	4.59		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:21	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11 Date Collected: 02/16/22 12:45
Client ID: PB-128-09-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.72		mg/kg	2.01	0.108	1	02/18/22 09:25	02/18/22 21:26	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-12	Date Collected:	02/16/22 13:20
Client ID:	PB-128-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	3.28		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:31	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
Date Collected: 02/16/22 13:45
Client ID: PB-128-11-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.49		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:36	EPA 3050B	1,6010D	MC

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-14	Date Collected:	02/16/22 14:00
Client ID:	PB-128-12-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	96%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.70		mg/kg	1.99	0.107	1	02/18/22 09:25	02/18/22 21:41	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15
Date Collected: 02/16/22 14:30
Client ID: PB-128-14-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 96%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.42		mg/kg	2.06	0.110	1	02/18/22 09:25	02/18/22 21:55	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16 Date Collected: 02/16/22 14:50
Client ID: PB-128-15-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	13.5		mg/kg	2.04	0.110	1	02/18/22 09:25	02/18/22 22:00	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-17
Client ID: FB-202216-1
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 15:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 11:28	EPA 3005A	1,6020B	SV

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-18 Date Collected: 02/16/22 15:10
Client ID: FB-202216-2 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 11:33	EPA 3005A	1,6020B	SV

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	7.64		mg/kg	2.05	0.110	1	02/18/22 09:25	02/18/22 22:05	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 17-18 Batch: WG1605423-1										
Lead, Total	ND		ug/l	1.000	0.3430	1	02/18/22 09:09	02/21/22 10:12	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-16,20 Batch: WG1606108-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	02/18/22 09:25	02/18/22 19:58	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 Batch: WG1605423-2								
Lead, Total	101		-		80-120	-		
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 Batch: WG1606108-2 SRM Lot Number: D113-540								
Lead, Total	80		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03
Lab Number: L2208279
Report Date: 02/23/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 17-18 QC Batch ID: WG1605423-3 WG1605423-4 QC Sample: L2208291-06 Client ID: MS Sample												
Lead, Total	ND	530	539.2	102		586.6	111		75-125	8		20
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-3 QC Sample: L2208279-01 Client ID: PB-129-07-SS01												
Lead, Total	3.99	42.7	27.1	**54**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-16,20 QC Batch ID: WG1606108-4 QC Sample: L2208279-01 Client ID: PB-129-07-SS01						
Lead, Total	3.99	4.50	mg/kg	12		20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-01
Date Collected: 02/16/22 08:30
Client ID: PB-129-07-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-02
Client ID: PB-129-08-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 08:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-03
Date Collected: 02/16/22 09:00
Client ID: PB-129-09-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.2		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-04
Client ID: PB-129-10-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 09:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-05	Date Collected:	02/16/22 10:30
Client ID:	PB-129-11-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.3		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-06 Date Collected: 02/16/22 10:40
Client ID: PB-129-12-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS **Lab Number:** L2208279
Project Number: 200.00135.005.03 **Report Date:** 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-07 Date Collected: 02/16/22 10:50
Client ID: PB-129-13-SS01 Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.4		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-08
Client ID: PB-129-16-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 11:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.9		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-09	Date Collected:	02/16/22 12:15
Client ID:	PB-128-06-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.1		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-10
Client ID: PB-128-07-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 12:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	96.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-11
Date Collected: 02/16/22 12:45
Client ID: PB-128-09-SS01
Date Received: 02/16/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-12	Date Collected:	02/16/22 13:20
Client ID:	PB-128-10-SS01	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-13
Client ID: PB-128-11-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 13:45
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.5		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-14
Client ID: PB-128-12-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 14:00
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.8		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Lab Number: L2208279
Project Number: 200.00135.005.03
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-15
Client ID: PB-128-14-SS01
Sample Location: PHILADELPHIA, PA
Date Collected: 02/16/22 14:30
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.6		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

SAMPLE RESULTS

Lab ID: L2208279-16
Client ID: PB-128-15-SS01
Sample Location: PHILADELPHIA, PA

Date Collected: 02/16/22 14:50
Date Received: 02/16/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Project Name:	PHILADELPHIA REFINERY-AST CLOS	**Lab Number:**	L2208279
Project Number:	200.00135.005.03	**Report Date:**	02/23/22

SAMPLE RESULTS

Lab ID:	L2208279-20	Date Collected:	02/16/22 00:00
Client ID:	DUP-28	Date Received:	02/16/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	02/17/22 07:35	121,2540G	RI

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent
C	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-01A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-01B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-01D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-01F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-02A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-02B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-02D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-02F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-03A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-03B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-03D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-03E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-03F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-04A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-04B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-04C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-04D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-04E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-04F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-05A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-05B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-05D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-05E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-05F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-06A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-06B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-06D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-06E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-06F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-07A	Vial MeOH preserved	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2208279-07B	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07C	Vial water preserved	A	NA		3.1	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-07D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2208279-07E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		PB-TI(180)
L2208279-07F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2208279-08A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-08B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-08D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-08E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-08F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-09A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-09B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-09D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-09E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-09F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-10A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-10B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-10D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-10E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-10F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-11A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-11B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-11D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-11E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-11F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-12A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-12B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-12D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-12E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-12F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-13A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2208279-13B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260H(14),PA-8260HLW(14)
L2208279-13D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-13E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)

*Values in parentheses indicate holding time in days

Project Name: PHILADELPHIA REFINERY-AST CLOS
Project Number: 200.00135.005.03

Lab Number: L2208279
Report Date: 02/23/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-13F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-14A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-14B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-14D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-14E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-14F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-15A	Vial MeOH preserved	C	NA		3.4	Y	Absent		PA-8260HLW(14)
L2208279-15B	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15C	Vial water preserved	C	NA		3.4	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-15D	Plastic 2oz unpreserved for TS	C	NA		3.4	Y	Absent		TS(7)
L2208279-15E	Metals Only-Glass 60mL/2oz unpreserved	C	NA		3.4	Y	Absent		PB-TI(180)
L2208279-15F	Glass 120ml/4oz unpreserved	C	NA		3.4	Y	Absent		PA-PAH(14)
L2208279-16A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-16B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-16D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-16E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-16F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)
L2208279-17A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-17D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-17F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-17H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-18A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2208279-18B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18C	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-18D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18E	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-18F	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18G	Amber 250ml unpreserved	C	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2208279-18H	Plastic 250ml HNO3 preserved	C	<2	<2	3.4	Y	Absent		PB-6020T-PPB(180)
L2208279-19A	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19B	Vial HCl preserved	C	NA		3.4	Y	Absent		PA-8260(14)
L2208279-19C	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-19D	Vial Na2S2O3 preserved	C	NA		3.4	Y	Absent		8011(14)
L2208279-20A	Vial MeOH preserved	B	NA		3.2	Y	Absent		PA-8260HLW(14)
L2208279-20B	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20C	Vial water preserved	B	NA		3.2	Y	Absent	17-FEB-22 06:00	PA-8260HLW(14)
L2208279-20D	Plastic 2oz unpreserved for TS	B	NA		3.2	Y	Absent		TS(7)
L2208279-20E	Metals Only-Glass 60mL/2oz unpreserved	B	NA		3.2	Y	Absent		PB-TI(180)
L2208279-20F	Glass 120ml/4oz unpreserved	B	NA		3.2	Y	Absent		PA-PAH(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
	Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA ANALYTICAL

Westborough, MA
TEL: 508-898-9220
FAX: 508-898-9193

Mansfield, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 2/17/22

ALPHA Job #: L2208279

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery
AST Closure

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ ~~Standard~~ ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

RUN NAP w/ 8270!

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist		Sample Specific Comments	TOTAL # BOTTLES
08279-01	PB-129-07-SS01	2/16	0830	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		5
-02	PB-129-08-SS01		0845			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-03	PB-129-09-SS01		0900			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-04	PB-129-10-SS01		0930			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-05	PB-129-11-SS01		1030			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-06	PB-129-12-SS01		1040			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-07	PB-129-13-SS01		1050			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-08	PB-129-16-SS01		1100			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-09	PB-128-06-SS01		1215			☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-10	PB-128-07-SS01	↓	1230	↓	↓	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/16 1522	[signature]	2/16 1522
[signature]	2/16 1800	[signature]	2/16/22
[signature]	2/16 2100	Matthew Green	2/16/22 2100
Matthew Green	2/16/22	[signature]	2/16/22 2355
[signature]	2/17/22		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I-NJ) (rev. 5-JAN-12)

CHAIN OF CUSTODY

PAGE 2 of 2

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/17/22

ALPHA Job #: L2208279

Client Information

Client: Ransom Consulting, LLC
Address: 2127 Hamilton Avenue
Trenton, NJ 08619
Phone: 215-901-4974
Fax:
Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: Philadelphia Refinery AST Closure
Project Location: Philadelphia, PA
Project #: 200.00135.005.03
Project Manager: William Schmidt
ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☐ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL
☒ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client Info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
Report only project-specific analyte list of PADEP Leaded/Unleaded Gasoline and No. 2, 4, 5, and 6 Fuel Oil Shortlist (see attached for compounds)
Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	PADEP Shortlist 1-5 (see attached)	PADEP Shortlist 1 & 2 (see attached)	PADEP Shortlist 4 (see attached)	PADEP Shortlist 3-5 (see attached)	PADEP Shortlist 5 (see attached)	PADEP Shortlist 6 (see attached)	pH	Benzene	Cumene	Tetraethylene Glycol	VOC portion of PADEP Shortlist (1-5)		Sample Specific Comments	TOTAL # BOTTLES
08279-11	PB-128-09-SS01	2/16	1245	S	TS	☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-12	PB-128-10-SS01		1320	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-13	PB-128-11-SS01		1345	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-14	PB-128-12-SS01		1400	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-15	PB-128-14-SS01		1430	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-16	PB-128-15-SS01		1450	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
-17	FB-220216-1		1500	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-18	FB-220216-2		1510	W		☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		8
-19	TB-220216		-	W		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☑	☐		4
-20	DUP-28		-	S		☐	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		6
					Container Type	G	G	G	-	-	-	-	-	-	-	-	-		
					Preservative	F	A	A	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/16 1522	[signature]	2/16 1522
[signature]	2/16 1800	[signature]	2/16 1800
[signature]	2/16 2/01	Anthony Pleer	2/16/22 2100
Anthony Pleer	2/16/22	[signature] AAL	2/16/22 2355
[signature] AAL	2/17/22 0155	[signature]	2/17/22 [illegible]

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I)-NJ (rev. 5-JAN-12)

PADEP Short List Analytical List:

1. Leaded Gasoline, Aviation Gasoline and Jet Fuel - benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, lead

2. Unleaded Gasoline - benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene

3. Kerosene, Fuel Oil No. 1 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphtha 1,3,5-trimethylbenzene

4. Diesel Fuel and Fuel Oil No. 2 - benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naph trimethylbenzene, 1,3,5-trimethyl benzene

5. Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids - benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, benzo(g,h,i)perylene

6. Waste Oil – benzene, toluene, ethyl benzene, cumene, naphthalene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, lead

naphthalene, 1,2,4-
Trimethylbenzene

naphthalene, 1,2,4-

ANALYTICAL REPORT

Lab Number:	L2209675
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PHILADELPHIA REFINERY-DELINEAT
Project Number:	200.00135.005.03
Report Date:	03/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209675-01	PB-29-28-0.0-0.5	SOIL	PHILADELPHIA, PA	02/23/22 15:00	02/23/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Total Metals

L2209675-01: The sample has an elevated detection limit due to the dilution required by matrix interferences encountered during analysis.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 03/02/22

METALS

Project Name:	PHILADELPHIA REFINERY-DELINEAT	**Lab Number:**	L2209675
Project Number:	200.00135.005.03	**Report Date:**	03/02/22

SAMPLE RESULTS

Lab ID:	L2209675-01	Date Collected:	02/23/22 15:00
Client ID:	PB-29-28-0.0-0.5	Date Received:	02/23/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 80%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	92.3		mg/kg	11.9	0.636	5	03/01/22 07:00	03/02/22 18:40	EPA 3050B	1,6010D	MC

Project Name: PHILADELPHIA REFINERY-DELINEAT **Lab Number:** L2209675
Project Number: 200.00135.005.03 **Report Date:** 03/02/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1609872-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	03/01/22 07:00	03/01/22 14:18	1,6010D	MC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1609872-2 SRM Lot Number: D113-540								
Lead, Total	100		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-3 QC Sample: L2209668-02 Client ID: MS Sample												
Lead, Total	103	45.7	110	**15**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-4 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	56.9	mg/kg	**58**	Q	20

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Serial Dilution Analysis
Batch Quality Control

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Serial Dilution	Units	% D	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1609872-6 QC Sample: L2209668-02 Client ID: DUP Sample						
Lead, Total	103	141	mg/kg	**37**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name: PHILADELPHIA REFINERY-DELINEAT
Lab Number: L2209675
Project Number: 200.00135.005.03
Report Date: 03/02/22

SAMPLE RESULTS

Lab ID: L2209675-01
Date Collected: 02/23/22 15:00
Client ID: PB-29-28-0.0-0.5
Date Received: 02/23/22
Sample Location: PHILADELPHIA, PA
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	80.3		%	0.100	NA	1	-	02/24/22 09:40	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: PHILADELPHIA REFINERY-DELINEAT
Project Number: 200.00135.005.03

Lab Number: L2209675
Report Date: 03/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1608759-1 QC Sample: L2209668-01 Client ID: DUP Sample						
Solids, Total	80.7	80.2	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2209675-01A	Glass 60ml unpreserved split	A	NA		2.4	Y	Absent		PB-TI(180)
L2209675-01B	Glass 120ml/4oz unpreserved	A	NA		2.4	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers

Data Qualifiers

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE 1 OF 1

ALPHA ANALYTICAL

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 2/24/22

ALPHA Job #: L2209675

Project Information

Project Name: PES Refinery - Delineation SITE INVESTIGATION

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: ~~13461~~ 17833

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ ~~Standard~~ ☒ Rush (ONLY IF PRE-APPROVED) 5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client Info

PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Lead	Benzene	Toluene	Benzo(a)pyrene	Benzo(b)fluoranthene	Naphthalene							Sample Specific Comments	TOTAL # BOTTLES
09675-01	PB-29-28-0.0-0.5	2/23	1500	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	LEAD ONLY	1
Container Type						4 oz	-	-	-	-	-	-	-	-	-	-	-		
Preservative						N/A	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/23 1500	[signature] AAL	2/23/22 1500
[signature] AAL/803	2/23/22 1600	[signature]	2/23/22 1600
[signature]	2/23/22 2030	[signature]	2/23/22 2030
[signature]	2/24/22	[signature]	2/23/22 2305
[signature]	2/24/22 [illegible]		2/24/22 0155

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HC) (rev. 5-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2209795
Client:	Ransom/Hilco 99 Summer St. Suite 1110 Boston, MA 02110
ATTN:	Joe Jeray
Phone:	(978) 729-3209
Project Name:	PES REFINERY-AST CLOSURE
Project Number:	200.00135.005.03
Report Date:	12/02/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 12/02/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2209795-01	PB-33-05R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 13:10	02/07/22
L2209795-02	PB-29-03R-14.0-14.5	SOIL	PHILADELPHIA, PA	02/07/22 14:55	02/07/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 02, 2022: The Volatile Organics reporting list has been amended on L2209795-01 and -02.

March 29, 2022: The Volatile Organics reporting list has been amended on L2209795-02.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2209795-01D and -02: The sample was analyzed with the method required holding time exceeded.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Kelly Stenstrom

Title: Technical Director/Representative Date: 12/02/22

ALPHA ANALYTICAL

ORGANICS

VOLATILES

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2209795-01 D	Date Collected:	02/07/22 13:10
Client ID:	PB-33-05R-14.0-14.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 16:38
Analyst: JC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.62		mg/kg	0.24	0.024	2
Benzene	6.6		mg/kg	0.060	0.020	2
Toluene	0.27		mg/kg	0.12	0.065	2
1,2-Dibromoethane	ND		mg/kg	0.060	0.035	2
Ethylbenzene	5.8		mg/kg	0.12	0.017	2
p/m-Xylene	22.		mg/kg	0.24	0.067	2
o-Xylene	4.6		mg/kg	0.12	0.035	2
Xylenes, Total	27.		mg/kg	0.12	0.035	2
Isopropylbenzene	0.76		mg/kg	0.12	0.013	2
1,3,5-Trimethylbenzene	2.8		mg/kg	0.24	0.023	2
1,2,4-Trimethylbenzene	9.5		mg/kg	0.24	0.040	2
Naphthalene	1.0		mg/kg	0.48	0.078	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	91		70-130
Dibromofluoromethane	97		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795

Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID:	L2209795-02	Date Collected:	02/07/22 14:55
Client ID:	PB-29-03R-14.0-14.5	Date Received:	02/07/22
Sample Location:	PHILADELPHIA, PA	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260C
Analytical Date: 02/28/22 17:05
Analyst: JC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.46		mg/kg	0.10	0.010	1
Benzene	3.0		mg/kg	0.026	0.0085	1
Toluene	0.11		mg/kg	0.051	0.028	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.015	1
Ethylbenzene	1.7		mg/kg	0.051	0.0072	1
p/m-Xylene	5.8		mg/kg	0.10	0.029	1
o-Xylene	0.55		mg/kg	0.051	0.015	1
Xylenes, Total	6.4		mg/kg	0.051	0.015	1
Isopropylbenzene	0.11		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	0.94		mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	3.1		mg/kg	0.10	0.017	1
Naphthalene	0.73		mg/kg	0.20	0.033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	89		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	95		70-130

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 02/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1610267-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017
Naphthalene	ND		mg/kg	0.20	0.032

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	87		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03
Lab Number: L2209795
Report Date: 12/02/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1610267-3 WG1610267-4								
Methyl tert butyl ether	93		90		66-130	3		30
Benzene	93		87		70-130	7		30
Toluene	91		86		70-130	6		30
1,2-Dibromoethane	113		109		70-130	4		30
Ethylbenzene	85		80		70-130	6		30
p/m-Xylene	93		87		70-130	7		30
o-Xylene	96		91		70-130	5		30
Isopropylbenzene	82		76		70-130	8		30
1,3,5-Trimethylbenzene	85		80		70-130	6		30
1,2,4-Trimethylbenzene	87		82		70-130	6		30
Naphthalene	113		108		70-130	5		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	83		85		70-130
Toluene-d8	91		91		70-130
4-Bromofluorobenzene	87		88		70-130
Dibromofluoromethane	99		99		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2209795-01
Client ID: PB-33-05R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 13:10
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.5		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI

Project Name: PES REFINERY-AST CLOSURE **Lab Number:** L2209795
Project Number: 200.00135.005.03 **Report Date:** 12/02/22

SAMPLE RESULTS

Lab ID: L2209795-02
Client ID: PB-29-03R-14.0-14.5
Sample Location: PHILADELPHIA, PA
Date Collected: 02/07/22 14:55
Date Received: 02/07/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.7		%	0.100	NA	1	-	02/24/22 12:17	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: PES REFINERY-AST CLOSURE
Project Number: 200.00135.005.03

Lab Number: L2209795
Report Date: 12/02/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1608668-1 QC Sample: L2209081-01 Client ID: DUP Sample						
Solids, Total	78.7	77.7	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2209795-01A	Vial MeOH preserved	A	NA		2.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-01B	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01C	Vial water preserved	A	NA		2.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-01D	Plastic 2oz unpreserved for TS	A	NA		2.8	Y	Absent		TS(7)
L2209795-02A	Vial MeOH preserved	B	NA		3.8	Y	Absent		PA-8260HLW-BTEX(14)
L2209795-02B	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02C	Vial water preserved	B	NA		3.8	Y	Absent	08-FEB-22 04:58	PA-8260HLW-BTEX(14)
L2209795-02D	Plastic 2oz unpreserved for TS	B	NA		3.8	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name:	PES REFINERY-AST CLOSURE	**Lab Number:**	L2209795
Project Number:	200.00135.005.03	**Report Date:**	12/02/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

L2209795 2/23/22 KC

CHAIN OF CUSTODY

ALPHA ANALYTICAL

PAGE 1 OF 2

Date Rec'd in Lab: 2/8/22

ALPHA Job #: ~~L2206339~~

Westborough, MA TEL: 508-898-9220 FAX: 508-898-9193
Mansfield, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Turn-Around Time

☒ Standard ☒ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program: PADEP Storage Tank Sampling

Criteria:

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

ANALYSIS

Analysis columns: ~~Lead~~, Benzene, ~~Toluene~~, ~~Benzo(a)pyrene~~, ~~Benzo(b)fluoranthene~~, Naphthalene (8260), ~~Ethyl Benzene~~, ~~1,2-DBA (Dibromoethane)~~, (blank), PA-8260HLW-BTEX, Total Solids, (blank)

SAMPLE HANDLING
Filtration
☐ Done
☒ Not Needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analyses checked	Sample Specific Comments
~~06339-01~~	PB-204-11R-6.0-6.5	2/7	1030	S	TS		
~~-02~~	PB-204-11R-14.0-14.5		1040				~~HOLD~~
~~03~~	PB-204-01R-0.0-0.5		1130			~~Lead~~	
~~04~~	PB-204-01R-6.0-6.5		1140			~~Lead~~	
~~05~~	PB-204-01R-14.0-14.5		1150			~~Lead~~	~~HOLD~~
~~06~~	PB-204-06R-0.0-0.5		1220			~~Naphthalene~~	
~~07~~	PB-204-06R-6.0-6.5		1225			~~Benzene, Naphthalene~~	
~~08~~	PB-204-06R-14.0-14.5		1230			~~Benzene, Naphthalene~~	~~HOLD~~
~~09~~	PB-33-05R-6.0-6.5		1300			~~Benzene, Toluene, Ethyl Benzene~~	
09795-01 ~~10~~	PB-33-05R-14.0-14.5		1310			~~Benzene, Toluene, Ethyl Benzene~~, PA-8260HLW-BTEX, Total Solids	~~HOLD~~

Container Type: - - - - - - - - - - - -

Preservative: - - - - - - - - - - - -

Relinquished By:	Date/Time	Received By:	Date/Time
[signature] ISS	2/7 1515	[signature]	2/7 1515
[signature] AAL	2/7 2030	[signature]	2/7 1530
Anthony Pierce	2/7/22	Anthony Pierce	2/7/22 2030
[signature] AAL	2/8/22	[signature] AAL	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(HJ) (rev. 8-JAN-12)

L2209795 KL 2/23/22

CHAIN OF CUSTODY

PAGE 2 OF 2

ALPHA ANALYTICAL

Westborough, MA	Mansfield, MA
TEL: 508-898-9220	TEL: 508-822-9300
FAX: 508-898-9193	FAX: 508-822-3288

Date Rec'd in Lab: 2/8/22

ALPHA Job #: ~~L2206339~~

Project Information

Project Name: PES Refinery - ~~Delineation~~ AST CLOSURE

Project Location: Philadelphia, PA

Project #: 200.00135.005.03

Project Manager: William Schmidt

ALPHA Quote #: 13161

Client Information

Client: Ransom Consulting, LLC

Address: 2127 Hamilton Avenue

Trenton, NJ 08619

Phone: 215-901-4974

Fax:

Email: William.Schmidt@ransomenv.com

☐ These samples have been Previously analyzed by Alpha

Turn-Around Time

☒ Standard ☑ Rush (ONLY IF PRE-APPROVED)

5-DAY

Due Date: Time:

Report Information Data Deliverables

☐ FAX ☒ EMAIL

☒ ADEx ☐ Add'l Deliverables

Billing Information

☒ Same as Client info PO #: 3894

Regulatory Requirements/Report Limits

State/Fed Program	Criteria
PADEP Storage Tank Sampling	

Other Project Specific Requirements/Comments/Detection Limits:

Report only project-specific analyte list ~~per attached~~

Email results to edd@terraphase.com, William.Schmidt@ransomenv.com, and jjeray@hilcoglobal.com

SAMPLE HANDLING

Filtration

☐ Done

☒ Not Needed

☐ Lab to do

Preservation

☐ Lab to do

(Please specify below)

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	~~Lead~~	~~Benzene~~	~~Toluene~~	~~Benzo(a)pyrene~~	~~Benzo(b)fluoranthene~~	~~Naphthalene~~ (8260)	~~Ethyl-Benzene~~	~~1,2-DBA~~ (Dibromoethane)		PA-8260HLW-BTEX	Total Solids		Sample Specific Comments	TOTAL # BOTTLES
06339-11	PB-29-02R-0.0-0.5	2/7	1405	S	TS	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
12	PB-29-02R-6.0-6.5		1415			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
13	PB-29-02R-14.0-14.5		1420			☑	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	~~HOLD~~	
14	PB-29-03R-6.0-6.5		1445			☐	☑	☑	☐	☐	☐	☐	☐	☐	☐	☐	☐		
09795-02 ~~15~~	PB-29-03R-14.0-14.5		1455			☐	☑	☑	☐	☐	☐	☐	☐	☐	☒	☒	☐	~~HOLD~~	
16	FB-220207-1		1700			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐		
17	FB-220207-2		1500			☑	☑	☑	☐	☐	☑	☑	☑	☐	☐	☐	☐		
18	TB-220207		-			☐	☑	☑	☐	☐	☑	☑	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
						☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐		
	Container Type					-	-	-	-	-	-	-	-	-	-	-	-		
	Preservative					-	-	-	-	-	-	-	-	-	-	-	-		

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	2/7 1515	[signature]	2/7 1515
[signature]	1800	[signature]	2/7 1900
AMP AA.	2020	[signature]	2/7/22 2030
[signature] 2/7/22		[signature] AAL	2/7/22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Payment Terms.

FORM NO: 01-01(I) (rev. 1-JAN-12)

ANALYTICAL REPORT

Lab Number:	L2265366
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 416 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/01/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265366
Report Date: 12/01/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2265366-01	TG03-MW-02-12.5-13.0	SOIL	3144 W. PASSYUNK AVE	11/17/22 11:56	11/18/22
L2265366-02	TG02-MW-14-8.5-9.0	SOIL	3144 W. PASSYUNK AVE	11/18/22 09:17	11/18/22
L2265366-03	TG02-MW-14-24.0-24.5	SOIL	3144 W. PASSYUNK AVE	11/18/22 09:28	11/18/22
L2265366-04	TG02-MW-17-7.5-8.0	SOIL	3144 W. PASSYUNK AVE	11/18/22 13:33	11/18/22
L2265366-05	TG02-MW-17-23.5-24.0	SOIL	3144 W. PASSYUNK AVE	11/18/22 13:41	11/18/22
L2265366-06	TB-221118	WATER	3144 W. PASSYUNK AVE	11/18/22 00:00	11/18/22

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

Case Narrative (continued)

Report Submission

December 01, 2022: This final report includes the results of all requested analyses.

November 29, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2265366-02: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (165%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2265366-02D: The sample has an elevated detection limit due to the dilution required by the sample matrix.

L2265366-04: The sample has an elevated detection limit due to the limited sample volume utilized during extraction, as required by the sample matrix and due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 12/01/22

ORGANICS

VOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-01 D2	Date Collected:	11/17/22 11:56
Client ID:	TG03-MW-02-12.5-13.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/28/22 12:17
Analyst: MKS
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	180		mg/kg	1.3	0.43	50
Toluene	220		mg/kg	2.6	1.4	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	91		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-01 D	Date Collected:	11/17/22 11:56
Client ID:	TG03-MW-02-12.5-13.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/23/22 17:22
Analyst: NLK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.0	0.10	10
Benzene	170	E	mg/kg	0.26	0.086	10
Toluene	210	E	mg/kg	0.52	0.28	10
1,2-Dibromoethane	ND		mg/kg	0.26	0.15	10
Ethylbenzene	31.		mg/kg	0.52	0.074	10
p/m-Xylene	120		mg/kg	1.0	0.29	10
o-Xylene	33.		mg/kg	0.52	0.15	10
Xylenes, Total	150		mg/kg	0.52	0.15	10
Isopropylbenzene	3.4		mg/kg	0.52	0.057	10
1,3,5-Trimethylbenzene	23.		mg/kg	1.0	0.10	10
1,2,4-Trimethylbenzene	73.		mg/kg	1.0	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	88		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-02	Date Collected:	11/18/22 09:17
Client ID:	TG02-MW-14-8.5-9.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/23/22 15:11
Analyst: NLK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.11	0.011	1
Benzene	0.10		mg/kg	0.028	0.0094	1
Toluene	ND		mg/kg	0.056	0.031	1
1,2-Dibromoethane	ND		mg/kg	0.028	0.016	1
Ethylbenzene	2.2		mg/kg	0.056	0.0080	1
p/m-Xylene	5.0		mg/kg	0.11	0.032	1
o-Xylene	0.79		mg/kg	0.056	0.016	1
Xylenes, Total	5.8		mg/kg	0.056	0.016	1
Isopropylbenzene	2.6		mg/kg	0.056	0.0062	1
1,3,5-Trimethylbenzene	7.3		mg/kg	0.11	0.011	1
1,2,4-Trimethylbenzene	31.	E	mg/kg	0.11	0.019	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	108		70-130
4-Bromofluorobenzene	**165**	Q	70-130
Dibromofluoromethane	80		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366

Project Number: P044.001.002 **Report Date:** 12/01/22

SAMPLE RESULTS

Lab ID: L2265366-02 D
Client ID: TG02-MW-14-8.5-9.0
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/18/22 09:17
Date Received: 11/18/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/21/22 15:32
Analyst: NLK
Percent Solids: 85%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	29.		mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	99		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-04	Date Collected:	11/18/22 13:33
Client ID:	TG02-MW-17-7.5-8.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/23/22 15:50
Analyst: NLK
Percent Solids: 66%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.26	0.026	1
Benzene	0.63		mg/kg	0.065	0.022	1
Toluene	0.42		mg/kg	0.13	0.071	1
1,2-Dibromoethane	ND		mg/kg	0.065	0.038	1
Ethylbenzene	1.2		mg/kg	0.13	0.018	1
p/m-Xylene	15.		mg/kg	0.26	0.073	1
o-Xylene	2.4		mg/kg	0.13	0.038	1
Xylenes, Total	17.		mg/kg	0.13	0.038	1
Isopropylbenzene	20.		mg/kg	0.13	0.014	1
1,3,5-Trimethylbenzene	4.2		mg/kg	0.26	0.025	1
1,2,4-Trimethylbenzene	13.		mg/kg	0.26	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	83		70-130
Toluene-d8	119		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	78		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-06	Date Collected:	11/18/22 00:00
Client ID:	TB-221118	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 11/22/22 14:36
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	111		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/21/22 09:04
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02 Batch: WG1715485-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	100		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/22/22 07:55
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06 Batch: WG1715777-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19
1,2-Dichlorobenzene	ND		ug/l	2.5	0.18

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	104		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366
Project Number: P044.001.002 **Report Date:** 12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/23/22 08:55
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1716548-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366
Project Number: P044.001.002 **Report Date:** 12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/23/22 08:14
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 02,04 Batch: WG1716641-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	97		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/28/22 09:09
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1717072-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	93		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265366
Report Date: 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02 Batch: WG1715485-3 WG1715485-4								
Methyl tert butyl ether	98		100		66-130	2		30
Benzene	98		98		70-130	0		30
Toluene	95		95		70-130	0		30
1,2-Dibromoethane	94		96		70-130	2		30
Ethylbenzene	96		97		70-130	1		30
p/m-Xylene	100		100		70-130	0		30
o-Xylene	98		99		70-130	1		30
Isopropylbenzene	93		92		70-130	1		30
1,3,5-Trimethylbenzene	96		93		70-130	3		30
1,2,4-Trimethylbenzene	96		94		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	102		102		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	95		96		70-130
Dibromofluoromethane	99		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265366
Project Number: P044.001.002
Report Date: 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06 Batch: WG1715777-3 WG1715777-4								
Methyl tert butyl ether	86		88		63-130	2		20
Benzene	95		100		70-130	5		20
Toluene	95		100		70-130	5		20
Ethylbenzene	94		100		70-130	6		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
Isopropylbenzene	92		100		70-130	8		20
1,3,5-Trimethylbenzene	92		100		64-130	8		20
1,2,4-Trimethylbenzene	91		100		70-130	9		20
1,2-Dichlorobenzene	90		97		70-130	7		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	100		103		70-130
4-Bromofluorobenzene	97		100		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265366
Project Number: P044.001.002
Report Date: 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1716548-3 WG1716548-4								
Methyl tert butyl ether	91		88		66-130	3		30
Benzene	97		95		70-130	2		30
Toluene	100		97		70-130	3		30
1,2-Dibromoethane	92		91		70-130	1		30
Ethylbenzene	100		97		70-130	3		30
p/m-Xylene	101		97		70-130	4		30
o-Xylene	98		94		70-130	4		30
Isopropylbenzene	99		97		70-130	2		30
1,3,5-Trimethylbenzene	100		97		70-130	3		30
1,2,4-Trimethylbenzene	99		96		70-130	3		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		96		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366

Project Number: P044.001.002 **Report Date:** 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 02,04 Batch: WG1716641-3 WG1716641-4								
Methyl tert butyl ether	89		92		66-130	3		30
Benzene	102		103		70-130	1		30
Toluene	102		103		70-130	1		30
1,2-Dibromoethane	102		105		70-130	3		30
Ethylbenzene	107		106		70-130	1		30
p/m-Xylene	106		105		70-130	1		30
o-Xylene	105		106		70-130	1		30
Isopropylbenzene	106		104		70-130	2		30
1,3,5-Trimethylbenzene	104		103		70-130	1		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	85		86		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	94		92		70-130
Dibromofluoromethane	89		87		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366

Project Number: P044.001.002 **Report Date:** 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1717072-3 WG1717072-4								
Methyl tert butyl ether	98		95		66-130	3		30
Benzene	104		100		70-130	4		30
Toluene	105		103		70-130	2		30
1,2-Dibromoethane	98		98		70-130	0		30
Ethylbenzene	106		103		70-130	3		30
p/m-Xylene	106		104		70-130	2		30
o-Xylene	103		100		70-130	3		30
Isopropylbenzene	104		103		70-130	1		30
1,3,5-Trimethylbenzene	105		103		70-130	2		30
1,2,4-Trimethylbenzene	104		102		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		99		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	92		92		70-130

SEMIVOLATILES

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366
Project Number: P044.001.002 **Report Date:** 12/01/22

SAMPLE RESULTS

Lab ID: L2265366-02 D
Client ID: TG02-MW-14-8.5-9.0
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/18/22 09:17
Date Received: 11/18/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 11/21/22 09:24
Analyst: CMM
Percent Solids: 85%

Extraction Method: EPA 3546
Extraction Date: 11/19/22 09:01

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	20.		mg/kg	1.9	0.23	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**124**	Q	23-120
2-Fluorobiphenyl	77		30-120
4-Terphenyl-d14	64		18-120

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366
Project Number: P044.001.002 **Report Date:** 12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-04	Date Collected:	11/18/22 13:33
Client ID:	TG02-MW-17-7.5-8.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	11/19/22 09:01
Analytical Date:	11/28/22 12:01		
Analyst:	CMM		
Percent Solids:	66%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	2.4	J	mg/kg	3.7	0.44	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	31		23-120
2-Fluorobiphenyl	39		30-120
4-Terphenyl-d14	36		18-120

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265366
Project Number: P044.001.002 **Report Date:** 12/01/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 11/18/22 22:35
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 11/18/22 13:36

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 02,04 Batch: WG1714080-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	76		25-120
Phenol-d6	78		10-120
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	79		30-120
2,4,6-Tribromophenol	77		10-136
4-Terphenyl-d14	82		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2265366

Report Date: 12/01/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 02,04 Batch: WG1714080-2 WG1714080-3								
Naphthalene	75		73		40-140	3		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	78		78		25-120
Phenol-d6	80		80		10-120
Nitrobenzene-d5	76		76		23-120
2-Fluorobiphenyl	80		81		30-120
2,4,6-Tribromophenol	79		79		10-136
4-Terphenyl-d14	75		79		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265366
Project Number: P044.001.002
Report Date: 12/01/22

SAMPLE RESULTS

Lab ID: L2265366-01
Date Collected: 11/17/22 11:56
Client ID: TG03-MW-02-12.5-13.0
Date Received: 11/18/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.9		%	0.100	NA	1	-	11/23/22 08:00	121,2540G	MW

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265366
Project Number:	P044.001.002	**Report Date:**	12/01/22

SAMPLE RESULTS

Lab ID:	L2265366-02	Date Collected:	11/18/22 09:17
Client ID:	TG02-MW-14-8.5-9.0	Date Received:	11/18/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.3		%	0.100	NA	1	-	11/22/22 08:22	121,2540G	GG

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265366
Project Number: P044.001.002
Report Date: 12/01/22

SAMPLE RESULTS

Lab ID: L2265366-04
Client ID: TG02-MW-17-7.5-8.0
Sample Location: 3144 W. PASSYUNK AVE
Date Collected: 11/18/22 13:33
Date Received: 11/18/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	66.1		%	0.100	NA	1	-	11/22/22 08:22	121,2540G	GG

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265366
Report Date: 12/01/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 02,04 QC Batch ID: WG1715235-1 QC Sample: L2262759-89 Client ID: DUP Sample						
Solids, Total	82.3	83.4	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1715694-1 QC Sample: L2265762-01 Client ID: DUP Sample						
Solids, Total	89.7	89.2	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2265366-01A	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-01B	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-01C	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-01D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2265366-01X	Vial MeOH preserved split	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-01Y	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-01Z	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-02A	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-02B	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-02C	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-02D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2265366-02E	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2265366-02X	Vial MeOH preserved split	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-02Y	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-02Z	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-03A	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-03B	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-03C	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-03D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		HOLD-WETCHEM()
L2265366-03E	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		HOLD-8270(14)
L2265366-03X	Vial MeOH preserved split	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-03Y	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	HOLD-8260HLW(14)
L2265366-03Z	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2265366-04A	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-04B	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-04C	5 gram Encore Sampler	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-04D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		TS(7)
L2265366-04E	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		PA-PAH(14)
L2265366-04X	Vial MeOH preserved split	A	NA		3.1	Y	Absent		PA-8260HLW(14)
L2265366-04Y	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-04Z	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	PA-8260HLW(14)
L2265366-05A	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-05B	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-05C	5 gram Encore Sampler	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-05D	Plastic 2oz unpreserved for TS	A	NA		3.1	Y	Absent		HOLD-WETCHEM()
L2265366-05E	Glass 60mL/2oz unpreserved	A	NA		3.1	Y	Absent		HOLD-METAL(180)
L2265366-05F	Glass 120ml/4oz unpreserved	A	NA		3.1	Y	Absent		HOLD-8270(14)
L2265366-05X	Vial MeOH preserved split	A	NA		3.1	Y	Absent		HOLD-8260HLW(14)
L2265366-05Y	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	HOLD-8260HLW(14)
L2265366-05Z	Vial Water preserved split	A	NA		3.1	Y	Absent	19-NOV-22 08:07	HOLD-8260HLW(14)
L2265366-06A	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)
L2265366-06B	Vial HCl preserved	A	NA		3.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:12012210:25

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 11/19/22

ALPHA Job #: L2265366

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St, Ste 416
Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refinery- AST Closure
Project Location: 3144 W Passyunk Ave
Project #: PO44.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis EDD

ANALYSIS

- 8260 - Benzene, Ethyl Benzene, Xylenes(total), 1,2,4/1,3,5-TMB, Cumene, 1,2 DBA, MTBE
- 8270 - Benzo(a)pyrene [illegible]
- 6010 - lead
- 8260 - Benzene, Toluene, Ethyl Benzene, Xylenes(total), 1,2,4/1,3,5-TMB, Cumene, 1,2-DBA, MTBE
- 8270 - Naphthalene

SAMPLE HANDLING
Filtration ________
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260 - Benzene, Ethyl Benzene, Xylenes, TMB, Cumene, 1,2 DBA, MTBE		8270 - Benzo(a)pyrene	6010 - lead	8260 - Benzene, Toluene, ... MTBE		8270 - Naphthalene						Sample Specific Comments	TOTAL # BOTTLES
65366-01	~~TG03-MW-02-12.5-13.0~~	~~11/17/22~~	~~1156~~	~~SO~~	~~SMM~~	H												Hold	
-02	TG02-MW-14-8.5-9.0	11/18/22	917	SO	SMM					X		X						Analyze	
-03	TG02-MW-14-24.0-24.5	11/18/22	928	SO	SMM					H		H						Hold	
-04	TG02-MW-17-7.5-8.0	11/18/22	1333	SO	SMM					X		X						Analyze	
-05	TG02-MW-17-23.5-24.0	11/18/22	1341	SO	SMM				H	H		H						Hold	
-06	TB-221118	11/18/22	1352	TB	SMM					X								Analyze	

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/18/22 1405	[signature] AAL	11/18/22 1405
[signature] AAL	11/18/22 1750	[signature] AAL	11/18/22 1750
[signature] AAL	11/18/22	Paul Mazzella	11/18/22 2315

5/11/22 AAL
11/19/22
0455
11/19/22 0455

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

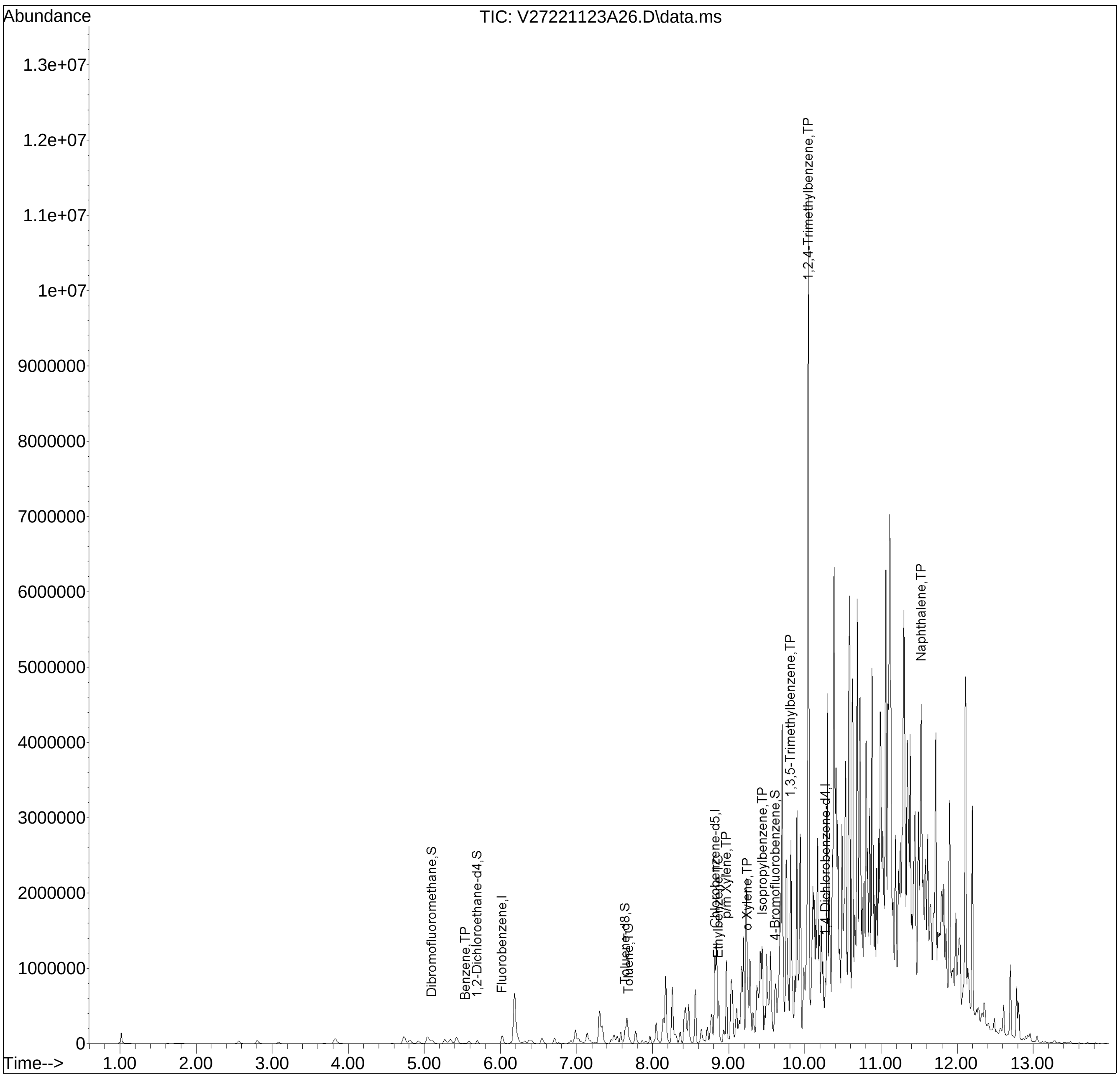
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report   (QT Reviewed)

```
Data Path : I:\VOLATILES\VOA127\2022\221123A\
Data File : V27221123A26.D
Acq On    : 23 Nov 2022  03:11 pm
Operator  : VOA127:NLK
Sample    : L2265366-02,31H,6.13,5,0.100,,X,R2F
Misc      : WG1716641,ICAL19419
ALS Vial  : 26   Sample Multiplier: 1

Quant Time: Nov 27 13:14:27 2022
Quant Method : I:\VOLATILES\VOA127\2022\221123A\V127_221020N_8260.m
Quant Title  : VOLATILES BY GC/MS
QLast Update : Fri Oct 21 13:17:54 2022
Response via : Initial Calibration

Sub List     : 8260-PA_ShortList - PA Short list23A\V27221123A01.D•
```



ANALYTICAL REPORT

Lab Number:	L2265935
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 416 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/07/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265935
Report Date: 12/07/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2265935-01	TG02-MW-18-10.0-10.5	SOIL	3144 W. PASSYUNK AVE	11/21/22 13:57	11/22/22
L2265935-02	TG02-MW-18-10.0-10.5D	SOIL	3144 W. PASSYUNK AVE	11/21/22 13:57	11/22/22
L2265935-03	TG02-MW-18-22.0-22.5	SOIL	3144 W. PASSYUNK AVE	11/21/22 14:20	11/22/22
L2265935-04	PB-84-14R-3.0-3.5	SOIL	3144 W. PASSYUNK AVE	11/22/22 12:49	11/22/22
L2265935-05	PB-84-14R-9.0-9.5	SOIL	3144 W. PASSYUNK AVE	11/22/22 13:02	11/22/22
L2265935-06	PB-84-14R-14.5-15.0	SOIL	3144 W. PASSYUNK AVE	11/22/22 13:09	11/22/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

Case Narrative (continued)

Report Submission

December 07, 2022: This final report includes the results of all requested analyses.

December 01, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2265935-02D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (157%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2265935-05: The surrogate recoveries are outside the acceptance criteria for 1,2-dichloroethane-d4 (139%), toluene-d8 (143%) and 4-bromofluorobenzene (422%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2265935-01 and -02: The sample has elevated detection limits due to the limited sample volume utilized during extraction, as required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative

Date: 12/07/22

ORGANICS

VOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-01 D2	Date Collected:	11/21/22 13:57
Client ID:	TG02-MW-18-10.0-10.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/29/22 15:43
Analyst: MKS
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	280		mg/kg	5.2	0.87	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	87		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	105		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-01 D	Date Collected:	11/21/22 13:57
Client ID:	TG02-MW-18-10.0-10.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260D
Analytical Date:	11/28/22 10:15
Analyst:	NLK
Percent Solids:	95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.0	0.10	10
Benzene	ND		mg/kg	0.26	0.086	10
Toluene	13.		mg/kg	0.52	0.28	10
1,2-Dibromoethane	ND		mg/kg	0.26	0.15	10
Ethylbenzene	32.		mg/kg	0.52	0.073	10
p/m-Xylene	160		mg/kg	1.0	0.29	10
o-Xylene	68.		mg/kg	0.52	0.15	10
Xylenes, Total	230		mg/kg	0.52	0.15	10
Isopropylbenzene	6.0		mg/kg	0.52	0.057	10
1,3,5-Trimethylbenzene	72.		mg/kg	1.0	0.10	10
1,2,4-Trimethylbenzene	210	E	mg/kg	1.0	0.17	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	121		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265935
Project Number: P044.001.002 **Report Date:** 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-02 D2
Client ID: TG02-MW-18-10.0-10.5D
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/21/22 13:57
Date Received: 11/22/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/29/22 15:17
Analyst: MKS
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Ethylbenzene	53.		mg/kg	1.4	0.20	20
p/m-Xylene	270		mg/kg	2.8	0.78	20
o-Xylene	110		mg/kg	1.4	0.40	20
Xylenes, Total	380		mg/kg	1.4	0.40	20
1,3,5-Trimethylbenzene	110		mg/kg	2.8	0.27	20
1,2,4-Trimethylbenzene	330		mg/kg	2.8	0.46	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	81		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	103		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265935
Project Number: P044.001.002 **Report Date:** 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-02 D
Client ID: TG02-MW-18-10.0-10.5D
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/21/22 13:57
Date Received: 11/22/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/28/22 10:42
Analyst: NLK
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.28	0.028	2
Benzene	0.11		mg/kg	0.070	0.023	2
Toluene	34.		mg/kg	0.14	0.076	2
1,2-Dibromoethane	ND		mg/kg	0.070	0.041	2
Ethylbenzene	76.	E	mg/kg	0.14	0.020	2
p/m-Xylene	240	E	mg/kg	0.28	0.078	2
o-Xylene	140	E	mg/kg	0.14	0.040	2
Isopropylbenzene	16.		mg/kg	0.14	0.015	2
1,3,5-Trimethylbenzene	130	E	mg/kg	0.28	0.027	2
1,2,4-Trimethylbenzene	210	E	mg/kg	0.28	0.046	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	**157**	Q	70-130
Dibromofluoromethane	88		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265935
Project Number: P044.001.002 **Report Date:** 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-04
Client ID: PB-84-14R-3.0-3.5
Sample Location: 3144 W. PASSYUNK AVE
Date Collected: 11/22/22 12:49
Date Received: 11/22/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 11/30/22 15:34
Analyst: JIC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0021	0.00021	1
Benzene	ND		mg/kg	0.00052	0.00017	1
Toluene	ND		mg/kg	0.0010	0.00057	1
1,2-Dibromoethane	ND		mg/kg	0.00052	0.00031	1
Ethylbenzene	ND		mg/kg	0.0010	0.00015	1
p/m-Xylene	ND		mg/kg	0.0021	0.00059	1
o-Xylene	ND		mg/kg	0.0010	0.00031	1
Xylenes, Total	ND		mg/kg	0.0010	0.00031	1
Isopropylbenzene	ND		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0021	0.00020	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0021	0.00035	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265935
Project Number: P044.001.002 **Report Date:** 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-05
Client ID: PB-84-14R-9.0-9.5
Sample Location: 3144 W. PASSYUNK AVE
Date Collected: 11/22/22 13:02
Date Received: 11/22/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/01/22 12:16
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.12	0.012	1
Benzene	0.052		mg/kg	0.031	0.010	1
Toluene	0.090		mg/kg	0.062	0.034	1
1,2-Dibromoethane	ND		mg/kg	0.031	0.018	1
Ethylbenzene	0.21		mg/kg	0.062	0.0088	1
p/m-Xylene	0.052	J	mg/kg	0.12	0.035	1
o-Xylene	0.10		mg/kg	0.062	0.018	1
Xylenes, Total	0.15	J	mg/kg	0.062	0.018	1
Isopropylbenzene	7.0		mg/kg	0.062	0.0068	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.12	0.012	1
1,2,4-Trimethylbenzene	0.60		mg/kg	0.12	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	**139**	Q	70-130
Toluene-d8	**143**	Q	70-130
4-Bromofluorobenzene	**422**	Q	70-130
Dibromofluoromethane	71		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2265935
Project Number: P044.001.002 **Report Date:** 12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/28/22 08:57
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1717105-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	90		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/29/22 13:07
Analyst: MKS

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1717180-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	90		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	121		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/30/22 09:52
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 04 Batch: WG1718015-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
1,2-Dibromoethane	ND		mg/kg	0.00050	0.00029
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	96		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/01/22 10:31
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1718152-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	87		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002
Lab Number: L2265935
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1717105-3 WG1717105-4								
Methyl tert butyl ether	96		99		66-130	3		30
Benzene	98		99		70-130	1		30
Toluene	100		100		70-130	0		30
1,2-Dibromoethane	96		99		70-130	3		30
Ethylbenzene	103		104		70-130	1		30
p/m-Xylene	101		102		70-130	1		30
o-Xylene	99		100		70-130	1		30
Isopropylbenzene	111		110		70-130	1		30
1,3,5-Trimethylbenzene	110		110		70-130	0		30
1,2,4-Trimethylbenzene	109		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	106		107		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	115		114		70-130
Dibromofluoromethane	92		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265935
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1717180-3 WG1717180-4								
Methyl tert butyl ether	74		67		66-130	10		30
Benzene	105		88		70-130	18		30
Toluene	106		90		70-130	16		30
1,2-Dibromoethane	82		71		70-130	14		30
Ethylbenzene	114		97		70-130	16		30
p/m-Xylene	119		101		70-130	16		30
o-Xylene	115		98		70-130	16		30
Isopropylbenzene	114		98		70-130	15		30
1,3,5-Trimethylbenzene	111		95		70-130	16		30
1,2,4-Trimethylbenzene	107		92		70-130	15		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	79		77		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	94		94		70-130
Dibromofluoromethane	92		88		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 04 Batch: WG1718015-3 WG1718015-4								
Methyl tert butyl ether	95		95		66-130	0		30
Benzene	96		87		70-130	10		30
Toluene	96		87		70-130	10		30
1,2-Dibromoethane	96		94		70-130	2		30
Ethylbenzene	98		89		70-130	10		30
p/m-Xylene	101		91		70-130	10		30
o-Xylene	101		92		70-130	9		30
Isopropylbenzene	96		87		70-130	10		30
1,3,5-Trimethylbenzene	98		88		70-130	11		30
1,2,4-Trimethylbenzene	98		89		70-130	10		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		102		70-130
Toluene-d8	100		99		70-130
4-Bromofluorobenzene	95		94		70-130
Dibromofluoromethane	97		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265935
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1718152-3 WG1718152-4								
Methyl tert butyl ether	98		95		66-130	3		30
Benzene	99		98		70-130	1		30
Toluene	100		100		70-130	0		30
1,2-Dibromoethane	96		95		70-130	1		30
Ethylbenzene	104		104		70-130	0		30
p/m-Xylene	100		100		70-130	0		30
o-Xylene	99		98		70-130	1		30
Isopropylbenzene	112		111		70-130	1		30
1,3,5-Trimethylbenzene	110		110		70-130	0		30
1,2,4-Trimethylbenzene	110		109		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		106		70-130
Toluene-d8	110		110		70-130
4-Bromofluorobenzene	118		117		70-130
Dibromofluoromethane	89		90		70-130

SEMIVOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-01	Date Collected:	11/21/22 13:57
Client ID:	TG02-MW-18-10.0-10.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	11/30/22 16:11
Analytical Date:	12/01/22 04:01		
Analyst:	LJG		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	12.		mg/kg	0.52	0.063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	81		30-120
4-Terphenyl-d14	79		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-02	Date Collected:	11/21/22 13:57
Client ID:	TG02-MW-18-10.0-10.5D	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	11/30/22 16:11
Analytical Date:	12/01/22 04:26		
Analyst:	LJG		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	10.		mg/kg	0.52	0.063	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	61		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	68		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-04	Date Collected:	11/22/22 12:49
Client ID:	PB-84-14R-3.0-3.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	11/23/22 14:11
Analytical Date:	11/23/22 23:39		
Analyst:	JG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.20	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	54		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	55		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-05	Date Collected:	11/22/22 13:02
Client ID:	PB-84-14R-9.0-9.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	11/23/22 14:11
Analytical Date:	11/23/22 23:47		
Analyst:	WR		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.14	J	mg/kg	0.19	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	59		18-120

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002
Lab Number: L2265935
Report Date: 12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 11/23/22 22:29
Analyst: JG

Extraction Method: EPA 3546
Extraction Date: 11/23/22 14:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 04-05 Batch: WG1715960-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	56		23-120
2-Fluorobiphenyl	67		30-120
4-Terphenyl-d14	71		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E	Extraction Method:	EPA 3546
Analytical Date:	12/01/22 08:22	Extraction Date:	11/30/22 16:11
Analyst:	IM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1717758-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		25-120
Phenol-d6	52		10-120
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	45		30-120
2,4,6-Tribromophenol	36		10-136
4-Terphenyl-d14	44		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-05 Batch: WG1715960-2 WG1715960-3								
Naphthalene	48		58		40-140	19		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	43		53		23-120
2-Fluorobiphenyl	49		61		30-120
4-Terphenyl-d14	48		62		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Lab Number: L2265935

Project Number: P044.001.002

Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1717758-2 WG1717758-3								
Naphthalene	65		62		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	73		70		25-120
Phenol-d6	72		70		10-120
Nitrobenzene-d5	72		69		23-120
2-Fluorobiphenyl	62		61		30-120
2,4,6-Tribromophenol	51		53		10-136
4-Terphenyl-d14	61		62		18-120

METALS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-01
Date Collected: 11/21/22 13:57
Client ID: TG02-MW-18-10.0-10.5
Date Received: 11/22/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.03		mg/kg	3.98	0.213	2	11/23/22 23:40	11/30/22 12:56	EPA 3050B	1,6010D	NTB

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-02
Date Collected: 11/21/22 13:57
Client ID: TG02-MW-18-10.0-10.5D
Date Received: 11/22/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	9.64		mg/kg	4.17	0.223	2	11/23/22 23:40	11/30/22 13:00	EPA 3050B	1,6010D	NTB

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01-02 Batch: WG1715836-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	11/23/22 23:40	11/26/22 12:06	1,6010D	MRC

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 Batch: WG1715836-2 SRM Lot Number: D113-540								
Lead, Total	93		-		72-128	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2265935

Report Date: 12/07/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1715836-3 QC Sample: L2265913-06 Client ID: MS Sample												
Lead, Total	4.96	43.7	64.2	**135**	Q	-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265935
Report Date: 12/07/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01-02 QC Batch ID: WG1715836-4 QC Sample: L2265913-06 Client ID: DUP Sample						
Lead, Total	4.96	6.10	mg/kg	**21**	Q	20

INORGANICS
&
MISCELLANEOUS

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2265935
Project Number:	P044.001.002	**Report Date:**	12/07/22

SAMPLE RESULTS

Lab ID:	L2265935-01	Date Collected:	11/21/22 13:57
Client ID:	TG02-MW-18-10.0-10.5	Date Received:	11/22/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	95.0		%	0.100	NA	1	-	11/23/22 13:21	121,2540G	MF

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-02
Date Collected: 11/21/22 13:57
Client ID: TG02-MW-18-10.0-10.5D
Date Received: 11/22/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.8		%	0.100	NA	1	-	11/23/22 13:21	121,2540G	MF

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-04
Date Collected: 11/22/22 12:49
Client ID: PB-84-14R-3.0-3.5
Date Received: 11/22/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	82.4		%	0.100	NA	1	-	11/23/22 13:21	121,2540G	MF

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2265935
Project Number: P044.001.002
Report Date: 12/07/22

SAMPLE RESULTS

Lab ID: L2265935-05
Date Collected: 11/22/22 13:02
Client ID: PB-84-14R-9.0-9.5
Date Received: 11/22/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	85.9		%	0.100	NA	1	-	11/23/22 13:21	121,2540G	MF

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2265935
Report Date: 12/07/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02,04-05 QC Batch ID: WG1715918-1 QC Sample: L2265824-01 Client ID: DUP Sample						
Solids, Total	94.7	94.8	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent
B	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2265935-01A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2265935-01B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-01C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-01D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		TS(7)
L2265935-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2265935-01F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2265935-02A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2265935-02B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-02C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-02D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		TS(7)
L2265935-02E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		PB-TI(180)
L2265935-02F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2265935-03A	Vial MeOH preserved	A	NA		2.2	Y	Absent		HOLD-8260HLW(14)
L2265935-03B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	HOLD-8260HLW(14)
L2265935-03C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	HOLD-8260HLW(14)
L2265935-03D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		HOLD-WETCHEM()
L2265935-03E	Glass 60mL/2oz unpreserved	A	NA		2.2	Y	Absent		HOLD-METAL(180)
L2265935-03F	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		HOLD-8270(14)
L2265935-04A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2265935-04B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-04C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-04D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2265935-04E	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2265935-05A	Vial MeOH preserved	A	NA		2.2	Y	Absent		PA-8260HLW(14)
L2265935-05B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-05C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	PA-8260HLW(14)
L2265935-05D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		TS(7)
L2265935-05E	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		PA-PAH(14)
L2265935-06A	Vial MeOH preserved	A	NA		2.2	Y	Absent		HOLD-8260HLW(14)
L2265935-06B	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	HOLD-8260HLW(14)
L2265935-06C	Vial water preserved	A	NA		2.2	Y	Absent	23-NOV-22 06:23	HOLD-8260HLW(14)
L2265935-06D	Plastic 120ml unpreserved	A	NA		2.2	Y	Absent		HOLD-WETCHEM()
L2265935-06E	Glass 120ml/4oz unpreserved	A	NA		2.2	Y	Absent		HOLD-8270(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:12072209:36

CHAIN OF CUSTODY

PAGE ___ OF ___

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 11/23/22

ALPHA Job #: L2265935

Project Information

Project Name: Former Phila Refinery AST Closure
Project Location: 3144 W Passyunk
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St
Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS: 8260 - Benzene, Toluene, Ethyl Benzene, Xylenes (total), 1,2,4/1,3,5-TMB, Cumene, 1,2-DBA, MTBE | 8270 - Naphthalene | 6010 - Lead

SAMPLE HANDLING
Filtration ___
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260		8270	6010	Sample Specific Comments	TOTAL # BOTTLES
65935-01	~~MW-18~~ T602-MW-18-10.0-10.5	11/21/22	1357	SO	SMM	X		X	X	Analyze	
02	T602-MW-18-10.0-10.5D	11/21/22	1357	SO	SMM	X		X	X	Analyze	
03	T602-MW-18-22.0-22.5	11/21/22	1420	SO	SMM	H		H	H	Hold	
04	PB-84-14R-3.0-3.5	11/22/22	1249	SO	SMM	X		X		Analyze	
05	PB-84-14R-9.0-9.5	11/22/22	1302	SO	SMM	X		X		Analyze	
06	PB-84-14R-14.5-15.0	11/22/22	1309	SO	SMM	H		H		Hold	

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/22/22 1545	STW AAL	11/22/22 1546
STW	11/22/22 /800	AAL	11/22/22
AAL	11/22 2100	[signature]	11-22-22 2100

EA PR 11/23/22 0215

11/23/22 0215

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

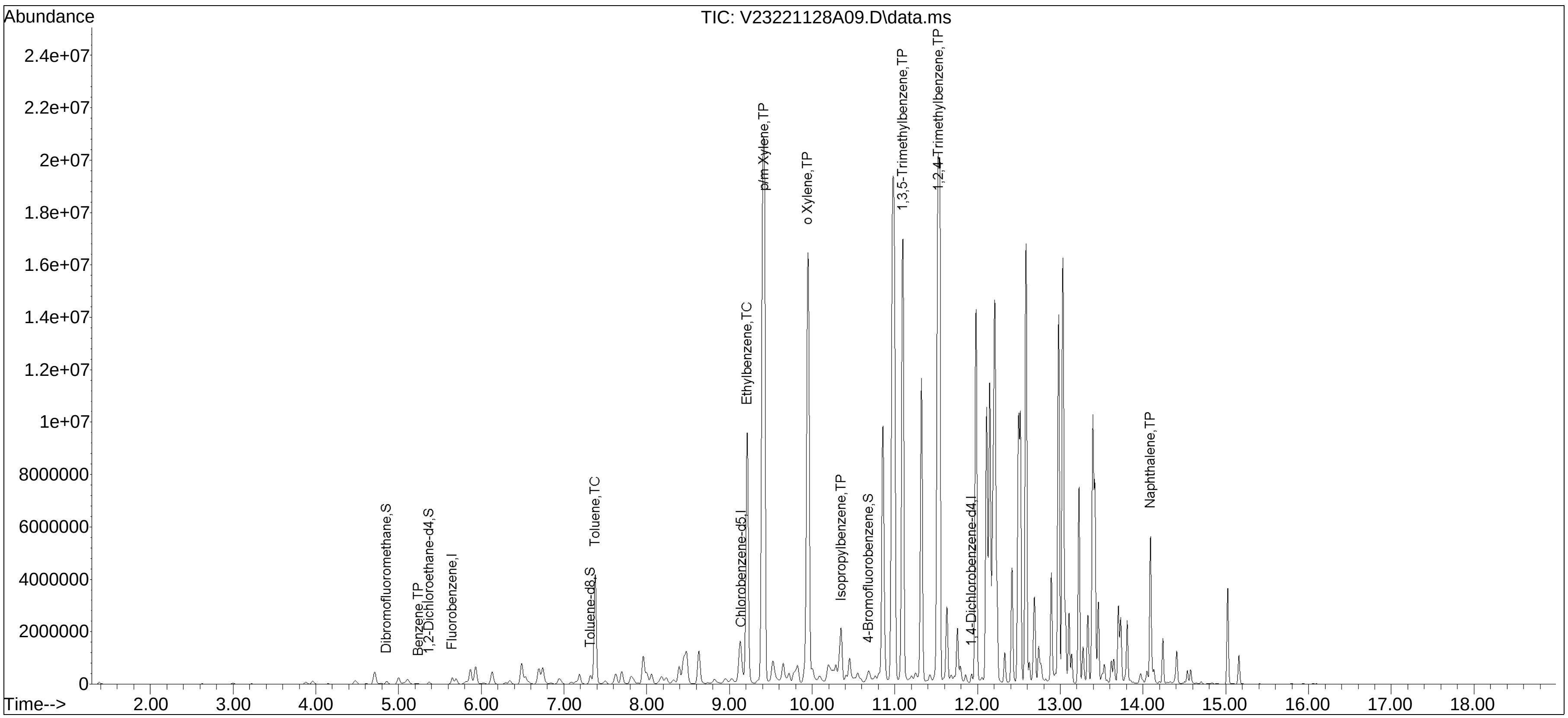
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\221128A\
Data File : V23221128A09.D
Acq On : 28 Nov 2022 10:42 am
Operator : VOA123:NLK
Sample : l2265935-02d,31h,3.94,5,0.05,,a,r2f
Misc : WG1717105,ICAL19503
ALS Vial : 9 Sample Multiplier: 1

Quant Time: Nov 29 10:15:26 2022
Quant Method : I:\VOLATILES\VOA123\2022\221128A\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list28A\V23221128A01.D•

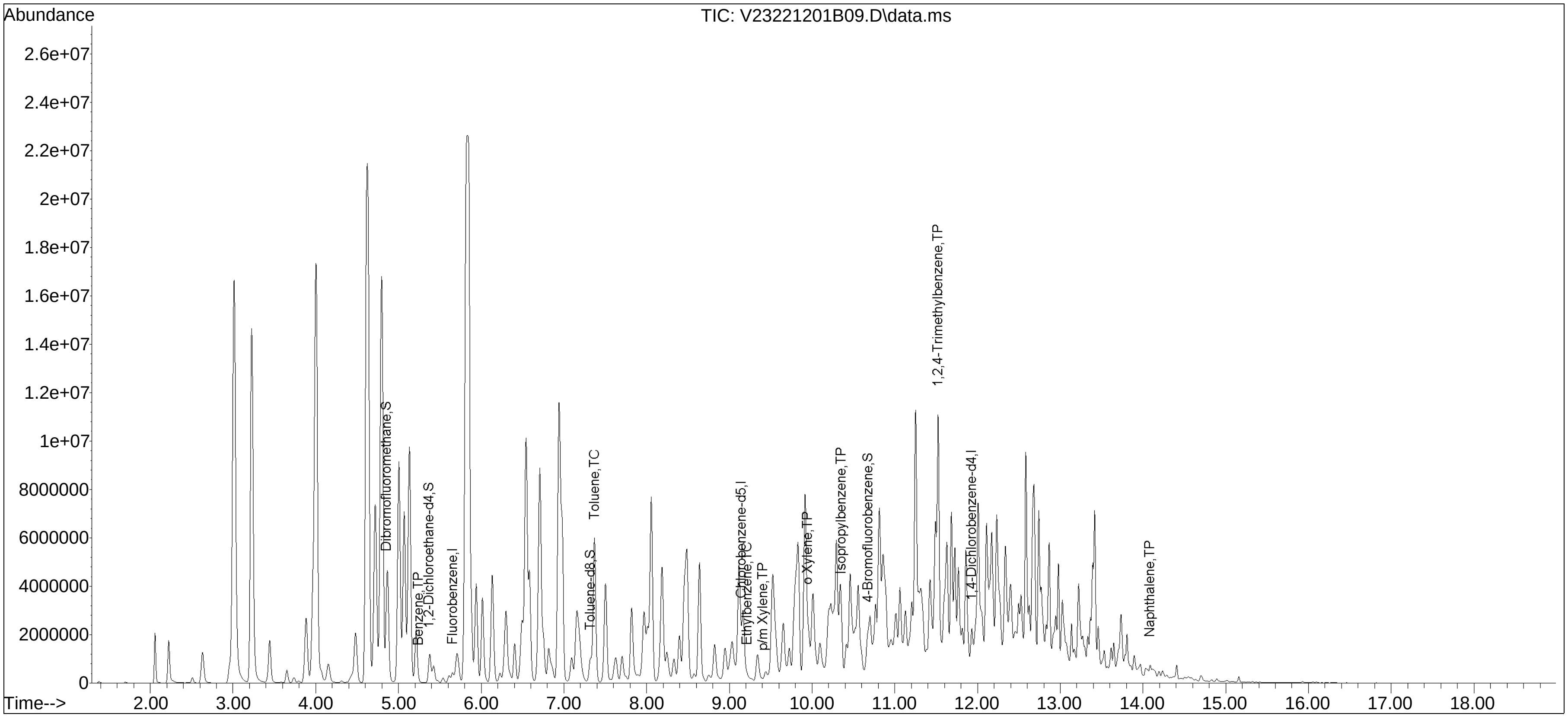


Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA123\2022\221201B\
Data File : V23221201B09.D
Acq On   : 01 Dec 2022 12:16 pm
Operator : VOA123:JIC
Sample   : l2265935-05,31h,5.38,5,0.100,,a,r2f
Misc   : WG1718152,ICAL19503
ALS Vial : 9   Sample Multiplier: 1

Quant Time: Dec 01 12:42:08 2022
Quant Method : I:\VOLATILES\VOA123\2022\221201B\V123_221117A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Fri Nov 18 09:41:43 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list01B\V23221201B01.D•



ANALYTICAL REPORT

Lab Number:	L2266250
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 416 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/12/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266250
Report Date: 12/12/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2266250-01	TG02-MW-06-19.5-20.0	SOIL	3144 W. PASSYUNK AVE	11/23/22 08:55	11/23/22
L2266250-02	TB-221123	WATER	3144 W. PASSYUNK AVE	11/23/22 00:00	11/23/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

December 12, 2022: This final report includes the results of the Volatile Organics and Semivolatile Organics analyses performed on L2266250-01.

December 01, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Michelle M. Morris

Title: Technical Director/Representative Date: 12/12/22

ORGANICS

VOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266250
Project Number:	P044.001.002	**Report Date:**	12/12/22

SAMPLE RESULTS

Lab ID:	L2266250-01	Date Collected:	11/23/22 08:55
Client ID:	TG02-MW-06-19.5-20.0	Date Received:	11/23/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:	
Matrix:	Soil
Analytical Method:	1,8260D
Analytical Date:	12/07/22 13:03
Analyst:	AJK
Percent Solids:	77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	11.		mg/kg	0.033	0.011	1
Toluene	0.061	J	mg/kg	0.066	0.036	1
1,2-Dibromoethane	ND		mg/kg	0.033	0.019	1
Ethylbenzene	0.17		mg/kg	0.066	0.0093	1
p/m-Xylene	0.13		mg/kg	0.13	0.037	1
o-Xylene	ND		mg/kg	0.066	0.019	1
Xylenes, Total	0.13		mg/kg	0.066	0.019	1
Isopropylbenzene	0.019	J	mg/kg	0.066	0.0072	1
1,3,5-Trimethylbenzene	0.047	J	mg/kg	0.13	0.013	1
1,2,4-Trimethylbenzene	0.25		mg/kg	0.13	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	99		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266250
Project Number: P044.001.002 **Report Date:** 12/12/22

SAMPLE RESULTS

Lab ID: L2266250-02 Date Collected: 11/23/22 00:00
Client ID: TB-221123 Date Received: 11/23/22
Sample Location: 3144 W. PASSYUNK AVE Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 11/30/22 19:22
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	117		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266250
Project Number:	P044.001.002	**Report Date:**	12/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/30/22 17:45
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 02 Batch: WG1718191-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	115		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266250
Project Number:	P044.001.002	**Report Date:**	12/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/07/22 08:55
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1720850-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	118		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266250
Project Number: P044.001.002
Report Date: 12/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 02 Batch: WG1718191-3 WG1718191-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		110		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		103		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266250
Report Date: 12/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1720850-3 WG1720850-4								
Methyl tert butyl ether	121		110		66-130	10		30
Benzene	122		118		70-130	3		30
Toluene	106		103		70-130	3		30
1,2-Dibromoethane	99		100		70-130	1		30
Ethylbenzene	108		105		70-130	3		30
p/m-Xylene	107		104		70-130	3		30
o-Xylene	101		100		70-130	1		30
Isopropylbenzene	97		96		70-130	1		30
1,3,5-Trimethylbenzene	102		100		70-130	2		30
1,2,4-Trimethylbenzene	102		100		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	116		113		70-130
Toluene-d8	99		97		70-130
4-Bromofluorobenzene	90		90		70-130
Dibromofluoromethane	106		102		70-130

SEMIVOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266250
Project Number:	P044.001.002	**Report Date:**	12/12/22

SAMPLE RESULTS

Lab ID:	L2266250-01	Date Collected:	11/23/22 08:55
Client ID:	TG02-MW-06-19.5-20.0	Date Received:	11/23/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	12/05/22 17:40
Analytical Date:	12/06/22 19:53		
Analyst:	CMM		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.081	J	mg/kg	0.21	0.026	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	56		30-120
4-Terphenyl-d14	58		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266250
Project Number:	P044.001.002	**Report Date:**	12/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E	Extraction Method:	EPA 3546
Analytical Date:	12/05/22 23:31	Extraction Date:	12/05/22 15:26
Analyst:	IM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01 Batch: WG1719569-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	87		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266250
Project Number: P044.001.002
Report Date: 12/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01 Batch: WG1719569-2 WG1719569-3								
Naphthalene	81		81		40-140	0		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	115		120		23-120
2-Fluorobiphenyl	89		88		30-120
4-Terphenyl-d14	85		84		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266250
Project Number: P044.001.002
Report Date: 12/12/22

SAMPLE RESULTS

Lab ID: L2266250-01
Date Collected: 11/23/22 08:55
Client ID: TG02-MW-06-19.5-20.0
Date Received: 11/23/22
Sample Location: 3144 W. PASSYUNK AVE
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.9		%	0.100	NA	1	-	12/06/22 10:37	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2266250

Report Date: 12/12/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1719808-1 QC Sample: L2268051-01 Client ID: DUP Sample						
Solids, Total	99.0	98.6	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	*Custody Seal*
A	Absent

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2266250-01A	Vial MeOH preserved	A	NA		3.8	Y	Absent		PA-8260HLW(14)
L2266250-01B	Vial water preserved	A	NA		3.8	Y	Absent	24-NOV-22 02:52	PA-8260HLW(14)
L2266250-01C	Vial water preserved	A	NA		3.8	Y	Absent	24-NOV-22 02:52	PA-8260HLW(14)
L2266250-01D	Plastic 2oz unpreserved for TS	A	NA		3.8	Y	Absent		TS(7)
L2266250-01E	Glass 120ml/4oz unpreserved	A	NA		3.8	Y	Absent		PA-PAH(14)
L2266250-02A	Vial HCl preserved	A	NA		3.8	Y	Absent		PA-8260(14)
L2266250-02B	Vial HCl preserved	A	NA		3.8	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:12122212:38

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 11/23/22

ALPHA Job #: L2266250

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St
Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refinery AST Closure
Project Location: 3144 W. Passyunk
Project #: 8044.001.002
Project Manager:
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS: 8260 - Benzene, Toluene, Ethylbenzene, Xylenes (total), 1,2,4/1,3,5 TMB, Cumene, 1,2 DBA, MTBE; 8270 - naphthalene

SAMPLE HANDLING
Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8270	Sample Specific Comments	TOTAL # BOTTLES
66250-01	TG02-MW-06-19.5-200	11/23/22	855	SO	SMM	H	H	Hold	
-02	TB-221123	11/23/22	905	SO	SMM	X		Analyze	

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/23/22 1130	S AAL	11/23/22 1130
SC A	11/23/22 1400	[signature]	11/23 1400
[signature] AAL	11-23 1700	[signature]	11-23-22 1700

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

[signature] 11/23/22 21:45

[signature] 11/23/22 2145

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2266693
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 416 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/09/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266693
Report Date: 12/09/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2266693-01	TG02-MW-07-23.5-24.0	SOIL	3144 W. PASSYUNK AVE	11/28/22 09:50	11/29/22
L2266693-02	TG02-MW-13-13.5-14.0	SOIL	3144 W. PASSYUNK AVE	11/28/22 10:45	11/29/22
L2266693-03	TG02-MW-13-24.5-25.0	SOIL	3144 W. PASSYUNK AVE	11/28/22 11:00	11/29/22
L2266693-04	TG02-MW-08-12.5-13.0	SOIL	3144 W. PASSYUNK AVE	11/28/22 14:40	11/29/22
L2266693-05	TG02-MW-08-25.5-26.0	SOIL	3144 W. PASSYUNK AVE	11/28/22 14:50	11/29/22
L2266693-06	TB-221129	WATER	3144 W. PASSYUNK AVE	11/29/22 00:00	11/29/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

December 09, 2022: This final report includes the results of all requested analyses.

December 06, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2266693-05: At the client's request, the Volatile Organics and Semivolatile Organics analyses were performed.

Volatile Organics

L2266693-04D: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (143%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Semivolatile Organics

L2266693-04D: The sample has an elevated detection limit due to the dilution required by the sample matrix.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 12/09/22

ORGANICS

VOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266693
Project Number:	P044.001.002	**Report Date:**	12/09/22

SAMPLE RESULTS

Lab ID:	L2266693-04 D	Date Collected:	11/28/22 14:40
Client ID:	TG02-MW-08-12.5-13.0	Date Received:	11/29/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/05/22 15:18
Analyst: MKS
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.2	0.12	10
Benzene	1.1		mg/kg	0.30	0.10	10
Toluene	ND		mg/kg	0.61	0.33	10
1,2-Dibromoethane	ND		mg/kg	0.30	0.18	10
Ethylbenzene	0.26	J	mg/kg	0.61	0.086	10
p/m-Xylene	ND		mg/kg	1.2	0.34	10
o-Xylene	ND		mg/kg	0.61	0.18	10
Xylenes, Total	ND		mg/kg	0.61	0.18	10
Isopropylbenzene	15.		mg/kg	0.61	0.066	10
1,3,5-Trimethylbenzene	7.5		mg/kg	1.2	0.12	10
1,2,4-Trimethylbenzene	150		mg/kg	1.2	0.20	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	**143**	Q	70-130
Dibromofluoromethane	103		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266693

Project Number: P044.001.002 **Report Date:** 12/09/22

SAMPLE RESULTS

Lab ID: L2266693-05 D2
Client ID: TG02-MW-08-25.5-26.0
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/28/22 14:50
Date Received: 11/29/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/05/22 15:41
Analyst: MKS
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.036	J	mg/kg	0.22	0.022	2
Benzene	0.091		mg/kg	0.054	0.018	2
Toluene	3.3		mg/kg	0.11	0.059	2
1,2-Dibromoethane	ND		mg/kg	0.054	0.032	2
Ethylbenzene	8.9		mg/kg	0.11	0.015	2
p/m-Xylene	40.		mg/kg	0.22	0.061	2
o-Xylene	15.		mg/kg	0.11	0.032	2
Xylenes, Total	55.		mg/kg	0.11	0.032	2
Isopropylbenzene	1.4		mg/kg	0.11	0.012	2
1,3,5-Trimethylbenzene	13.		mg/kg	0.22	0.021	2
1,2,4-Trimethylbenzene	40.	E	mg/kg	0.22	0.036	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	93		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266693
Project Number:	P044.001.002	**Report Date:**	12/09/22

SAMPLE RESULTS

Lab ID:	L2266693-05 D	Date Collected:	11/28/22 14:50
Client ID:	TG02-MW-08-25.5-26.0	Date Received:	11/29/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/01/22 19:39
Analyst: JIC
Percent Solids: 95%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
1,2,4-Trimethylbenzene	46.		mg/kg	1.1	0.18	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266693

Project Number: P044.001.002 **Report Date:** 12/09/22

SAMPLE RESULTS

Lab ID:	L2266693-06	Date Collected:	11/29/22 00:00
Client ID:	TB-221129	Date Received:	11/29/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 11/30/22 20:21
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	115		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266693

Project Number: P044.001.002 **Report Date:** 12/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 11/30/22 17:45
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06 Batch: WG1718191-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	115		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	115		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266693
Project Number:	P044.001.002	**Report Date:**	12/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/01/22 10:31
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 05 Batch: WG1718623-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	112		70-130
Toluene-d8	93		70-130
4-Bromofluorobenzene	92		70-130
Dibromofluoromethane	108		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266693
Project Number: P044.001.002 **Report Date:** 12/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/05/22 11:05
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04-05 Batch: WG1719822-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266693
Report Date: 12/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06 Batch: WG1718191-3 WG1718191-4								
Methyl tert butyl ether	100		100		63-130	0		20
Benzene	110		110		70-130	0		20
Toluene	110		110		70-130	0		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	110		110		70-130	0		20
o-Xylene	105		110		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		103		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	102		102		70-130
Dibromofluoromethane	99		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266693
Report Date: 12/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 05 Batch: WG1718623-3 WG1718623-4								
Methyl tert butyl ether	85		88		66-130	3		30
Benzene	90		92		70-130	2		30
Toluene	92		94		70-130	2		30
1,2-Dibromoethane	87		87		70-130	0		30
Ethylbenzene	96		97		70-130	1		30
p/m-Xylene	98		99		70-130	1		30
o-Xylene	97		98		70-130	1		30
Isopropylbenzene	96		99		70-130	3		30
1,3,5-Trimethylbenzene	95		98		70-130	3		30
1,2,4-Trimethylbenzene	94		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	88		87		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	93		94		70-130
Dibromofluoromethane	88		89		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266693
Report Date: 12/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04-05 Batch: WG1719822-3 WG1719822-4								
Methyl tert butyl ether	88		90		66-130	2		30
Benzene	89		90		70-130	1		30
Toluene	90		90		70-130	0		30
1,2-Dibromoethane	85		88		70-130	3		30
Ethylbenzene	91		90		70-130	1		30
p/m-Xylene	94		91		70-130	3		30
o-Xylene	90		89		70-130	1		30
Isopropylbenzene	90		92		70-130	2		30
1,3,5-Trimethylbenzene	91		91		70-130	0		30
1,2,4-Trimethylbenzene	88		88		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	89		90		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	94		96		70-130
Dibromofluoromethane	94		94		70-130

SEMIVOLATILES

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2266693
Project Number: P044.001.002 **Report Date:** 12/09/22

SAMPLE RESULTS

Lab ID: L2266693-04 D
Client ID: TG02-MW-08-12.5-13.0
Sample Location: 3144 W. PASSYUNK AVE

Date Collected: 11/28/22 14:40
Date Received: 11/29/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 12/04/22 14:50
Analyst: IM
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 11/30/22 19:30

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	18.		mg/kg	2.0	0.24	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**172**	Q	23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	51		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266693
Project Number:	P044.001.002	**Report Date:**	12/09/22

SAMPLE RESULTS

Lab ID:	L2266693-05 D	Date Collected:	11/28/22 14:50
Client ID:	TG02-MW-08-25.5-26.0	Date Received:	11/29/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	12/05/22 15:26
Analytical Date:	12/06/22 03:30		
Analyst:	IM		
Percent Solids:	95%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	36.		mg/kg	1.7	0.21	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	111		23-120
2-Fluorobiphenyl	117		30-120
4-Terphenyl-d14	108		18-120

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266693
Project Number: P044.001.002
Report Date: 12/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 12/01/22 08:22
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 11/30/22 16:11

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1717758-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	53		25-120
Phenol-d6	52		10-120
Nitrobenzene-d5	51		23-120
2-Fluorobiphenyl	45		30-120
2,4,6-Tribromophenol	36		10-136
4-Terphenyl-d14	44		18-120

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266693
Project Number: P044.001.002
Report Date: 12/09/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 12/05/22 23:31
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 12/05/22 15:26

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 05 Batch: WG1719569-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	82		30-120
4-Terphenyl-d14	87		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2266693
Report Date: 12/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1717758-2 WG1717758-3								
Naphthalene	65		62		40-140	5		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	73		70		25-120
Phenol-d6	72		70		10-120
Nitrobenzene-d5	72		69		23-120
2-Fluorobiphenyl	62		61		30-120
2,4,6-Tribromophenol	51		53		10-136
4-Terphenyl-d14	61		62		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266693
Project Number: P044.001.002
Report Date: 12/09/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 05 Batch: WG1719569-2 WG1719569-3								
Naphthalene	81		81		40-140	0		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	115		120		23-120
2-Fluorobiphenyl	89		88		30-120
4-Terphenyl-d14	85		84		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2266693
Project Number: P044.001.002
Report Date: 12/09/22

SAMPLE RESULTS

Lab ID: L2266693-04
Client ID: TG02-MW-08-12.5-13.0
Sample Location: 3144 W. PASSYUNK AVE
Date Collected: 11/28/22 14:40
Date Received: 11/29/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	84.0		%	0.100	NA	1	-	11/30/22 11:43	121,2540G	RI

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2266693
Project Number:	P044.001.002	**Report Date:**	12/09/22

SAMPLE RESULTS

Lab ID:	L2266693-05	Date Collected:	11/28/22 14:50
Client ID:	TG02-MW-08-25.5-26.0	Date Received:	11/29/22
Sample Location:	3144 W. PASSYUNK AVE	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	94.7		%	0.100	NA	1	-	12/01/22 11:38	121,2540G	RI

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2266693

Report Date: 12/09/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 04 QC Batch ID: WG1717455-1 QC Sample: L2266713-03 Client ID: DUP Sample						
Solids, Total	85.7	85.6	%	0		20
General Chemistry - Westborough Lab Associated sample(s): 05 QC Batch ID: WG1717986-1 QC Sample: L2267048-01 Client ID: DUP Sample						
Solids, Total	55.3	55.9	%	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2266693-01A	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-01B	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-01C	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-01D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		HOLD-WETCHEM()
L2266693-01E	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		HOLD-8270(14)
L2266693-01X	Vial MeOH preserved split	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-01Y	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)
L2266693-01Z	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)
L2266693-02A	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-02B	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-02C	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-02D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		HOLD-WETCHEM()
L2266693-02E	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		HOLD-8270(14)
L2266693-02X	Vial MeOH preserved split	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-02Y	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)
L2266693-02Z	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)
L2266693-03A	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-03B	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-03C	5 gram Encore Sampler	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-03D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		HOLD-WETCHEM()
L2266693-03E	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		HOLD-8270(14)
L2266693-03X	Vial MeOH preserved split	A	NA		2.0	Y	Absent		HOLD-8260HLW(14)
L2266693-03Y	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2266693-03Z	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	HOLD-8260HLW(14)
L2266693-04A	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-04B	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-04C	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-04D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		TS(7)
L2266693-04E	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2266693-04X	Vial MeOH preserved split	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-04Y	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	PA-8260HLW(14)
L2266693-04Z	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	PA-8260HLW(14)
L2266693-05A	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-05B	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-05C	5 gram Encore Sampler	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-05D	Plastic 2oz unpreserved for TS	A	NA		2.0	Y	Absent		TS(7)
L2266693-05E	Glass 120ml/4oz unpreserved	A	NA		2.0	Y	Absent		PA-PAH(14)
L2266693-05X	Vial MeOH preserved split	A	NA		2.0	Y	Absent		PA-8260HLW(14)
L2266693-05Y	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	PA-8260HLW(14)
L2266693-05Z	Vial Water preserved split	A	NA		2.0	Y	Absent	30-NOV-22 07:31	PA-8260HLW(14)
L2266693-06A	Vial HCl preserved	A	NA		2.0	Y	Absent		PA-8260(14)
L2266693-06B	Vial HCl preserved	A	NA		2.0	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 11/30/22

ALPHA Job #: L2266693

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St
Conshohocken, PA 19428
Phone: 215-297-3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refinery AST Closure
Project Location: 3144 W Passyunk
Project #: P044.001.002
Project Manager:
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS: 8260 - Benzene, Toluene, Ethylbenzene, Xylenes (total), 1,2,4 / 1,3,5 TMB, Cumene, 1,2 DBA, MTBE; 8270 - Naphthalene

SAMPLE HANDLING
Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8270	Sample Specific Comments	TOTAL # BOTTLES
66693-01	TG02-MW-07-23.5-24.0	11/28/22	950	SO	SMM	H	H	Hold	
02	TG02-MW-13-13.5-14.0	11/28/22	1045	SO	SMM	H	H	Hold	
03	TG02-MW-13-24.5-25.0	11/28/22	1100	SO	SMM	H	H	Hold	
04	TG02-MW-08-12.5-13.0	11/28/22	1440	SO	SMM	X	X	Analyze	
05	TG02-MW-08-25.5-26.0	11/28/22	1450	SO	SMM	H	H	Hold	
06	TB-221129	11/29/22	853	TB	SMM	X		Analyze	

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	11/29/22 1415	[signature] AAL	11/29/22 14:15
SAD	11/29/22 1500	[signature]	11/29/22 1500
[signature] AAL	11/29/22 2100	[signature]	11/29-22 2100
	11/30/22 00:50		

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

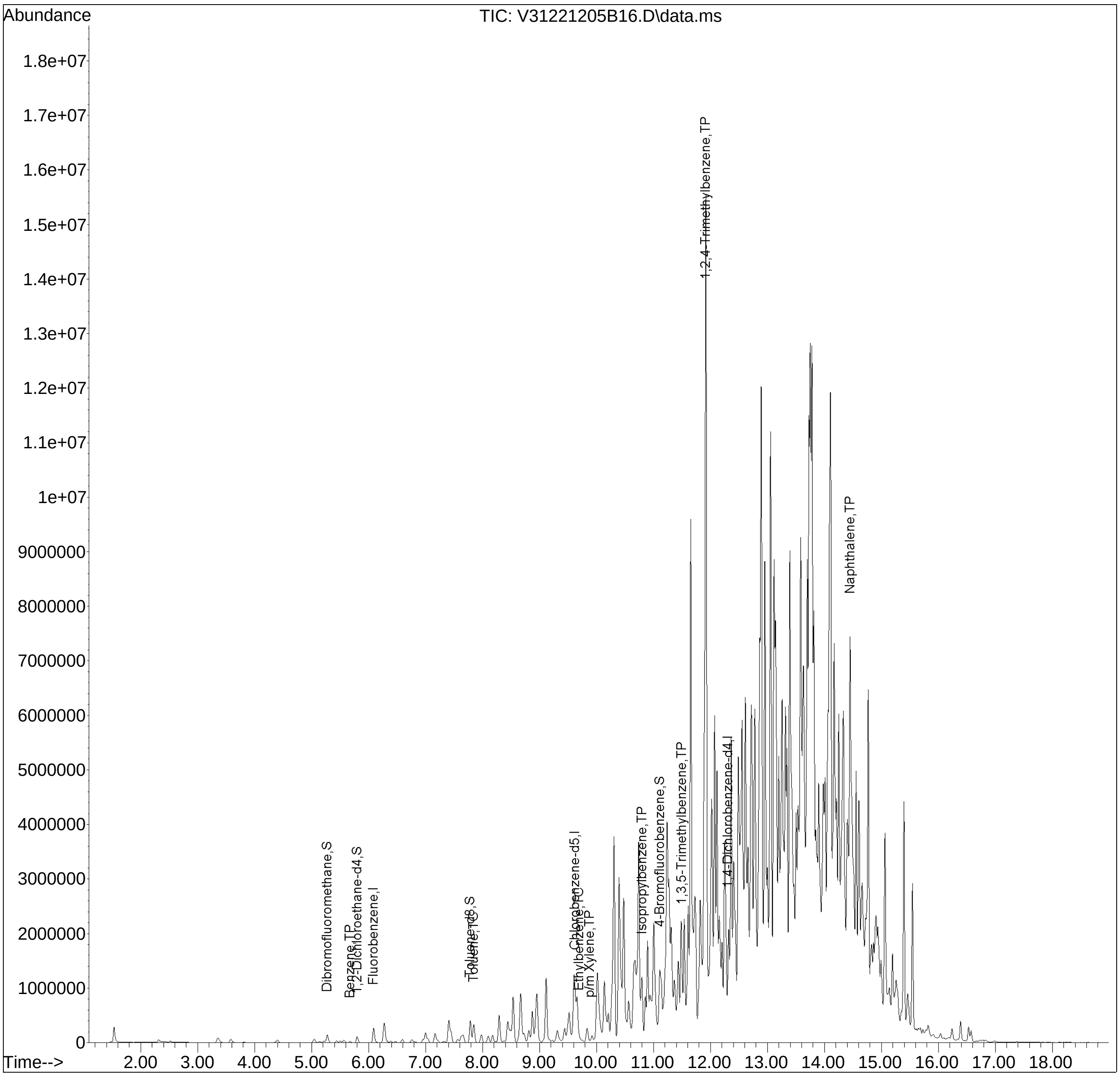
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA131\2022\221205B\
Data File : V31221205B16.D
Acq On : 05 Dec 2022 03:18 pm
Operator : VOA131:MKS
Sample : L2266693-04D,31H,5.79,5,0.01,,X,R2F
Misc : WG1719822,ICAL19531
ALS Vial : 16 Sample Multiplier: 1

Quant Time: Dec 05 16:10:49 2022
Quant Method : I:\VOLATILES\VOA131\2022\221205B\V31_221128A_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Nov 29 14:00:36 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list05B\V31221205B01.D•



ANALYTICAL REPORT

Lab Number:	L2267413
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/12/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2267413
Report Date: 12/12/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2267413-01	TG02-MW-09-25.5-26.0	SOIL	Not Specified	11/30/22 09:16	12/01/22
L2267413-02	TG02-MW-16-0.0-0.5	SOIL	Not Specified	12/01/22 08:59	12/01/22
L2267413-03	TG02-MW-16-5.0-5.5	SOIL	Not Specified	12/01/22 09:26	12/01/22
L2267413-04	TG02-MW-16-14.5-15.0	SOIL	Not Specified	12/01/22 09:45	12/01/22
L2267413-05	TG02-MW-15-14.5-15.0	SOIL	Not Specified	12/01/22 10:15	12/01/22
L2267413-06	TB-221201	WATER	Not Specified	12/01/22 00:00	12/01/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

December 12, 2022: This final report includes the results of all requested analyses.

December 08, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 12/12/22

ORGANICS

VOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2267413
Project Number:	P044.001.002	**Report Date:**	12/12/22

SAMPLE RESULTS

Lab ID:	L2267413-06	Date Collected:	12/01/22 00:00
Client ID:	TB-221201	Date Received:	12/01/22
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/05/22 09:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	103		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2267413
Project Number:	P044.001.002	**Report Date:**	12/12/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/05/22 08:25
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 06 Batch: WG1719787-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002
Lab Number: L2267413
Report Date: 12/12/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 06 Batch: WG1719787-3 WG1719787-4								
Methyl tert butyl ether	90		92		63-130	2		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	96		98		70-130	2		20
Ethylbenzene	99		100		70-130	1		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	102		104		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	96		96		70-130

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2267413-01A	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-01B	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-01C	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-01D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2267413-01E	Metals Only-Glass 60mL/2oz unpreserved	A	NA		2.7	Y	Absent		HOLD-METAL(180)
L2267413-01F	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2267413-01X	Vial MeOH preserved split	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-01Y	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-01Z	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-02A	Vial MeOH preserved	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-02B	Vial water preserved	A	NA		2.7	Y	Absent	02-DEC-22 07:38	HOLD-8260HLW(14)
L2267413-02C	Vial water preserved	A	NA		2.7	Y	Absent	02-DEC-22 07:38	HOLD-8260HLW(14)
L2267413-02D	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-WETCHEM(),HOLD-8270(14)
L2267413-03A	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-03B	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-03C	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-03D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2267413-03E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2267413-03X	Vial MeOH preserved split	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-03Y	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-03Z	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-04A	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-04B	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2267413-04C	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-04D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2267413-04E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2267413-04X	Vial MeOH preserved split	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-04Y	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-04Z	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-05A	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-05B	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-05C	5 gram Encore Sampler	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-05D	Plastic 2oz unpreserved for TS	A	NA		2.7	Y	Absent		HOLD-WETCHEM()
L2267413-05E	Glass 120ml/4oz unpreserved	A	NA		2.7	Y	Absent		HOLD-8270(14)
L2267413-05X	Vial MeOH preserved split	A	NA		2.7	Y	Absent		HOLD-8260HLW(14)
L2267413-05Y	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-05Z	Vial Water preserved split	A	NA		2.7	Y	Absent	02-DEC-22 07:56	HOLD-8260HLW(14)
L2267413-06A	Vial HCl preserved	A	NA		2.7	Y	Absent		PA-8260(14)
L2267413-06B	Vial HCl preserved	A	NA		2.7	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/2/22

ALPHA Job #: L2267413 ~~L2249C04~~

Project Information

Project Name: Former Phila Refinery AST Closure

Project Location:

Project #: P0-14.001.002

Project Manager: Nick Scala

ALPHA Quote #:

Client Information

Client: Terraphase Engineering

Address: 1100 E Hector St, Conshohocken, PA 19428

Phone: 215 297 3502

Fax:

Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Turn-Around Time

☐ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS: 8260 - Benzene, Toluene, Ethyl Benzene, Xylenes(total), 1,2,4/1,3,5-TMB, Cumene, 1,2-DBA, MTBE | 8270 - Naphthalene | 6010 - Lead

SAMPLE HANDLING: Filtration ____ ☐ Done ☐ Not needed ☐ Lab to do; Preservation ☐ Lab to do (Please specify below)

Shrum/Mott 12/01

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260		8270	6010	Sample Specific Comments
67413-01	TG02-MW-09-25.5-26.0	11/30/22	916	SO	SMM	H		H	H	Hold - High PID readings - Potentially Hazardous
-02	TG02-MW-16-0.0-0.5	12/01/22	859	SO	SMH	H		H		Hold
-03	TG02-MW-16-5.0-5.5	12/01/22	926	SO	SMM	H		H		Hold
-04	TG02-MW-16-14.5-15.0	12/01/22	945	SO	SMM	H		H		Hold
-05	TG02-MW-15-14.5-15.0	12/01/22	1015	SO	SMM	H		H		Hold
-06	TB-221201	12/01/22	1059	SO	SMM	X				Analyze

Shrum/Mott 12/01

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
Shrum/Mott	12/01/22 1440	STA AAL	12/1/22 1440
STA AAL	12/1/22 1830	[illegible] AAL	12/1/22 1830
[illegible] AAL	12/1/22 2100	[illegible]	12/1/22 2100
12/2/22 0125			

EQ AAL 12/2/22 0125

ANALYTICAL REPORT

Lab Number:	L2267739
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	Not Specified
Project Number:	P044.001.002
Report Date:	12/13/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name:	Not Specified	**Lab Number:**	L2267739
Project Number:	P044.001.002	**Report Date:**	12/13/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2267739-01	TG02-MW-01-6.5-7.0	SOIL	FORMER PHIL REFINERY - AST CLO	12/02/22 09:49	12/02/22
L2267739-02	TG02-MW-01-17.5-18.0	SOIL	FORMER PHIL REFINERY - AST CLO	12/02/22 10:00	12/02/22
L2267739-03	TG02-MW-02-14.5-15.0	SOIL	FORMER PHIL REFINERY - AST CLO	12/02/22 11:09	12/02/22
L2267739-04	TB-221202	WATER	FORMER PHIL REFINERY - AST CLO	12/02/22 00:00	12/02/22

Project Name:	Not Specified	**Lab Number:**	L2267739
Project Number:	P044.001.002	**Report Date:**	12/13/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

December 13, 2022: This final report includes the results of all requested analyses.

December 09, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 12/13/22

ORGANICS

VOLATILES

Project Name: Not Specified **Lab Number:** L2267739
Project Number: P044.001.002 **Report Date:** 12/13/22

SAMPLE RESULTS

Lab ID: L2267739-03
Client ID: TG02-MW-02-14.5-15.0
Sample Location: FORMER PHIL REFINERY - AST CLO
Date Collected: 12/02/22 11:09
Date Received: 12/02/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/08/22 13:53
Analyst: JIC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.11	J	mg/kg	0.12	0.012	1
Benzene	4.3		mg/kg	0.030	0.0098	1
Toluene	0.50		mg/kg	0.059	0.032	1
1,2-Dibromoethane	ND		mg/kg	0.030	0.017	1
Ethylbenzene	0.10		mg/kg	0.059	0.0084	1
p/m-Xylene	0.18		mg/kg	0.12	0.033	1
o-Xylene	0.078		mg/kg	0.059	0.017	1
Xylenes, Total	0.26		mg/kg	0.059	0.017	1
Isopropylbenzene	0.053	J	mg/kg	0.059	0.0065	1
1,3,5-Trimethylbenzene	0.014	J	mg/kg	0.12	0.011	1
1,2,4-Trimethylbenzene	0.062	J	mg/kg	0.12	0.020	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	95		70-130

Project Name: Not Specified **Lab Number:** L2267739
Project Number: P044.001.002 **Report Date:** 12/13/22

SAMPLE RESULTS

Lab ID: L2267739-04
Client ID: TB-221202
Sample Location: FORMER PHIL REFINERY - AST CLO

Date Collected: 12/02/22 00:00
Date Received: 12/02/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/05/22 10:05
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	104		70-130

Project Name: Not Specified **Lab Number:** L2267739
Project Number: P044.001.002 **Report Date:** 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/05/22 08:25
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04 Batch: WG1719787-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	100		70-130

Project Name: Not Specified
Project Number: P044.001.002

Lab Number: L2267739
Report Date: 12/13/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/08/22 09:03
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 03 Batch: WG1721387-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: P044.001.002

Lab Number: L2267739
Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04 Batch: WG1719787-3 WG1719787-4								
Methyl tert butyl ether	90		92		63-130	2		20
Benzene	100		100		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	96		98		70-130	2		20
Ethylbenzene	99		100		70-130	1		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		95		70-130	5		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		100		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	101		103		70-130
Toluene-d8	102		104		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	96		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: Not Specified

Project Number: P044.001.002

Lab Number: L2267739

Report Date: 12/13/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 03 Batch: WG1721387-3 WG1721387-4								
Methyl tert butyl ether	93		94		66-130	1		30
Benzene	96		94		70-130	2		30
Toluene	91		91		70-130	0		30
1,2-Dibromoethane	92		93		70-130	1		30
Ethylbenzene	98		97		70-130	1		30
p/m-Xylene	88		88		70-130	0		30
o-Xylene	86		86		70-130	0		30
Isopropylbenzene	84		83		70-130	1		30
1,3,5-Trimethylbenzene	94		92		70-130	2		30
1,2,4-Trimethylbenzene	94		93		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	99		101		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	101		101		70-130
Dibromofluoromethane	95		95		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: Not Specified | **Lab Number:** L2267739
Project Number: P044.001.002 | **Report Date:** 12/13/22

SAMPLE RESULTS

Lab ID: L2267739-03
Client ID: TG02-MW-02-14.5-15.0
Sample Location: FORMER PHIL REFINERY - AST CLO
Date Collected: 12/02/22 11:09
Date Received: 12/02/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.1		%	0.100	NA	1	-	12/07/22 12:46	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: Not Specified
Project Number: P044.001.002

Lab Number: L2267739
Report Date: 12/13/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 03 QC Batch ID: WG1720415-1 QC Sample: L2268260-01 Client ID: DUP Sample						
Solids, Total	84.5	84.7	%	0		20

Project Name: Not Specified
Project Number: P044.001.002

Lab Number: L2267739
Report Date: 12/13/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2267739-01A	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-01B	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-01C	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-01D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		HOLD-WETCHEM()
L2267739-01E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-8270(14)
L2267739-01X	Vial MeOH preserved split	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-01Y	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 08:59	HOLD-8260HLW(14)
L2267739-01Z	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 08:59	HOLD-8260HLW(14)
L2267739-02A	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-02B	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-02C	5 gram Encore Sampler	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-02D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		HOLD-WETCHEM()
L2267739-02E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-8270(14)
L2267739-02X	Vial MeOH preserved split	A	NA		3.4	Y	Absent		HOLD-8260HLW(14)
L2267739-02Y	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 09:09	HOLD-8260HLW(14)
L2267739-02Z	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 09:09	HOLD-8260HLW(14)
L2267739-03A	5 gram Encore Sampler	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2267739-03B	5 gram Encore Sampler	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2267739-03C	5 gram Encore Sampler	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2267739-03D	Plastic 2oz unpreserved for TS	A	NA		3.4	Y	Absent		TS(7)
L2267739-03E	Glass 120ml/4oz unpreserved	A	NA		3.4	Y	Absent		HOLD-8270(14)
L2267739-03X	Vial MeOH preserved split	A	NA		3.4	Y	Absent		PA-8260HLW(14)
L2267739-03Y	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 09:09	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2267739-03Z	Vial Water preserved split	A	NA		3.4	Y	Absent	04-DEC-22 09:09	PA-8260HLW(14)
L2267739-04A	Vial HCl preserved	A	NA		3.4	Y	Absent		PA-8260(14)
L2267739-04B	Vial HCl preserved	A	NA		3.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name:	Not Specified	**Lab Number:**	L2267739
Project Number:	P044.001.002	**Report Date:**	12/13/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 12/03/22

ALPHA Job #: L2267739

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

1

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St
Conshohocken, PA 19428
Phone: 215-297-3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refinery AST Closure
Project Location:
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS: 8260 - Benzene, Toluene, Ethylbenzene, Xylenes (total), 1,2,4/1,3,5 TMB, Cumene, 1,2-DCA, MTBE | 8270 - Naphthalene | 6010 - Lead

SAMPLE HANDLING
Filtration ______
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8270	6010	Sample Specific Comments	TOTAL # BOTTLES
67739-01	T602-MW-01-6.5-7.0	12/2/22	949	SO	SMM	H		H	Hold	
-02	T602-MW-01-17.5-18.0	12/2/22	1000	SO	SMM	H		H	Hold	
-03	T602-MW-02-14.5-15.0	12/2/22	1109	SO	SMM	H		H	Hold	
-04	TB-221202	12/2/22	1133	SO	SMM	X			Analyze	

Container Type
Preservative

Email
12/3/22
0430

Relinquished By:	Date/Time	Received By:	Date/Time
Shaun Mott	12/02/22 2:37	Tom [illegible] 12-2	1452
Tom [illegible] AAL 12-2		[illegible] AAL	12/2/22 1912
[illegible] AAL	12/2/22	[illegible]	12-2-22 2330

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2268351
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/20/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2268351
Report Date: 12/20/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2268351-01	TG02-MW-03-24.5-25.0	SOIL	3144 U. PASSYUNK	12/05/22 12:40	12/06/22
L2268351-02	TG02-MW-12-27.0-27.5	SOIL	3144 U. PASSYUNK	12/06/22 10:20	12/06/22
L2268351-03	TB-221206	WATER	3144 U. PASSYUNK	12/06/22 00:00	12/06/22
L2268351-04	TG02-MW-11-23.5-24.0	SOIL	3144 U. PASSYUNK	12/06/22 14:20	12/06/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

December 20, 2022: This final report includes the results of the Volatile Organics analysis performed on L2268351-01 and -04.

December 12, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2268351-01 and -02: The Client ID was specified by the client.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Tiffani Morrissey - Tiffani Morrissey

Title: Technical Director/Representative Date: 12/20/22

ORGANICS

VOLATILES

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351

Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID:	L2268351-01 D2	Date Collected:	12/05/22 12:40
Client ID:	TG02-MW-03-24.5-25.0	Date Received:	12/06/22
Sample Location:	3144 U. PASSYUNK	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/18/22 21:31
Analyst: MKS
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	6.8		mg/kg	2.8	0.28	25
Benzene	130		mg/kg	0.69	0.23	25
Toluene	41.		mg/kg	1.4	0.75	25
1,2-Dibromoethane	ND		mg/kg	0.69	0.40	25
Ethylbenzene	260		mg/kg	1.4	0.19	25
p/m-Xylene	970	E	mg/kg	2.8	0.77	25
o-Xylene	320		mg/kg	1.4	0.40	25
Isopropylbenzene	22.		mg/kg	1.4	0.15	25
1,3,5-Trimethylbenzene	170		mg/kg	2.8	0.27	25
1,2,4-Trimethylbenzene	510	E	mg/kg	2.8	0.46	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	85		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351

Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID: L2268351-01 D
Client ID: TG02-MW-03-24.5-25.0
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/05/22 12:40
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/15/22 16:10
Analyst: KJD
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
p/m-Xylene	1100		mg/kg	11	3.1	100
Xylenes, Total	1400		mg/kg	1.4	0.40	100
1,2,4-Trimethylbenzene	580		mg/kg	11	1.8	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351

Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID: L2268351-03
Client ID: TB-221206
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/06/22 00:00
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/07/22 11:06
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	105		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351
Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID: L2268351-04 D2
Client ID: TG02-MW-11-23.5-24.0
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/06/22 14:20
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/18/22 21:57
Analyst: MKS
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.6	0.26	25
Benzene	47.		mg/kg	0.65	0.22	25
Toluene	480	E	mg/kg	1.3	0.71	25
1,2-Dibromoethane	ND		mg/kg	0.65	0.38	25
Ethylbenzene	150		mg/kg	1.3	0.18	25
p/m-Xylene	630		mg/kg	2.6	0.73	25
o-Xylene	240		mg/kg	1.3	0.38	25
Xylenes, Total	870		mg/kg	1.3	0.38	25
Isopropylbenzene	10.		mg/kg	1.3	0.14	25
1,3,5-Trimethylbenzene	89.		mg/kg	2.6	0.25	25
1,2,4-Trimethylbenzene	270		mg/kg	2.6	0.44	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	87		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351

Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID:	L2268351-04 D	Date Collected:	12/06/22 14:20
Client ID:	TG02-MW-11-23.5-24.0	Date Received:	12/06/22
Sample Location:	3144 U. PASSYUNK	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/16/22 18:34
Analyst: LAC
Percent Solids: 89%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Toluene	510		mg/kg	5.2	2.8	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	89		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2268351
Project Number:	P044.001.002	**Report Date:**	12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/07/22 10:46
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1720953-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	106		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351
Project Number: P044.001.002 **Report Date:** 12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/15/22 09:42
Analyst: NLK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01 Batch: WG1724167-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351
Project Number: P044.001.002 **Report Date:** 12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/16/22 09:28
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 04 Batch: WG1724607-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	94		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2268351
Project Number: P044.001.002 **Report Date:** 12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/18/22 16:21
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01,04 Batch: WG1725203-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2268351
Project Number: P044.001.002
Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1720953-3 WG1720953-4								
Methyl tert butyl ether	98		100		63-130	2		20
Benzene	120		120		70-130	0		20
Toluene	110		120		70-130	9		20
1,2-Dibromoethane	98		100		70-130	2		20
Ethylbenzene	110		120		70-130	9		20
p/m-Xylene	115		120		70-130	4		20
o-Xylene	110		115		70-130	4		20
Isopropylbenzene	120		120		70-130	0		20
1,3,5-Trimethylbenzene	110		120		64-130	9		20
1,2,4-Trimethylbenzene	110		120		70-130	9		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		91		70-130
Toluene-d8	101		104		70-130
4-Bromofluorobenzene	108		110		70-130
Dibromofluoromethane	91		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002
Lab Number: L2268351
Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01 Batch: WG1724167-3 WG1724167-4								
Methyl tert butyl ether	90		90		66-130	0		30
Benzene	89		87		70-130	2		30
Toluene	88		87		70-130	1		30
1,2-Dibromoethane	87		87		70-130	0		30
Ethylbenzene	88		86		70-130	2		30
p/m-Xylene	88		87		70-130	1		30
o-Xylene	88		87		70-130	1		30
Isopropylbenzene	84		83		70-130	1		30
1,3,5-Trimethylbenzene	85		85		70-130	0		30
1,2,4-Trimethylbenzene	86		84		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		92		70-130
Toluene-d8	99		100		70-130
4-Bromofluorobenzene	97		98		70-130
Dibromofluoromethane	91		92		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2268351
Project Number: P044.001.002
Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 04 Batch: WG1724607-3 WG1724607-4								
Methyl tert butyl ether	93		95		66-130	2		30
Benzene	98		98		70-130	0		30
Toluene	98		98		70-130	0		30
1,2-Dibromoethane	92		94		70-130	2		30
Ethylbenzene	97		97		70-130	0		30
p/m-Xylene	97		98		70-130	1		30
o-Xylene	95		96		70-130	1		30
Isopropylbenzene	94		95		70-130	1		30
1,3,5-Trimethylbenzene	95		95		70-130	0		30
1,2,4-Trimethylbenzene	94		94		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	101		101		70-130
4-Bromofluorobenzene	99		99		70-130
Dibromofluoromethane	93		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2268351

Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01,04 Batch: WG1725203-3 WG1725203-4								
Methyl tert butyl ether	101		100		66-130	1		30
Benzene	107		105		70-130	2		30
Toluene	104		104		70-130	0		30
1,2-Dibromoethane	95		96		70-130	1		30
Ethylbenzene	103		102		70-130	1		30
p/m-Xylene	104		103		70-130	1		30
o-Xylene	101		101		70-130	0		30
Isopropylbenzene	98		97		70-130	1		30
1,3,5-Trimethylbenzene	98		97		70-130	1		30
1,2,4-Trimethylbenzene	98		96		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	91		93		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	96		97		70-130
Dibromofluoromethane	92		92		70-130

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2268351
Project Number: P044.001.002
Report Date: 12/20/22

SAMPLE RESULTS

Lab ID: L2268351-01
Date Collected: 12/05/22 12:40
Client ID: TG02-MW-03-24.5-25.0
Date Received: 12/06/22
Sample Location: 3144 U. PASSYUNK
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	12/14/22 16:11	121,2540G	MF

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2268351
Report Date: 12/20/22

SAMPLE RESULTS

Lab ID: L2268351-04
Client ID: TG02-MW-11-23.5-24.0
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/06/22 14:20
Date Received: 12/06/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	88.8		%	0.100	NA	1	-	12/14/22 16:11	121,2540G	MF

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2268351
Report Date: 12/20/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01,04 QC Batch ID: WG1723361-1 QC Sample: L2268351-01 Client ID: TG02-MW-03-24.5-25.0						
Solids, Total	89.6	90.0	%	0		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268351-01A	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-01B	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-01C	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-01D	Plastic 2oz unpreserved for TS	A	NA		4.0	Y	Absent		TS(7)
L2268351-01E	Glass 60mL/2oz unpreserved	A	NA		4.0	Y	Absent		HOLD-METAL(180)
L2268351-01F	Glass 120ml/4oz unpreserved	A	NA		4.0	Y	Absent		HOLD-8270(14)
L2268351-01X	Vial MeOH preserved split	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-01Y	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	PA-8260HLW(14)
L2268351-01Z	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	PA-8260HLW(14)
L2268351-02A	5 gram Encore Sampler	A	NA		4.0	Y	Absent		HOLD-8260HLW(14)
L2268351-02B	5 gram Encore Sampler	A	NA		4.0	Y	Absent		HOLD-8260HLW(14)
L2268351-02C	5 gram Encore Sampler	A	NA		4.0	Y	Absent		HOLD-8260HLW(14)
L2268351-02D	Plastic 2oz unpreserved for TS	A	NA		4.0	Y	Absent		HOLD-WETCHEM()
L2268351-02E	Glass 120ml/4oz unpreserved	A	NA		4.0	Y	Absent		HOLD-8270(14)
L2268351-02X	Vial MeOH preserved split	A	NA		4.0	Y	Absent		HOLD-8260HLW(14)
L2268351-02Y	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	HOLD-8260HLW(14)
L2268351-02Z	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	HOLD-8260HLW(14)
L2268351-03A	Vial HCl preserved	A	NA		4.0	Y	Absent		PA-8260(14)
L2268351-03B	Vial HCl preserved	A	NA		4.0	Y	Absent		PA-8260(14)
L2268351-04A	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-04B	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-04C	5 gram Encore Sampler	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-04D	Plastic 2oz unpreserved for TS	A	NA		4.0	Y	Absent		TS(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2268351-04E	Glass 120ml/4oz unpreserved	A	NA		4.0	Y	Absent		HOLD-8270(14)
L2268351-04X	Vial MeOH preserved split	A	NA		4.0	Y	Absent		PA-8260HLW(14)
L2268351-04Y	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	PA-8260HLW(14)
L2268351-04Z	Vial Water preserved split	A	NA		4.0	Y	Absent	07-DEC-22 09:05	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2268351
Project Number:	P044.001.002	**Report Date:**	12/20/22

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/7/22

ALPHA Job #: L2268351

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St.
Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former. Phila Refinery AST Closure
Project Location: 3144 W. Passyunk
Project #: P044.001 002
Project Manager:
ALPHA Quote #:

Turn-Around Time

☑ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
Equis Format EDD

ANALYSIS

~~8260~~
8260 - Benzene, Toluene, Ethyl Benzene, Xylenes (total), 1,2,4/1,3,5 TMB, Cumene, MTBE, 1,2 DCA,
8270 - Naphthalene
6010 - Lead

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis 1–3 (crossed out)	8260		8270	6010	Sample Specific Comments
68351-01	TG02-MW-03-24.5-25.0	12/5/22	12:40	SO	KJO		H	H	H		hold
02	TG02-MW-12-27.0-27.5	12/6/22	10:20	SO	KJO		H	H			hold
03	TB-221206	12/6/22	11:17	TB	KJO		X	X			Analyze
04	TG02-MW-11-23.5-24.0	12/6/22	14:20	SO	KJO	KO 12/6/22	H	H			hold

SAMPLE HANDLING
Filtration ______
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

TOTAL # BOTTLES

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
Kevin O'Mara	12/6/22 1430	D. Robinson AAL	12/6/22 1430
D Robinson AAL	12/6/22 1800	[illegible]	12-6 1800
[illegible]	12-6 2100	[illegible]	12-6-22 2100

[illegible] 12/7/22 0135

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2269114
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/20/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2269114
Report Date: 12/20/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269114-01	TG02-MW-05-18.5-19.0	SOIL	3144 U. PASSYUNK	12/07/22 15:05	12/08/22
L2269114-02	TG02-MW-04-19.5-20.0	SOIL	3144 U. PASSYUNK	12/08/22 10:05	12/08/22
L2269114-03	TB-221208	WATER	3144 U. PASSYUNK	12/08/22 00:00	12/08/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269114
Project Number:	P044.001.002	**Report Date:**	12/20/22

Case Narrative (continued)

Report Submission

December 20, 2022: This final report includes the results of all requested analyses.

December 14, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2269114-01: The sample was analyzed with the method required holding time exceeded.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Cristin Walker Cristin Walker

Title: Technical Director/Representative Date: 12/20/22

ORGANICS

VOLATILES

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2269114
Project Number: P044.001.002
Report Date: 12/20/22

SAMPLE RESULTS

Lab ID: L2269114-01
Client ID: TG02-MW-05-18.5-19.0
Sample Location: 3144 U. PASSYUNK
Date Collected: 12/07/22 15:05
Date Received: 12/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/16/22 01:44
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.39		mg/kg	0.11	0.011	1
Benzene	ND		mg/kg	0.027	0.0089	1
Toluene	0.052	J	mg/kg	0.054	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.027	0.016	1
Ethylbenzene	1.2		mg/kg	0.054	0.0076	1
p/m-Xylene	4.8		mg/kg	0.11	0.030	1
o-Xylene	1.3		mg/kg	0.054	0.016	1
Xylenes, Total	6.1		mg/kg	0.054	0.016	1
Isopropylbenzene	0.37		mg/kg	0.054	0.0058	1
1,3,5-Trimethylbenzene	2.3		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	7.3		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	122		70-130
Dibromofluoromethane	91		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2269114

Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID: L2269114-02
Client ID: TG02-MW-04-19.5-20.0
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/08/22 10:05
Date Received: 12/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 12/16/22 01:17
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	0.21		mg/kg	0.11	0.011	1
Benzene	0.023	J	mg/kg	0.026	0.0088	1
Toluene	0.034	J	mg/kg	0.053	0.029	1
1,2-Dibromoethane	ND		mg/kg	0.026	0.016	1
Ethylbenzene	0.73		mg/kg	0.053	0.0075	1
p/m-Xylene	3.0		mg/kg	0.11	0.030	1
o-Xylene	0.83		mg/kg	0.053	0.015	1
Xylenes, Total	3.8		mg/kg	0.053	0.015	1
Isopropylbenzene	0.35		mg/kg	0.053	0.0058	1
1,3,5-Trimethylbenzene	1.2		mg/kg	0.11	0.010	1
1,2,4-Trimethylbenzene	4.1		mg/kg	0.11	0.018	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2269114
Project Number: P044.001.002 **Report Date:** 12/20/22

SAMPLE RESULTS

Lab ID: L2269114-03
Client ID: TB-221208
Sample Location: 3144 U. PASSYUNK

Date Collected: 12/08/22 00:00
Date Received: 12/08/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/13/22 11:04
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	114		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269114
Project Number:	P044.001.002	**Report Date:**	12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/13/22 09:42
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1722884-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	124		70-130

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2269114
Project Number: P044.001.002 **Report Date:** 12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/15/22 16:47
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-02 Batch: WG1724156-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2269114

Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1722884-3 WG1722884-4								
Methyl tert butyl ether	98		95		63-130	3		20
Benzene	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	92		96		70-130	4		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	115		115		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		106		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	88		88		70-130
Dibromofluoromethane	113		112		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002
Lab Number: L2269114
Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-02 Batch: WG1724156-3 WG1724156-4								
Methyl tert butyl ether	98		101		66-130	3		30
Benzene	98		98		70-130	0		30
Toluene	95		95		70-130	0		30
1,2-Dibromoethane	94		98		70-130	4		30
Ethylbenzene	100		100		70-130	0		30
p/m-Xylene	92		93		70-130	1		30
o-Xylene	90		91		70-130	1		30
Isopropylbenzene	88		88		70-130	0		30
1,3,5-Trimethylbenzene	96		97		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	90		91		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	102		103		70-130
Dibromofluoromethane	95		95		70-130

SEMIVOLATILES

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269114
Project Number:	P044.001.002	**Report Date:**	12/20/22

SAMPLE RESULTS

Lab ID:	L2269114-01	Date Collected:	12/07/22 15:05
Client ID:	TG02-MW-05-18.5-19.0	Date Received:	12/08/22
Sample Location:	3144 U. PASSYUNK	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	12/15/22 00:57
Analytical Date:	12/16/22 03:52		
Analyst:	JG		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.70		mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	93		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	64		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269114
Project Number:	P044.001.002	**Report Date:**	12/20/22

SAMPLE RESULTS

Lab ID:	L2269114-02	Date Collected:	12/08/22 10:05
Client ID:	TG02-MW-04-19.5-20.0	Date Received:	12/08/22
Sample Location:	3144 U. PASSYUNK	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	12/15/22 00:57
Analytical Date:	12/16/22 03:04		
Analyst:	JG		
Percent Solids:	92%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12	J	mg/kg	0.18	0.022	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	42		30-120
4-Terphenyl-d14	44		18-120

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269114
Project Number:	P044.001.002	**Report Date:**	12/20/22

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E	Extraction Method:	EPA 3546
Analytical Date:	12/15/22 00:33	Extraction Date:	12/14/22 09:15
Analyst:	IM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1723173-1					
Naphthalene	ND		mg/kg	0.16	0.020

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	78		25-120
Phenol-d6	77		10-120
Nitrobenzene-d5	66		23-120
2-Fluorobiphenyl	67		30-120
2,4,6-Tribromophenol	57		10-136
4-Terphenyl-d14	70		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2269114
Report Date: 12/20/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1723173-2 WG1723173-3								
Naphthalene	77		74		40-140	4		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	86		84		25-120
Phenol-d6	85		81		10-120
Nitrobenzene-d5	78		76		23-120
2-Fluorobiphenyl	73		71		30-120
2,4,6-Tribromophenol	63		63		10-136
4-Terphenyl-d14	73		72		18-120

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2269114
Project Number: P044.001.002
Report Date: 12/20/22

SAMPLE RESULTS

Lab ID: L2269114-01
Date Collected: 12/07/22 15:05
Client ID: TG02-MW-05-18.5-19.0
Date Received: 12/08/22
Sample Location: 3144 U. PASSYUNK
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.8		%	0.100	NA	1	-	12/14/22 18:32	121,2540G	MF

Project Name: FORMER PHIL REFINERY - AST CLO
Lab Number: L2269114
Project Number: P044.001.002
Report Date: 12/20/22

SAMPLE RESULTS

Lab ID: L2269114-02
Date Collected: 12/08/22 10:05
Client ID: TG02-MW-04-19.5-20.0
Date Received: 12/08/22
Sample Location: 3144 U. PASSYUNK
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.6		%	0.100	NA	1	-	12/14/22 18:32	121,2540G	MF

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO

Project Number: P044.001.002

Lab Number: L2269114

Report Date: 12/20/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-02 QC Batch ID: WG1723409-1 QC Sample: L2268573-07 Client ID: DUP Sample						
Solids, Total	83.6	81.8	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269114-01A	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-01B	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-01C	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-01D	Plastic 2oz unpreserved for TS	A	NA		3.5	Y	Absent		TS(7)
L2269114-01E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-PAH(14)
L2269114-01X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-01Y	Vial Water preserved split	A	NA		3.5	Y	Absent	**10-DEC-22 07:07**	PA-8260HLW(14)
L2269114-01Z	Vial Water preserved split	A	NA		3.5	Y	Absent	**10-DEC-22 07:07**	PA-8260HLW(14)
L2269114-02A	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-02B	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-02C	5 gram Encore Sampler	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-02D	Plastic 2oz unpreserved for TS	A	NA		3.5	Y	Absent		TS(7)
L2269114-02E	Glass 120ml/4oz unpreserved	A	NA		3.5	Y	Absent		PA-PAH(14)
L2269114-02X	Vial MeOH preserved split	A	NA		3.5	Y	Absent		PA-8260HLW(14)
L2269114-02Y	Vial Water preserved split	A	NA		3.5	Y	Absent	10-DEC-22 07:07	PA-8260HLW(14)
L2269114-02Z	Vial Water preserved split	A	NA		3.5	Y	Absent	10-DEC-22 07:07	PA-8260HLW(14)
L2269114-03A	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)
L2269114-03B	Vial HCl preserved	A	NA		3.5	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 12/9/22

ALPHA Job #: L2269114

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St, Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philo. Refinery AST closure
Project Location: 3144 W. Passyunk
Project #: 2044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD @ terraphase.com
Equis Format EPD

ANALYSIS: 8260 - Benzene, Toluene, Ethyl Benzene, Xylene (total), 1,2,4/1,3,5 TMB, Cumene, 1,2-DBA, MTBE; 8270 - Naphthalene; 6010 Lead

SAMPLE HANDLING
Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8270 / 6010	Sample Specific Comments
69114-01	TG02-MW-05-18.5-19.0	12/7/22	15:05	GW	KSO	H	H	hold
02	TG02-MW-04-19.5-20.0	12/8/22	10:05	GW	KSO	H	H	hold
03	TB-221208	12/8/22	12:33	TB	KSO	X	X	Analysis

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	12/8/22 2:30	S.T. Cres AAL	12-8-22 1430
S.T. Cres AAL	12-8-22	[illegible]	12-8-22 2PM
[illegible]	12-8-22	[illegible] 5:00 pm	12/8/22 23:25

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2269485
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHIL REFINERY - AST CLO
Project Number:	P044.001.002
Report Date:	12/19/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2269485
Report Date: 12/19/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2269485-01	TG02-MW-10-18.5-19.0	SOIL	3144 W. PASSYUNK	12/09/22 09:25	12/09/22
L2269485-02	TG02-MW-10-4.5-5.0	SOIL	3144 W. PASSYUNK	12/09/22 09:55	12/09/22
L2269485-03	TB-221209	WATER	3144 W. PASSYUNK	12/09/22 13:22	12/09/22

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269485
Project Number:	P044.001.002	**Report Date:**	12/19/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

December 19, 2022: The collection date and time have been amended on L2269485-03.

Report Submission

December 16, 2022: This final report includes the results of all requested analyses.

December 15, 2022: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 12/19/22

ORGANICS

VOLATILES

Project Name: FORMER PHIL REFINERY - AST CLO **Lab Number:** L2269485

Project Number: P044.001.002 **Report Date:** 12/19/22

SAMPLE RESULTS

Lab ID: L2269485-03
Client ID: TB-221209
Sample Location: 3144 W. PASSYUNK

Date Collected: 12/09/22 13:22
Date Received: 12/09/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/13/22 11:25
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	111		70-130

Project Name:	FORMER PHIL REFINERY - AST CLO	**Lab Number:**	L2269485
Project Number:	P044.001.002	**Report Date:**	12/19/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/13/22 09:42
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03 Batch: WG1722884-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	85		70-130
Dibromofluoromethane	124		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHIL REFINERY - AST CLO
Project Number: P044.001.002

Lab Number: L2269485
Report Date: 12/19/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03 Batch: WG1722884-3 WG1722884-4								
Methyl tert butyl ether	98		95		63-130	3		20
Benzene	110		110		70-130	0		20
Toluene	100		100		70-130	0		20
1,2-Dibromoethane	92		96		70-130	4		20
Ethylbenzene	110		110		70-130	0		20
p/m-Xylene	115		115		70-130	0		20
o-Xylene	115		115		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		110		70-130	0		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	104		106		70-130
Toluene-d8	97		97		70-130
4-Bromofluorobenzene	88		88		70-130
Dibromofluoromethane	113		112		70-130

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2269485-01A	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-01B	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-01C	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-01D	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		HOLD-WETCHEM()
L2269485-01E	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		HOLD-8270(14)
L2269485-01X	Vial MeOH preserved split	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-01Y	Vial Water preserved split	A	NA		2.6	Y	Absent	10-DEC-22 11:58	HOLD-8260HLW(14)
L2269485-01Z	Vial Water preserved split	A	NA		2.6	Y	Absent	10-DEC-22 11:58	HOLD-8260HLW(14)
L2269485-02A	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-02B	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-02C	5 gram Encore Sampler	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-02D	Plastic 2oz unpreserved for TS	A	NA		2.6	Y	Absent		HOLD-WETCHEM()
L2269485-02E	Glass 120ml/4oz unpreserved	A	NA		2.6	Y	Absent		HOLD-8270(14)
L2269485-02X	Vial MeOH preserved split	A	NA		2.6	Y	Absent		HOLD-8260HLW(14)
L2269485-02Y	Vial Water preserved split	A	NA		2.6	Y	Absent	10-DEC-22 11:58	HOLD-8260HLW(14)
L2269485-02Z	Vial Water preserved split	A	NA		2.6	Y	Absent	10-DEC-22 11:58	HOLD-8260HLW(14)
L2269485-03A	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)
L2269485-03B	Vial HCl preserved	A	NA		2.6	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ___ OF ___

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/10/22

ALPHA Job #: L2269485

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St. Conshohocken, PA 19428
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila. Refinery AST Closure
Project Location: 3144 W. Passyunk
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:

EDD @ terraphase.com
EquIS template

ANALYSIS: 8260 - Benzene, toluene, ethylbenzene, xylenes (total), 1,2,4/1,3,5 TMB, cumene, 1,2 DBA, MTBE; 8270 naphthalene

SAMPLE HANDLING
Filtration ___
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8270	Sample Specific Comments	TOTAL # BOTTLES
69485-01	TG02-MW-10-18.5-19.0	12/9/22	9:25	SO	KJO	H	H	hold	
02	TG02-MW-10-4.5-5.0	12/9/22	9:55	SO	KJO	H	H	hold	
03	TB-221209	12/9/22	13:22	TB	KJO	X	X	analyze	

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[illegible]	12/9/22 2:30	Dwayne Jones AAL	12/9/22 15:2[illegible]
Dwayne Jones AAL	12/9/22 18:00	[illegible]	12/9/22 18:00
[illegible]	12/9/22 21:00	[illegible]	12.9.22 21:00

AAL 12/10/22 0140

12/10/22 0140

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

ANALYTICAL REPORT

Lab Number:	L2271579
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHILADELPHIA REF.
Project Number:	P044.001.002
Report Date:	01/26/23

Certifications & Approvals: MA (M-MA030), NH NELAP (2062), CT (PH-0141), DoD (L2474), FL (E87814), IL (200081), LA (85084), ME (MA00030), MD (350), NJ (MA015), NY (11627), NC (685), OH (CL106), PA (68-02089), RI (LAO00299), TX (T104704419), VT (VT-0015), VA (460194), WA (C954), US Army Corps of Engineers, USDA (Permit #P330-17-00150), USFWS (Permit #206964).

320 Forbes Boulevard, Mansfield, MA 02048-1806
508-822-9300 (Fax) 508-822-3288 800-624-9220 - www.alphalab.com

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2271579-01	TG02-MW-03-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 09:10	12/20/22
L2271579-02	TG02-MW-04-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 13:15	12/20/22
L2271579-03	TG02-MW-05-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 13:30	12/20/22
L2271579-04	TG02-MW-06-221219	OIL	3144 W. PASSYUNK AVE.	12/19/22 09:05	12/20/22
L2271579-05	TG02-MW-08-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 10:30	12/20/22
L2271579-06	TG02-MW-09-221219	OIL	3144 W. PASSYUNK AVE.	12/19/22 11:30	12/20/22
L2271579-07	TG02-MW-10-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 09:55	12/20/22
L2271579-08	TG02-MW-11-221219	OIL	3144 W. PASSYUNK AVE.	12/19/22 12:00	12/20/22
L2271579-09	TG02-MW-12-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 12:35	12/20/22
L2271579-10	TG02-MW-15-221220	OIL	3144 W. PASSYUNK AVE.	12/20/22 12:00	12/20/22
L2271579-11	TG02-MW-17-221219	WATER	3144 W. PASSYUNK AVE.	12/19/22 15:25	12/20/22

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

The ID for sample L2271579-04 has been revised.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2271579-07: Due to the limited sample volume received, the analyses of Organic Lead and Density could not be performed.

L2271579-11: Due to the sample matrix, the analyses of Organic Lead and Density could not be performed.

PIANO Volatile Organics

L2271579-01D through -10D: The samples have elevated detection limits due to the dilution required by the elevated concentrations of target compounds in the samples.

L2271579-03D, -08D, and -11: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

L2271579-11: The analysis was performed with the method required holding time exceeded.

The WG1733214-5 Method Blank, associated with L2271579-11 and -11D, has a concentration above the reporting limit for tertiary butanol. Since the associated sample concentrations are greater than 10x the blank concentration, no corrective action is required.

PAHs/Biomarkers

L2271579-01, -02, -05, -06, -09, and -10: The sample was re-analyzed on dilution in order to quantitate the results within the calibration range. The result(s) should be considered estimated, and are qualified with an E

Case Narrative (continued)

flag, for any compound(s) that exceeded the calibration range in the initial analysis. The re-analysis was performed only for the compound(s) that exceeded the calibration range.

Saturated Hydrocarbons
L2271579-01 through -11: The sample was extracted and then analyzed using a gas chromatograph equipped with a flame ionization detector (GC/FID). The temperature program and associated experimental conditions were optimized to obtain maximum resolution in an eighty minute chromatographic run representative of hydrocarbons in the n-Octane (C8) to n-Tetracontane (C40) range. Qualitative evaluation of the sample was conducted by reviewing the sample chromatogram in conjunction with a chromatogram of a normal alkane series generated with the same chromatographic conditions. Chromatograms of hydrocarbon reference materials obtained from our library of 82 reference standards were also utilized to provide the best possible sample match. Quantitative determination of the sample's hydrocarbon concentration was performed in accordance with EPA Method 8015M. The sample's total hydrocarbon concentration and all associated quality control data are included in the report.
The following qualitative information is based on a tentative interpretation of chromatographic pattern recognition and boiling point ranges:
Total Petroleum Hydrocarbon Identification
L2271579-01, -06, -07, -09, and -10 contain hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Pentacosane (C25). Based on the data generated, these samples contain a mixture of material eluting in the low to mid weight range of the chromatogram. The mixture is a combination of a material similar to gasoline and a material similar to Diesel Fuel/Fuel Oil #2.
L2271579-02 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of Tetracontane (C40). Based on the data generated, this sample contains a combination of material eluting in the low, mid, and heavy weight ranges of the chromatogram. The mixture is a combination of a material similar to gasoline, a material similar to Diesel Fuel/Fuel Oil #2, and a material similar to coal tar/creosote.
L2271579-03 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Pentacosane (C25). Based on the data generated, this sample contains a mixture of material eluting in the low

Case Narrative (continued)

to mid weight range of the chromatogram. The mixture is a combination of a material similar to gasoline and a material which is similar to weathered Diesel Fuel/Fuel Oil #2. In an analysis of an undegraded product the n-alkanes are typically the dominant constituents, as seen in the petroleum reference chromatogram. As the product deteriorates, the n-alkanes are preferentially degraded, leaving behind other constituents such as isoprenoids. The analytical testing of the sample identified a pattern of isoprenoids. The level of alkanes and their ratios to the isoprenoids present indicates that the fuel oil has undergone degradation.

L2271579-04 and 05 contain hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Pentacosane (C25). Based on the data generated, these samples contain a mixture of material eluting in the low to mid weight range of the chromatogram. The mixture is a combination of a material similar to gasoline and a material similar to Kerosene/Fuel Oil#1.

L2271579-08 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of n-Tetradecane (C14). Based on the data generated, this sample contains material eluting in the low to mid weight ranges of the chromatogram. The material present appears to be petroleum in nature and resembles gasoline.

L2271579-11: The sample was extracted with the method required holding time exceeded.

L2271579-11 contains hydrocarbons eluting in the range of n-Octane (C8) to after the elution of Tetracontane (C40). Based on the data generated, this sample contains a mixture of material eluting in the low, mid, and heavy weight ranges of the chromatogram. The mixture is a combination of a material similar to weathered Diesel Fuel/Fuel Oil #2 and a material which is similar to a hydraulic, lubricating, or motor oil type product.

The WG1732624-1 Method Blank, associated with L2271579-01 through -10, has a concentration above the reporting limit for total petroleum hydrocarbons (C9-C44). Since the associated sample concentrations are greater than 10x the blank concentration for this target analyte, no corrective action is required.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Elizabeth Porta

Title: Technical Director/Representative Date: 01/26/23

ORGANICS

VOLATILES

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-01 D
Client ID: TG02-MW-03-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 09:10
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 19:40
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	466	69.1	50
Isopentane	392	J	mg/kg	466	85.2	50
1-Pentene	ND		mg/kg	466	85.0	50
2-Methyl-1-Butene	ND		mg/kg	466	72.4	50
Pentane	413	J	mg/kg	466	145.	50
trans-2-Pentene	ND		mg/kg	466	62.8	50
Isoprene	ND		mg/kg	466	83.1	50
cis-2-Pentene	ND		mg/kg	466	75.0	50
Tertiary Butanol	ND		mg/kg	5820	754.	50
2,2-Dimethylbutane	156	J	mg/kg	466	144.	50
4-Methyl-1-pentene	ND		mg/kg	466	72.4	50
Cyclopentane	336	J	mg/kg	466	121.	50
2,3-Dimethylbutane	1000		mg/kg	466	192.	50
2-Methylpentane	5040		mg/kg	466	126.	50
Methyl tert butyl ether	ND		mg/kg	466	95.9	50
3-Methylpentane	4270		mg/kg	466	73.8	50
1-Hexene	ND		mg/kg	466	65.4	50
n-Hexane	5180		mg/kg	466	76.6	50
Isopropyl Ether	ND		mg/kg	466	56.3	50
trans-2-Hexene	78.7	J	mg/kg	466	60.8	50
2-Methyl-2-pentene	541		mg/kg	466	71.2	50
cis-2-Hexene	114	J	mg/kg	466	63.1	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	466	70.5	50
2,2-Dimethylpentane	439	J	mg/kg	466	62.6	50
Methylcyclopentane	5320		mg/kg	466	62.4	50
2,4-Dimethylpentane	1810		mg/kg	466	57.5	50
2,2,3-Trimethylbutane	138	J	mg/kg	466	62.8	50
1,2-Dichloroethane	ND		mg/kg	466	68.7	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01 D	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	488		mg/kg	466	86.6	50
Cyclohexane	2380		mg/kg	466	57.5	50
2-Methylhexane	9020		mg/kg	466	73.3	50
Benzene	4120		mg/kg	466	71.0	50
2,3-Dimethylpentane	3800		mg/kg	466	61.7	50
Thiophene	ND		mg/kg	466	66.1	50
1,1-Dimethylcyclopentane	ND		mg/kg	466	55.9	50
3-Methylhexane	9810		mg/kg	466	74.5	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	466	57.3	50
1,3-Dimethylcyclopentane (cis)	3180		mg/kg	466	70.1	50
3-Ethylpentane	928		mg/kg	466	67.3	50
1-Heptene/1,2-DMCP (trans)	3480		mg/kg	931	136.	50
Isooctane	6090		mg/kg	466	50.7	50
trans-3-Heptene	269	J	mg/kg	466	72.4	50
Heptane	10600		mg/kg	466	81.0	50
trans-2-Heptene	ND		mg/kg	466	59.6	50
cis-2-Heptene	ND		mg/kg	466	90.1	50
2,2-Dimethylhexane	436	J	mg/kg	466	67.5	50
Methylcyclohexane	8030		mg/kg	466	62.8	50
2,5-Dimethylhexane	2350		mg/kg	466	81.0	50
2,4-Dimethylhexane	2900		mg/kg	466	56.6	50
Ethylcyclopentane	1610		mg/kg	466	61.7	50
2,2,3-Trimethylpentane	459	J	mg/kg	466	80.8	50
2,3,4-Trimethylpentane	3960		mg/kg	466	60.8	50
2,3,3-Trimethylpentane	4150		mg/kg	466	92.4	50
2,3-Dimethylhexane	2320		mg/kg	466	113.	50
2-Methylheptane	7700		mg/kg	466	78.7	50
4-Methylheptane	2940		mg/kg	466	80.1	50
3-Methylheptane	7020		mg/kg	466	66.3	50
3-Ethylhexane	1400		mg/kg	466	83.3	50
Toluene	1940		mg/kg	466	63.1	50
2-Methylthiophene	ND		mg/kg	466	39.6	50
1,4-Dimethylcyclohexane (trans)	1700		mg/kg	466	60.5	50
3-Methylthiophene	ND		mg/kg	466	54.5	50
1-Octene	ND		mg/kg	1160	71.5	50
Octane	7870		mg/kg	466	54.7	50
1,2-Dimethylcyclohexane (trans)	1470		mg/kg	466	68.4	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01 D	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	466	74.5	50
cis-2-Octene	ND		mg/kg	466	53.3	50
Isopropylcyclopentane	264	J	mg/kg	466	68.2	50
1,2-Dimethylcyclohexane (cis)	1000		mg/kg	466	135.	50
2,5-Dimethylheptane	2490		mg/kg	466	78.0	50
3,5-Dimethylheptane	620		mg/kg	466	65.6	50
3,3-Dimethylheptane	254	J	mg/kg	466	56.3	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	466	46.3	50
2,3-Dimethylheptane	1550		mg/kg	466	53.1	50
3,4-Dimethylheptane	1260		mg/kg	466	79.1	50
4-Methyloctane	2920		mg/kg	466	77.7	50
2-Methyloctane	3620		mg/kg	466	119.	50
Ethylbenzene	13900		mg/kg	466	50.3	50
2-Ethylthiophene	ND		mg/kg	466	41.0	50
3-Methyloctane	4120		mg/kg	466	52.1	50
3,3-Diethylpentane	ND		mg/kg	466	54.2	50
p/m-Xylene	56600		mg/kg	931	88.7	50
1-Nonene	ND		mg/kg	1160	62.8	50
trans-3-Nonene	ND		mg/kg	466	55.2	50
cis-3-Nonene	ND		mg/kg	466	87.0	50
Nonane (C9)	5340		mg/kg	466	72.4	50
Styrene	63.1	J	mg/kg	466	47.0	50
o-Xylene	17000		mg/kg	466	48.6	50
Xylene (Total)[1]	73600		mg/kg	466	48.6	50
2-Nonene	ND		mg/kg	1160	59.1	50
Isopropylcyclohexane	542		mg/kg	466	49.3	50
Isopropylbenzene	1270		mg/kg	466	43.5	50
3,3-Dimethyloctane	265	J	mg/kg	466	47.0	50
n-Propylbenzene	5250		mg/kg	466	41.2	50
2-Methylnonane	2880		mg/kg	466	65.9	50
3-Methylnonane	2690		mg/kg	466	64.9	50
1-Methyl-3-Ethylbenzene	17700		mg/kg	466	73.6	50
1-Methyl-4-Ethylbenzene	9010		mg/kg	466	65.6	50
1,3,5-Trimethylbenzene	10700		mg/kg	466	53.5	50
1-Decene	ND		mg/kg	466	60.5	50
Isobutylcyclohexane	ND		mg/kg	466	37.9	50
1-Methyl-2-Ethylbenzene	6180		mg/kg	466	39.6	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-01 D
Client ID: TG02-MW-03-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 09:10
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	5130		mg/kg	466	63.1	50
tert-Butylbenzene	55.9	J	mg/kg	466	49.1	50
1,2,4-Trimethylbenzene	32900		mg/kg	466	48.2	50
Isobutylbenzene	627		mg/kg	466	62.8	50
sec-Butylbenzene	834		mg/kg	466	60.3	50
1-Methyl-3-Isopropylbenzene	1040		mg/kg	466	60.0	50
1-Methyl-4-Isopropylbenzene	503		mg/kg	466	49.3	50
1,2,3-Trimethylbenzene	7040		mg/kg	466	51.9	50
1-Methyl-2-Isopropylbenzene	149	J	mg/kg	466	50.5	50
Indane	3260		mg/kg	466	28.6	50
1,3-Diethylbenzene	2210		mg/kg	466	58.0	50
1-Methyl-3-N-Propylbenzene	4950		mg/kg	466	47.0	50
Indene	350	J	mg/kg	466	27.0	50
1-Methyl-4-N-Propylbenzene	2560		mg/kg	466	58.2	50
n-Butylbenzene	1910		mg/kg	466	45.8	50
1,2-Dimethyl-4-Ethylbenzene	5570		mg/kg	466	57.0	50
1,2-Diethylbenzene	485		mg/kg	466	68.9	50
1-Methyl-2-N-Propylbenzene	1990		mg/kg	466	58.0	50
1,4-Dimethyl-2-Ethylbenzene	3900		mg/kg	466	43.5	50
Undecane	4620		mg/kg	466	51.7	50
1,3-Dimethyl-4-Ethylbenzene	3590		mg/kg	466	45.2	50
1,3-Dimethyl-5-Ethylbenzene	6340		mg/kg	466	54.9	50
1,3-Dimethyl-2-Ethylbenzene	648		mg/kg	466	34.7	50
1,2-Dimethyl-3-Ethylbenzene	1410		mg/kg	466	29.6	50
1,2,4,5-Tetramethylbenzene	3460		mg/kg	466	36.1	50
1,2,3,5-Tetramethylbenzene	5240		mg/kg	466	35.4	50
N-Pentylbenzene	453	J	mg/kg	466	58.0	50
1,2,3,4-Tetramethylbenzene	1920		mg/kg	466	49.8	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	466	66.3	50
Dodecane (C12)	3660		mg/kg	1160	153.	50
1,3,5-Triethylbenzene	ND		mg/kg	466	88.4	50
Naphthalene	4950		mg/kg	466	194.	50
Benzothiophene	ND		mg/kg	466	246.	50
1,2,4-Triethylbenzene	ND		mg/kg	466	79.1	50
Hexylbenzene	381	J	mg/kg	466	89.6	50
MMT	ND		mg/kg	1160	299.	50
Tridecane	2690		mg/kg	1160	324.	50

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01 D	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	7400		mg/kg	1160	308.	50
1-Methylnaphthalene	4030		mg/kg	1160	342.	50
Tetradecane (C14)	1280		mg/kg	1160	142.	50
Pentadecane	1050	J	mg/kg	1160	260.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	93		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	97		70-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02 D	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 20:53
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	95.5	J	mg/kg	457	67.9	50
Isopentane	11600		mg/kg	457	83.6	50
1-Pentene	371	J	mg/kg	457	83.4	50
2-Methyl-1-Butene	1320		mg/kg	457	71.1	50
Pentane	10000		mg/kg	457	142.	50
trans-2-Pentene	1260		mg/kg	457	61.7	50
Isoprene	ND		mg/kg	457	81.6	50
cis-2-Pentene	669		mg/kg	457	73.6	50
Tertiary Butanol	ND		mg/kg	5710	740.	50
2,2-Dimethylbutane	451	J	mg/kg	457	141.	50
4-Methyl-1-pentene	286	J	mg/kg	457	71.1	50
Cyclopentane	1570		mg/kg	457	119.	50
2,3-Dimethylbutane	4000		mg/kg	457	189.	50
2-Methylpentane	10200		mg/kg	457	124.	50
Methyl tert butyl ether	ND		mg/kg	457	94.1	50
3-Methylpentane	7030		mg/kg	457	72.4	50
1-Hexene	298	J	mg/kg	457	64.2	50
n-Hexane	11000		mg/kg	457	75.2	50
Isopropyl Ether	ND		mg/kg	457	55.3	50
trans-2-Hexene	829		mg/kg	457	59.6	50
2-Methyl-2-pentene	1690		mg/kg	457	69.9	50
cis-2-Hexene	513		mg/kg	457	61.9	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	457	69.2	50
2,2-Dimethylpentane	444	J	mg/kg	457	61.5	50
Methylcyclopentane	9170		mg/kg	457	61.2	50
2,4-Dimethylpentane	3340		mg/kg	457	56.4	50
2,2,3-Trimethylbutane	300	J	mg/kg	457	61.7	50
1,2-Dichloroethane	ND		mg/kg	457	67.4	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02 D	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	353	J	mg/kg	457	85.0	50
Cyclohexane	5890		mg/kg	457	56.4	50
2-Methylhexane	6810		mg/kg	457	72.0	50
Benzene	4650		mg/kg	457	69.7	50
2,3-Dimethylpentane	4800		mg/kg	457	60.6	50
Thiophene	ND		mg/kg	457	64.9	50
1,1-Dimethylcyclopentane	1130		mg/kg	457	54.8	50
3-Methylhexane	7520		mg/kg	457	73.1	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	457	56.2	50
1,3-Dimethylcyclopentane (cis)	4750		mg/kg	457	68.8	50
3-Ethylpentane	653		mg/kg	457	66.0	50
1-Heptene/1,2-DMCP (trans)	6280		mg/kg	914	134.	50
Isooctane	19300		mg/kg	457	49.8	50
trans-3-Heptene	445	J	mg/kg	457	71.1	50
Heptane	14300		mg/kg	457	79.5	50
trans-2-Heptene	282	J	mg/kg	457	58.5	50
cis-2-Heptene	ND		mg/kg	457	88.4	50
2,2-Dimethylhexane	404	J	mg/kg	457	66.3	50
Methylcyclohexane	14900		mg/kg	457	61.7	50
2,5-Dimethylhexane	4130		mg/kg	457	79.5	50
2,4-Dimethylhexane	3710		mg/kg	457	55.5	50
Ethylcyclopentane	1920		mg/kg	457	60.6	50
2,2,3-Trimethylpentane	1380		mg/kg	457	79.3	50
2,3,4-Trimethylpentane	12000		mg/kg	457	59.6	50
2,3,3-Trimethylpentane	13400		mg/kg	457	90.7	50
2,3-Dimethylhexane	3460		mg/kg	457	111.	50
2-Methylheptane	7930		mg/kg	457	77.2	50
4-Methylheptane	2420		mg/kg	457	78.6	50
3-Methylheptane	5250		mg/kg	457	65.1	50
3-Ethylhexane	908		mg/kg	457	81.8	50
Toluene	6220		mg/kg	457	61.9	50
2-Methylthiophene	ND		mg/kg	457	38.8	50
1,4-Dimethylcyclohexane (trans)	1990		mg/kg	457	59.4	50
3-Methylthiophene	ND		mg/kg	457	53.5	50
1-Octene	ND		mg/kg	1140	70.2	50
Octane	10900		mg/kg	457	53.7	50
1,2-Dimethylcyclohexane (trans)	2130		mg/kg	457	67.2	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02 D
Client ID: TG02-MW-04-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 13:15
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	457	73.1	50
cis-2-Octene	115	J	mg/kg	457	52.3	50
Isopropylcyclopentane	ND		mg/kg	457	67.0	50
1,2-Dimethylcyclohexane (cis)	1510		mg/kg	457	133.	50
2,5-Dimethylheptane	2490		mg/kg	457	76.6	50
3,5-Dimethylheptane	539		mg/kg	457	64.4	50
3,3-Dimethylheptane	268	J	mg/kg	457	55.3	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	457	45.5	50
2,3-Dimethylheptane	2130		mg/kg	457	52.1	50
3,4-Dimethylheptane	1210		mg/kg	457	77.7	50
4-Methyloctane	2870		mg/kg	457	76.3	50
2-Methyloctane	3460		mg/kg	457	117.	50
Ethylbenzene	6180		mg/kg	457	49.4	50
2-Ethylthiophene	ND		mg/kg	457	40.2	50
3-Methyloctane	4210		mg/kg	457	51.2	50
3,3-Diethylpentane	ND		mg/kg	457	53.2	50
p/m-Xylene	20200		mg/kg	914	87.1	50
1-Nonene	ND		mg/kg	1140	61.7	50
trans-3-Nonene	ND		mg/kg	457	54.2	50
cis-3-Nonene	ND		mg/kg	457	85.5	50
Nonane (C9)	9820		mg/kg	457	71.1	50
Styrene	70.4	J	mg/kg	457	46.2	50
o-Xylene	6770		mg/kg	457	47.8	50
Xylene (Total)[1]	27000		mg/kg	457	47.8	50
2-Nonene	ND		mg/kg	1140	58.0	50
Isopropylcyclohexane	ND		mg/kg	457	48.4	50
Isopropylbenzene	1030		mg/kg	457	42.7	50
3,3-Dimethyloctane	460		mg/kg	457	46.2	50
n-Propylbenzene	2170		mg/kg	457	40.4	50
2-Methylnonane	3370		mg/kg	457	64.7	50
3-Methylnonane	2540		mg/kg	457	63.8	50
1-Methyl-3-Ethylbenzene	6080		mg/kg	457	72.2	50
1-Methyl-4-Ethylbenzene	3530		mg/kg	457	64.4	50
1,3,5-Trimethylbenzene	4220		mg/kg	457	52.6	50
1-Decene	ND		mg/kg	457	59.4	50
Isobutylcyclohexane	ND		mg/kg	457	37.2	50
1-Methyl-2-Ethylbenzene	2440		mg/kg	457	38.8	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02 D	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	10900		mg/kg	457	61.9	50
tert-Butylbenzene	237	J	mg/kg	457	48.2	50
1,2,4-Trimethylbenzene	13000		mg/kg	457	47.3	50
Isobutylbenzene	323	J	mg/kg	457	61.7	50
sec-Butylbenzene	432	J	mg/kg	457	59.2	50
1-Methyl-3-Isopropylbenzene	800		mg/kg	457	59.0	50
1-Methyl-4-Isopropylbenzene	615		mg/kg	457	48.4	50
1,2,3-Trimethylbenzene	3700		mg/kg	457	51.0	50
1-Methyl-2-Isopropylbenzene	136	J	mg/kg	457	49.6	50
Indane	3040		mg/kg	457	28.1	50
1,3-Diethylbenzene	918		mg/kg	457	56.9	50
1-Methyl-3-N-Propylbenzene	1930		mg/kg	457	46.2	50
Indene	294	J	mg/kg	457	26.5	50
1-Methyl-4-N-Propylbenzene	1040		mg/kg	457	57.1	50
n-Butylbenzene	770		mg/kg	457	45.0	50
1,2-Dimethyl-4-Ethylbenzene	2190		mg/kg	457	56.0	50
1,2-Diethylbenzene	218	J	mg/kg	457	67.6	50
1-Methyl-2-N-Propylbenzene	819		mg/kg	457	56.9	50
1,4-Dimethyl-2-Ethylbenzene	1500		mg/kg	457	42.7	50
Undecane	6070		mg/kg	457	50.7	50
1,3-Dimethyl-4-Ethylbenzene	1490		mg/kg	457	44.3	50
1,3-Dimethyl-5-Ethylbenzene	2550		mg/kg	457	53.9	50
1,3-Dimethyl-2-Ethylbenzene	318	J	mg/kg	457	34.0	50
1,2-Dimethyl-3-Ethylbenzene	610		mg/kg	457	29.0	50
1,2,4,5-Tetramethylbenzene	1350		mg/kg	457	35.4	50
1,2,3,5-Tetramethylbenzene	2000		mg/kg	457	34.7	50
N-Pentylbenzene	212	J	mg/kg	457	56.9	50
1,2,3,4-Tetramethylbenzene	990		mg/kg	457	48.9	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	457	65.1	50
Dodecane (C12)	3790		mg/kg	1140	150.	50
1,3,5-Triethylbenzene	ND		mg/kg	457	86.8	50
Naphthalene	10200		mg/kg	457	191.	50
Benzothiophene	328	J	mg/kg	457	242.	50
1,2,4-Triethylbenzene	ND		mg/kg	457	77.7	50
Hexylbenzene	163	J	mg/kg	457	88.0	50
MMT	ND		mg/kg	1140	294.	50
Tridecane	2900		mg/kg	1140	318.	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02 D	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	7980		mg/kg	1140	302.	50
1-Methylnaphthalene	4760		mg/kg	1140	335.	50
Tetradecane (C14)	2450		mg/kg	1140	140.	50
Pentadecane	2620		mg/kg	1140	255.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03 D2	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/12/23 04:25
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Isooctane	68400		mg/kg	1880	205.	200
2,3,3-Trimethylpentane	45300		mg/kg	1880	374.	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03 D	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 22:05
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	471	69.9	50
Isopentane	15300		mg/kg	471	86.2	50
1-Pentene	ND		mg/kg	471	85.9	50
2-Methyl-1-Butene	367	J	mg/kg	471	73.2	50
Pentane	6960		mg/kg	471	147.	50
trans-2-Pentene	ND		mg/kg	471	63.6	50
Isoprene	ND		mg/kg	471	84.0	50
cis-2-Pentene	ND		mg/kg	471	75.8	50
Tertiary Butanol	ND		mg/kg	5880	763.	50
2,2-Dimethylbutane	946		mg/kg	471	145.	50
4-Methyl-1-pentene	ND		mg/kg	471	73.2	50
Cyclopentane	1240		mg/kg	471	122.	50
2,3-Dimethylbutane	7850		mg/kg	471	194.	50
2-Methylpentane	11100		mg/kg	471	128.	50
Methyl tert butyl ether	1090		mg/kg	471	97.0	50
3-Methylpentane	9020		mg/kg	471	74.6	50
1-Hexene	ND		mg/kg	471	66.1	50
n-Hexane	3000		mg/kg	471	77.4	50
Isopropyl Ether	ND		mg/kg	471	57.0	50
trans-2-Hexene	ND		mg/kg	471	61.4	50
2-Methyl-2-pentene	930		mg/kg	471	72.0	50
cis-2-Hexene	ND		mg/kg	471	63.8	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	471	71.3	50
2,2-Dimethylpentane	409	J	mg/kg	471	63.3	50
Methylcyclopentane	7110		mg/kg	471	63.1	50
2,4-Dimethylpentane	9370		mg/kg	471	58.1	50
2,2,3-Trimethylbutane	705		mg/kg	471	63.6	50
1,2-Dichloroethane	ND		mg/kg	471	69.4	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-03 D
Client ID: TG02-MW-05-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 13:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	368	J	mg/kg	471	87.6	50
Cyclohexane	3020		mg/kg	471	58.1	50
2-Methylhexane	5370		mg/kg	471	74.2	50
Benzene	2100		mg/kg	471	71.8	50
2,3-Dimethylpentane	7640		mg/kg	471	62.4	50
Thiophene	ND		mg/kg	471	66.8	50
1,1-Dimethylcyclopentane	478		mg/kg	471	56.5	50
3-Methylhexane	5670		mg/kg	471	75.3	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	471	57.9	50
1,3-Dimethylcyclopentane (cis)	2380		mg/kg	471	70.8	50
3-Ethylpentane	589		mg/kg	471	68.0	50
1-Heptene/1,2-DMCP (trans)	3920		mg/kg	942	138.	50
Isooctane	81400	E	mg/kg	471	51.3	50
trans-3-Heptene	ND		mg/kg	471	73.2	50
Heptane	3520		mg/kg	471	81.9	50
trans-2-Heptene	ND		mg/kg	471	60.3	50
cis-2-Heptene	ND		mg/kg	471	91.1	50
2,2-Dimethylhexane	ND		mg/kg	471	68.3	50
Methylcyclohexane	6180		mg/kg	471	63.6	50
2,5-Dimethylhexane	14900		mg/kg	471	81.9	50
2,4-Dimethylhexane	11000		mg/kg	471	57.2	50
Ethylcyclopentane	1760		mg/kg	471	62.4	50
2,2,3-Trimethylpentane	5800		mg/kg	471	81.7	50
2,3,4-Trimethylpentane	46500		mg/kg	471	61.4	50
2,3,3-Trimethylpentane	53100	E	mg/kg	471	93.4	50
2,3-Dimethylhexane	9600		mg/kg	471	114.	50
2-Methylheptane	4660		mg/kg	471	79.6	50
4-Methylheptane	1630		mg/kg	471	81.0	50
3-Methylheptane	3560		mg/kg	471	67.1	50
3-Ethylhexane	793		mg/kg	471	84.3	50
Toluene	806		mg/kg	471	63.8	50
2-Methylthiophene	ND		mg/kg	471	40.0	50
1,4-Dimethylcyclohexane (trans)	1200		mg/kg	471	61.2	50
3-Methylthiophene	ND		mg/kg	471	55.1	50
1-Octene	ND		mg/kg	1180	72.3	50
Octane	1460		mg/kg	471	55.3	50
1,2-Dimethylcyclohexane (trans)	1020		mg/kg	471	69.2	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03 D	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	471	75.3	50
cis-2-Octene	ND		mg/kg	471	53.9	50
Isopropylcyclopentane	151	J	mg/kg	471	69.0	50
1,2-Dimethylcyclohexane (cis)	794		mg/kg	471	137.	50
2,5-Dimethylheptane	2280		mg/kg	471	78.9	50
3,5-Dimethylheptane	420	J	mg/kg	471	66.4	50
3,3-Dimethylheptane	160	J	mg/kg	471	57.0	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	471	46.8	50
2,3-Dimethylheptane	1280		mg/kg	471	53.7	50
3,4-Dimethylheptane	845		mg/kg	471	80.0	50
4-Methyloctane	1500		mg/kg	471	78.6	50
2-Methyloctane	1880		mg/kg	471	120.	50
Ethylbenzene	1860		mg/kg	471	50.8	50
2-Ethylthiophene	ND		mg/kg	471	41.4	50
3-Methyloctane	2260		mg/kg	471	52.7	50
3,3-Diethylpentane	ND		mg/kg	471	54.8	50
p/m-Xylene	13600		mg/kg	942	89.7	50
1-Nonene	ND		mg/kg	1180	63.6	50
trans-3-Nonene	ND		mg/kg	471	55.8	50
cis-3-Nonene	ND		mg/kg	471	88.0	50
Nonane (C9)	354	J	mg/kg	471	73.2	50
Styrene	58.8	J	mg/kg	471	47.6	50
o-Xylene	2460		mg/kg	471	49.2	50
Xylene (Total)[1]	16100		mg/kg	471	49.2	50
2-Nonene	ND		mg/kg	1180	59.8	50
Isopropylcyclohexane	ND		mg/kg	471	49.9	50
Isopropylbenzene	698		mg/kg	471	44.0	50
3,3-Dimethyloctane	133	J	mg/kg	471	47.6	50
n-Propylbenzene	2200		mg/kg	471	41.7	50
2-Methylnonane	ND		mg/kg	471	66.6	50
3-Methylnonane	1040		mg/kg	471	65.7	50
1-Methyl-3-Ethylbenzene	3540		mg/kg	471	74.4	50
1-Methyl-4-Ethylbenzene	1500		mg/kg	471	66.4	50
1,3,5-Trimethylbenzene	3780		mg/kg	471	54.1	50
1-Decene	ND		mg/kg	471	61.2	50
Isobutylcyclohexane	ND		mg/kg	471	38.4	50
1-Methyl-2-Ethylbenzene	1940		mg/kg	471	40.0	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03 D	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	1080		mg/kg	471	63.8	50
tert-Butylbenzene	ND		mg/kg	471	49.7	50
1,2,4-Trimethylbenzene	8150		mg/kg	471	48.7	50
Isobutylbenzene	243	J	mg/kg	471	63.6	50
sec-Butylbenzene	405	J	mg/kg	471	61.0	50
1-Methyl-3-Isopropylbenzene	362	J	mg/kg	471	60.7	50
1-Methyl-4-Isopropylbenzene	201	J	mg/kg	471	49.9	50
1,2,3-Trimethylbenzene	2590		mg/kg	471	52.5	50
1-Methyl-2-Isopropylbenzene	66.6	J	mg/kg	471	51.1	50
Indane	1290		mg/kg	471	29.0	50
1,3-Diethylbenzene	797		mg/kg	471	58.6	50
1-Methyl-3-N-Propylbenzene	1020		mg/kg	471	47.6	50
Indene	91.1	J	mg/kg	471	27.3	50
1-Methyl-4-N-Propylbenzene	772		mg/kg	471	58.8	50
n-Butylbenzene	654		mg/kg	471	46.4	50
1,2-Dimethyl-4-Ethylbenzene	1780		mg/kg	471	57.7	50
1,2-Diethylbenzene	179	J	mg/kg	471	69.7	50
1-Methyl-2-N-Propylbenzene	694		mg/kg	471	58.6	50
1,4-Dimethyl-2-Ethylbenzene	1080		mg/kg	471	44.0	50
Undecane	811		mg/kg	471	52.2	50
1,3-Dimethyl-4-Ethylbenzene	834		mg/kg	471	45.7	50
1,3-Dimethyl-5-Ethylbenzene	2120		mg/kg	471	55.6	50
1,3-Dimethyl-2-Ethylbenzene	268	J	mg/kg	471	35.1	50
1,2-Dimethyl-3-Ethylbenzene	490		mg/kg	471	29.9	50
1,2,4,5-Tetramethylbenzene	1200		mg/kg	471	36.5	50
1,2,3,5-Tetramethylbenzene	1510		mg/kg	471	35.8	50
N-Pentylbenzene	200	J	mg/kg	471	58.6	50
1,2,3,4-Tetramethylbenzene	800		mg/kg	471	50.4	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	471	67.1	50
Dodecane (C12)	183	J	mg/kg	1180	155.	50
1,3,5-Triethylbenzene	ND		mg/kg	471	89.4	50
Naphthalene	1520		mg/kg	471	196.	50
Benzothiophene	ND		mg/kg	471	249.	50
1,2,4-Triethylbenzene	84.5	J	mg/kg	471	80.0	50
Hexylbenzene	207	J	mg/kg	471	90.6	50
MMT	ND		mg/kg	1180	303.	50
Tridecane	ND		mg/kg	1180	328.	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03 D	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	2610		mg/kg	1180	311.	50
1-Methylnaphthalene	1620		mg/kg	1180	346.	50
Tetradecane (C14)	ND		mg/kg	1180	144.	50
Pentadecane	ND		mg/kg	1180	262.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	100		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04 D
Client ID: TG02-MW-06-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 09:05
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/12/23 00:48
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	70.9	J	mg/kg	250	37.2	25
Isopentane	9920		mg/kg	250	45.8	25
1-Pentene	205	J	mg/kg	250	45.7	25
2-Methyl-1-Butene	628		mg/kg	250	39.0	25
Pentane	9880		mg/kg	250	78.2	25
trans-2-Pentene	670		mg/kg	250	33.8	25
Isoprene	ND		mg/kg	250	44.7	25
cis-2-Pentene	343		mg/kg	250	40.3	25
Tertiary Butanol	ND		mg/kg	3130	406.	25
2,2-Dimethylbutane	652		mg/kg	250	77.3	25
4-Methyl-1-pentene	142	J	mg/kg	250	39.0	25
Cyclopentane	1340		mg/kg	250	65.0	25
2,3-Dimethylbutane	3570		mg/kg	250	103.	25
2-Methylpentane	11600		mg/kg	250	67.9	25
Methyl tert butyl ether	ND		mg/kg	250	51.6	25
3-Methylpentane	8110		mg/kg	250	39.7	25
1-Hexene	202	J	mg/kg	250	35.2	25
n-Hexane	12300		mg/kg	250	41.2	25
Isopropyl Ether	ND		mg/kg	250	30.3	25
trans-2-Hexene	489		mg/kg	250	32.7	25
2-Methyl-2-pentene	1040		mg/kg	250	38.3	25
cis-2-Hexene	271		mg/kg	250	33.9	25
Ethyl-Tert-Butyl-Ether	ND		mg/kg	250	38.0	25
2,2-Dimethylpentane	710		mg/kg	250	33.7	25
Methylcyclopentane	8960		mg/kg	250	33.6	25
2,4-Dimethylpentane	2750		mg/kg	250	30.9	25
2,2,3-Trimethylbutane	301		mg/kg	250	33.8	25
1,2-Dichloroethane	ND		mg/kg	250	36.9	25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04	D	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219		Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.		Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	462		mg/kg	250	46.6	25
Cyclohexane	5200		mg/kg	250	30.9	25
2-Methylhexane	8470		mg/kg	250	39.4	25
Benzene	5880		mg/kg	250	38.2	25
2,3-Dimethylpentane	3680		mg/kg	250	33.2	25
Thiophene	ND		mg/kg	250	35.6	25
1,1-Dimethylcyclopentane	ND		mg/kg	250	30.1	25
3-Methylhexane	8710		mg/kg	250	40.1	25
Tertiary-Amyl Methyl Ether	ND		mg/kg	250	30.8	25
1,3-Dimethylcyclopentane (cis)	4090		mg/kg	250	37.7	25
3-Ethylpentane	699		mg/kg	250	36.2	25
1-Heptene/1,2-DMCP (trans)	5210		mg/kg	501	73.3	25
Isooctane	10600		mg/kg	250	27.3	25
trans-3-Heptene	ND		mg/kg	250	39.0	25
Heptane	13600		mg/kg	250	43.6	25
trans-2-Heptene	218	J	mg/kg	250	32.1	25
cis-2-Heptene	324		mg/kg	250	48.5	25
2,2-Dimethylhexane	489		mg/kg	250	36.3	25
Methylcyclohexane	14200		mg/kg	250	33.8	25
2,5-Dimethylhexane	2980		mg/kg	250	43.6	25
2,4-Dimethylhexane	2850		mg/kg	250	30.4	25
Ethylcyclopentane	1570		mg/kg	250	33.2	25
2,2,3-Trimethylpentane	770		mg/kg	250	43.5	25
2,3,4-Trimethylpentane	5990		mg/kg	250	32.7	25
2,3,3-Trimethylpentane	7040		mg/kg	250	49.7	25
2,3-Dimethylhexane	2170		mg/kg	250	60.7	25
2-Methylheptane	7120		mg/kg	250	42.3	25
4-Methylheptane	2740		mg/kg	250	43.1	25
3-Methylheptane	5290		mg/kg	250	35.7	25
3-Ethylhexane	1080		mg/kg	250	44.8	25
Toluene	9800		mg/kg	250	33.9	25
2-Methylthiophene	ND		mg/kg	250	21.3	25
1,4-Dimethylcyclohexane (trans)	1760		mg/kg	250	32.6	25
3-Methylthiophene	ND		mg/kg	250	29.3	25
1-Octene	ND		mg/kg	626	38.4	25
Octane	7820		mg/kg	250	29.4	25
1,2-Dimethylcyclohexane (trans)	1770		mg/kg	250	36.8	25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04 D
Client ID: TG02-MW-06-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 09:05
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	250	40.1	25
cis-2-Octene	77.6	J	mg/kg	250	28.7	25
Isopropylcyclopentane	163	J	mg/kg	250	36.7	25
1,2-Dimethylcyclohexane (cis)	1120		mg/kg	250	72.8	25
2,5-Dimethylheptane	2170		mg/kg	250	42.0	25
3,5-Dimethylheptane	516		mg/kg	250	35.3	25
3,3-Dimethylheptane	245	J	mg/kg	250	30.3	25
1,1,4-Trimethylcyclohexane	ND		mg/kg	250	24.9	25
2,3-Dimethylheptane	1420		mg/kg	250	28.6	25
3,4-Dimethylheptane	1040		mg/kg	250	42.6	25
4-Methyloctane	2350		mg/kg	250	41.8	25
2-Methyloctane	3210		mg/kg	250	64.1	25
Ethylbenzene	4140		mg/kg	250	27.0	25
2-Ethylthiophene	ND		mg/kg	250	22.0	25
3-Methyloctane	3700		mg/kg	250	28.0	25
3,3-Diethylpentane	ND		mg/kg	250	29.2	25
p/m-Xylene	16000		mg/kg	501	47.7	25
1-Nonene	ND		mg/kg	626	33.8	25
trans-3-Nonene	ND		mg/kg	250	29.7	25
cis-3-Nonene	ND		mg/kg	250	46.8	25
Nonane (C9)	4650		mg/kg	250	39.0	25
Styrene	33.8	J	mg/kg	250	25.3	25
o-Xylene	4880		mg/kg	250	26.2	25
Xylene (Total)[1]	20900		mg/kg	250	26.2	25
2-Nonene	ND		mg/kg	626	31.8	25
Isopropylcyclohexane	ND		mg/kg	250	26.6	25
Isopropylbenzene	367		mg/kg	250	23.4	25
3,3-Dimethyloctane	327		mg/kg	250	25.3	25
n-Propylbenzene	1540		mg/kg	250	22.2	25
2-Methylnonane	2750		mg/kg	250	35.4	25
3-Methylnonane	2280		mg/kg	250	34.9	25
1-Methyl-3-Ethylbenzene	4250		mg/kg	250	39.6	25
1-Methyl-4-Ethylbenzene	2490		mg/kg	250	35.3	25
1,3,5-Trimethylbenzene	3350		mg/kg	250	28.8	25
1-Decene	ND		mg/kg	250	32.6	25
Isobutylcyclohexane	ND		mg/kg	250	20.4	25
1-Methyl-2-Ethylbenzene	1640		mg/kg	250	21.3	25

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04 D	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	4640		mg/kg	250	33.9	25
tert-Butylbenzene	49.5	J	mg/kg	250	26.4	25
1,2,4-Trimethylbenzene	9860		mg/kg	250	25.9	25
Isobutylbenzene	223	J	mg/kg	250	33.8	25
sec-Butylbenzene	248	J	mg/kg	250	32.4	25
1-Methyl-3-Isopropylbenzene	356		mg/kg	250	32.3	25
1-Methyl-4-Isopropylbenzene	332		mg/kg	250	26.6	25
1,2,3-Trimethylbenzene	2350		mg/kg	250	27.9	25
1-Methyl-2-Isopropylbenzene	85.9	J	mg/kg	250	27.2	25
Indane	1000		mg/kg	250	15.4	25
1,3-Diethylbenzene	646		mg/kg	250	31.2	25
1-Methyl-3-N-Propylbenzene	1420		mg/kg	250	25.3	25
Indene	92.7	J	mg/kg	250	14.5	25
1-Methyl-4-N-Propylbenzene	838		mg/kg	250	31.3	25
n-Butylbenzene	602		mg/kg	250	24.7	25
1,2-Dimethyl-4-Ethylbenzene	1710		mg/kg	250	30.7	25
1,2-Diethylbenzene	147	J	mg/kg	250	37.1	25
1-Methyl-2-N-Propylbenzene	622		mg/kg	250	31.2	25
1,4-Dimethyl-2-Ethylbenzene	1190		mg/kg	250	23.4	25
Undecane	3930		mg/kg	250	27.8	25
1,3-Dimethyl-4-Ethylbenzene	1170		mg/kg	250	24.3	25
1,3-Dimethyl-5-Ethylbenzene	2110		mg/kg	250	29.6	25
1,3-Dimethyl-2-Ethylbenzene	291		mg/kg	250	18.7	25
1,2-Dimethyl-3-Ethylbenzene	481		mg/kg	250	15.9	25
1,2,4,5-Tetramethylbenzene	1310		mg/kg	250	19.4	25
1,2,3,5-Tetramethylbenzene	1940		mg/kg	250	19.0	25
N-Pentylbenzene	165	J	mg/kg	250	31.2	25
1,2,3,4-Tetramethylbenzene	1240		mg/kg	250	26.8	25
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	250	35.7	25
Dodecane (C12)	3090		mg/kg	626	82.3	25
1,3,5-Triethylbenzene	ND		mg/kg	250	47.6	25
Naphthalene	1270		mg/kg	250	104.	25
Benzothiophene	ND		mg/kg	250	132.	25
1,2,4-Triethylbenzene	ND		mg/kg	250	42.6	25
Hexylbenzene	191	J	mg/kg	250	48.2	25
MMT	ND		mg/kg	626	161.	25
Tridecane	2750		mg/kg	626	174.	25

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04 D	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	2460		mg/kg	626	166.	25
1-Methylnaphthalene	1520		mg/kg	626	184.	25
Tetradecane (C14)	2410		mg/kg	626	76.6	25
Pentadecane	2440		mg/kg	626	140.	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05 D
Date Collected: 12/20/22 10:30
Client ID: TG02-MW-08-221220
Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/10/23 00:29
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	481	71.5	50
Isopentane	4350		mg/kg	481	88.1	50
1-Pentene	ND		mg/kg	481	87.8	50
2-Methyl-1-Butene	176	J	mg/kg	481	74.8	50
Pentane	5240		mg/kg	481	150.	50
trans-2-Pentene	234	J	mg/kg	481	65.0	50
Isoprene	ND		mg/kg	481	85.9	50
cis-2-Pentene	116	J	mg/kg	481	77.5	50
Tertiary Butanol	ND		mg/kg	6020	780.	50
2,2-Dimethylbutane	616		mg/kg	481	148.	50
4-Methyl-1-pentene	76.0	J	mg/kg	481	74.8	50
Cyclopentane	1270		mg/kg	481	125.	50
2,3-Dimethylbutane	3190		mg/kg	481	199.	50
2-Methylpentane	13900		mg/kg	481	130.	50
Methyl tert butyl ether	280	J	mg/kg	481	99.1	50
3-Methylpentane	10200		mg/kg	481	76.3	50
1-Hexene	137	J	mg/kg	481	67.6	50
n-Hexane	11900		mg/kg	481	79.2	50
Isopropyl Ether	ND		mg/kg	481	58.2	50
trans-2-Hexene	419	J	mg/kg	481	62.8	50
2-Methyl-2-pentene	680		mg/kg	481	73.6	50
cis-2-Hexene	243	J	mg/kg	481	65.2	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	481	72.9	50
2,2-Dimethylpentane	674		mg/kg	481	64.7	50
Methylcyclopentane	8840		mg/kg	481	64.5	50
2,4-Dimethylpentane	2920		mg/kg	481	59.4	50
2,2,3-Trimethylbutane	207	J	mg/kg	481	65.0	50
1,2-Dichloroethane	ND		mg/kg	481	71.0	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05 D
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	612		mg/kg	481	89.5	50
Cyclohexane	3440		mg/kg	481	59.4	50
2-Methylhexane	10200		mg/kg	481	75.8	50
Benzene	5890		mg/kg	481	73.4	50
2,3-Dimethylpentane	5220		mg/kg	481	63.8	50
Thiophene	ND		mg/kg	481	68.3	50
1,1-Dimethylcyclopentane	ND		mg/kg	481	57.7	50
3-Methylhexane	10700		mg/kg	481	77.0	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	481	59.2	50
1,3-Dimethylcyclopentane (cis)	3440		mg/kg	481	72.4	50
3-Ethylpentane	976		mg/kg	481	69.5	50
1-Heptene/1,2-DMCP (trans)	3850		mg/kg	962	141.	50
Isooctane	7970		mg/kg	481	52.4	50
trans-3-Heptene	251	J	mg/kg	481	74.8	50
Heptane	11900		mg/kg	481	83.7	50
trans-2-Heptene	248	J	mg/kg	481	61.6	50
cis-2-Heptene	ND		mg/kg	481	93.1	50
2,2-Dimethylhexane	394	J	mg/kg	481	69.8	50
Methylcyclohexane	8140		mg/kg	481	65.0	50
2,5-Dimethylhexane	2460		mg/kg	481	83.7	50
2,4-Dimethylhexane	2780		mg/kg	481	58.5	50
Ethylcyclopentane	1360		mg/kg	481	63.8	50
2,2,3-Trimethylpentane	565		mg/kg	481	83.5	50
2,3,4-Trimethylpentane	4840		mg/kg	481	62.8	50
2,3,3-Trimethylpentane	5180		mg/kg	481	95.5	50
2,3-Dimethylhexane	2200		mg/kg	481	117.	50
2-Methylheptane	6480		mg/kg	481	81.3	50
4-Methylheptane	2460		mg/kg	481	82.8	50
3-Methylheptane	5520		mg/kg	481	68.6	50
3-Ethylhexane	1160		mg/kg	481	86.1	50
Toluene	12200		mg/kg	481	65.2	50
2-Methylthiophene	ND		mg/kg	481	40.9	50
1,4-Dimethylcyclohexane (trans)	1140		mg/kg	481	62.6	50
3-Methylthiophene	ND		mg/kg	481	56.3	50
1-Octene	ND		mg/kg	1200	73.9	50
Octane	7590		mg/kg	481	56.5	50
1,2-Dimethylcyclohexane (trans)	1350		mg/kg	481	70.7	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05 D
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	481	77.0	50
cis-2-Octene	ND		mg/kg	481	55.1	50
Isopropylcyclopentane	ND		mg/kg	481	70.5	50
1,2-Dimethylcyclohexane (cis)	758		mg/kg	481	140.	50
2,5-Dimethylheptane	1910		mg/kg	481	80.6	50
3,5-Dimethylheptane	487		mg/kg	481	67.8	50
3,3-Dimethylheptane	209	J	mg/kg	481	58.2	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	481	47.9	50
2,3-Dimethylheptane	1330		mg/kg	481	54.9	50
3,4-Dimethylheptane	1050		mg/kg	481	81.8	50
4-Methyloctane	2300		mg/kg	481	80.4	50
2-Methyloctane	2700		mg/kg	481	123.	50
Ethylbenzene	9250		mg/kg	481	52.0	50
2-Ethylthiophene	ND		mg/kg	481	42.3	50
3-Methyloctane	3180		mg/kg	481	53.9	50
3,3-Diethylpentane	ND		mg/kg	481	56.1	50
p/m-Xylene	36800		mg/kg	962	91.7	50
1-Nonene	ND		mg/kg	1200	65.0	50
trans-3-Nonene	ND		mg/kg	481	57.0	50
cis-3-Nonene	ND		mg/kg	481	90.0	50
Nonane (C9)	5920		mg/kg	481	74.8	50
Styrene	61.8	J	mg/kg	481	48.6	50
o-Xylene	12100		mg/kg	481	50.3	50
Xylene (Total)[1]	48900		mg/kg	481	50.3	50
2-Nonene	ND		mg/kg	1200	61.1	50
Isopropylcyclohexane	ND		mg/kg	481	51.0	50
Isopropylbenzene	852		mg/kg	481	45.0	50
3,3-Dimethyloctane	287	J	mg/kg	481	48.6	50
n-Propylbenzene	3300		mg/kg	481	42.6	50
2-Methylnonane	2540		mg/kg	481	68.1	50
3-Methylnonane	2220		mg/kg	481	67.1	50
1-Methyl-3-Ethylbenzene	10700		mg/kg	481	76.0	50
1-Methyl-4-Ethylbenzene	5400		mg/kg	481	67.8	50
1,3,5-Trimethylbenzene	6380		mg/kg	481	55.3	50
1-Decene	ND		mg/kg	481	62.6	50
Isobutylcyclohexane	ND		mg/kg	481	39.2	50
1-Methyl-2-Ethylbenzene	3690		mg/kg	481	40.9	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05 D	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	8270		mg/kg	481	65.2	50
tert-Butylbenzene	ND		mg/kg	481	50.8	50
1,2,4-Trimethylbenzene	19200		mg/kg	481	49.8	50
Isobutylbenzene	447	J	mg/kg	481	65.0	50
sec-Butylbenzene	613		mg/kg	481	62.3	50
1-Methyl-3-Isopropylbenzene	841		mg/kg	481	62.1	50
1-Methyl-4-Isopropylbenzene	517		mg/kg	481	51.0	50
1,2,3-Trimethylbenzene	4450		mg/kg	481	53.6	50
1-Methyl-2-Isopropylbenzene	115	J	mg/kg	481	52.2	50
Indane	1660		mg/kg	481	29.6	50
1,3-Diethylbenzene	1290		mg/kg	481	59.9	50
1-Methyl-3-N-Propylbenzene	3260		mg/kg	481	48.6	50
Indene	210	J	mg/kg	481	27.9	50
1-Methyl-4-N-Propylbenzene	1650		mg/kg	481	60.2	50
n-Butylbenzene	1280		mg/kg	481	47.4	50
1,2-Dimethyl-4-Ethylbenzene	3340		mg/kg	481	59.0	50
1,2-Diethylbenzene	310	J	mg/kg	481	71.2	50
1-Methyl-2-N-Propylbenzene	1300		mg/kg	481	59.9	50
1,4-Dimethyl-2-Ethylbenzene	2250		mg/kg	481	45.0	50
Undecane	9470		mg/kg	481	53.4	50
1,3-Dimethyl-4-Ethylbenzene	2200		mg/kg	481	46.7	50
1,3-Dimethyl-5-Ethylbenzene	3750		mg/kg	481	56.8	50
1,3-Dimethyl-2-Ethylbenzene	377	J	mg/kg	481	35.8	50
1,2-Dimethyl-3-Ethylbenzene	903		mg/kg	481	30.6	50
1,2,4,5-Tetramethylbenzene	2190		mg/kg	481	37.3	50
1,2,3,5-Tetramethylbenzene	3240		mg/kg	481	36.6	50
N-Pentylbenzene	276	J	mg/kg	481	59.9	50
1,2,3,4-Tetramethylbenzene	1580		mg/kg	481	51.5	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	481	68.6	50
Dodecane (C12)	8710		mg/kg	1200	158.	50
1,3,5-Triethylbenzene	ND		mg/kg	481	91.4	50
Naphthalene	3180		mg/kg	481	201.	50
Benzothiophene	ND		mg/kg	481	254.	50
1,2,4-Triethylbenzene	108	J	mg/kg	481	81.8	50
Hexylbenzene	300	J	mg/kg	481	92.6	50
MMT	ND		mg/kg	1200	309.	50
Tridecane	7980		mg/kg	1200	335.	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05 D	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	5540		mg/kg	1200	318.	50
1-Methylnaphthalene	3040		mg/kg	1200	353.	50
Tetradecane (C14)	6490		mg/kg	1200	147.	50
Pentadecane	4840		mg/kg	1200	268.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06 D
Client ID: TG02-MW-09-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 11:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/10/23 01:40
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	96.8	J	mg/kg	485	72.1	50
Isopentane	16500		mg/kg	485	88.8	50
1-Pentene	499		mg/kg	485	88.6	50
2-Methyl-1-Butene	1630		mg/kg	485	75.5	50
Pentane	14800		mg/kg	485	151.	50
trans-2-Pentene	1970		mg/kg	485	65.5	50
Isoprene	ND		mg/kg	485	86.6	50
cis-2-Pentene	1090		mg/kg	485	78.2	50
Tertiary Butanol	ND		mg/kg	6070	786.	50
2,2-Dimethylbutane	1380		mg/kg	485	150.	50
4-Methyl-1-pentene	167	J	mg/kg	485	75.5	50
Cyclopentane	3030		mg/kg	485	126.	50
2,3-Dimethylbutane	4660		mg/kg	485	200.	50
2-Methylpentane	18400		mg/kg	485	132.	50
Methyl tert butyl ether	ND		mg/kg	485	100.	50
3-Methylpentane	13100		mg/kg	485	76.9	50
1-Hexene	448	J	mg/kg	485	68.2	50
n-Hexane	13700		mg/kg	485	79.8	50
Isopropyl Ether	ND		mg/kg	485	58.7	50
trans-2-Hexene	1800		mg/kg	485	63.3	50
2-Methyl-2-pentene	2400		mg/kg	485	74.3	50
cis-2-Hexene	921		mg/kg	485	65.8	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	485	73.5	50
2,2-Dimethylpentane	723		mg/kg	485	65.3	50
Methylcyclopentane	14000		mg/kg	485	65.0	50
2,4-Dimethylpentane	3170		mg/kg	485	60.0	50
2,2,3-Trimethylbutane	236	J	mg/kg	485	65.5	50
1,2-Dichloroethane	ND		mg/kg	485	71.6	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06 D
Client ID: TG02-MW-09-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 11:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	657		mg/kg	485	90.3	50
Cyclohexane	6660		mg/kg	485	60.0	50
2-Methylhexane	11100		mg/kg	485	76.4	50
Benzene	4940		mg/kg	485	74.0	50
2,3-Dimethylpentane	5240		mg/kg	485	64.3	50
Thiophene	ND		mg/kg	485	68.9	50
1,1-Dimethylcyclopentane	ND		mg/kg	485	58.2	50
3-Methylhexane	11400		mg/kg	485	77.7	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	485	59.7	50
1,3-Dimethylcyclopentane (cis)	5470		mg/kg	485	73.0	50
3-Ethylpentane	1030		mg/kg	485	70.1	50
1-Heptene/1,2-DMCP (trans)	5490		mg/kg	971	142.	50
Isooctane	13300		mg/kg	485	52.9	50
trans-3-Heptene	1050		mg/kg	485	75.5	50
Heptane	12600		mg/kg	485	84.5	50
trans-2-Heptene	888		mg/kg	485	62.1	50
cis-2-Heptene	602		mg/kg	485	93.9	50
2,2-Dimethylhexane	ND		mg/kg	485	70.4	50
Methylcyclohexane	12300		mg/kg	485	65.5	50
2,5-Dimethylhexane	3200		mg/kg	485	84.5	50
2,4-Dimethylhexane	3770		mg/kg	485	59.0	50
Ethylcyclopentane	2240		mg/kg	485	64.3	50
2,2,3-Trimethylpentane	713		mg/kg	485	84.2	50
2,3,4-Trimethylpentane	6540		mg/kg	485	63.3	50
2,3,3-Trimethylpentane	6470		mg/kg	485	96.4	50
2,3-Dimethylhexane	2870		mg/kg	485	118.	50
2-Methylheptane	8150		mg/kg	485	82.0	50
4-Methylheptane	3010		mg/kg	485	83.5	50
3-Methylheptane	7040		mg/kg	485	69.2	50
3-Ethylhexane	1320		mg/kg	485	86.9	50
Toluene	47000		mg/kg	485	65.8	50
2-Methylthiophene	ND		mg/kg	485	41.3	50
1,4-Dimethylcyclohexane (trans)	1820		mg/kg	485	63.1	50
3-Methylthiophene	ND		mg/kg	485	56.8	50
1-Octene	ND		mg/kg	1210	74.5	50
Octane	9080		mg/kg	485	57.0	50
1,2-Dimethylcyclohexane (trans)	ND		mg/kg	485	71.4	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06 D	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	485	77.7	50
cis-2-Octene	301	J	mg/kg	485	55.6	50
Isopropylcyclopentane	314	J	mg/kg	485	71.1	50
1,2-Dimethylcyclohexane (cis)	1230		mg/kg	485	141.	50
2,5-Dimethylheptane	2360		mg/kg	485	81.3	50
3,5-Dimethylheptane	552		mg/kg	485	68.4	50
3,3-Dimethylheptane	212	J	mg/kg	485	58.7	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	485	48.3	50
2,3-Dimethylheptane	1510		mg/kg	485	55.3	50
3,4-Dimethylheptane	1020		mg/kg	485	82.5	50
4-Methyloctane	2760		mg/kg	485	81.1	50
2-Methyloctane	3340		mg/kg	485	124.	50
Ethylbenzene	14500		mg/kg	485	52.4	50
2-Ethylthiophene	ND		mg/kg	485	42.7	50
3-Methyloctane	3530		mg/kg	485	54.4	50
3,3-Diethylpentane	ND		mg/kg	485	56.6	50
p/m-Xylene	65200		mg/kg	971	92.5	50
1-Nonene	ND		mg/kg	1210	65.5	50
trans-3-Nonene	ND		mg/kg	485	57.5	50
cis-3-Nonene	ND		mg/kg	485	90.8	50
Nonane (C9)	5560		mg/kg	485	75.5	50
Styrene	80.3	J	mg/kg	485	49.0	50
o-Xylene	22300		mg/kg	485	50.7	50
Xylene (Total)[1]	87500		mg/kg	485	50.7	50
2-Nonene	ND		mg/kg	1210	61.6	50
Isopropylcyclohexane	ND		mg/kg	485	51.4	50
Isopropylbenzene	1040		mg/kg	485	45.4	50
3,3-Dimethyloctane	130	J	mg/kg	485	49.0	50
n-Propylbenzene	4310		mg/kg	485	43.0	50
2-Methylnonane	2150		mg/kg	485	68.7	50
3-Methylnonane	1630		mg/kg	485	67.7	50
1-Methyl-3-Ethylbenzene	16100		mg/kg	485	76.7	50
1-Methyl-4-Ethylbenzene	7540		mg/kg	485	68.4	50
1,3,5-Trimethylbenzene	9270		mg/kg	485	55.8	50
1-Decene	ND		mg/kg	485	63.1	50
Isobutylcyclohexane	ND		mg/kg	485	39.6	50
1-Methyl-2-Ethylbenzene	5250		mg/kg	485	41.3	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06 D
Client ID: TG02-MW-09-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 11:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	3040		mg/kg	485	65.8	50
tert-Butylbenzene	ND		mg/kg	485	51.2	50
1,2,4-Trimethylbenzene	27700		mg/kg	485	50.2	50
Isobutylbenzene	356	J	mg/kg	485	65.5	50
sec-Butylbenzene	400	J	mg/kg	485	62.9	50
1-Methyl-3-Isopropylbenzene	640		mg/kg	485	62.6	50
1-Methyl-4-Isopropylbenzene	244	J	mg/kg	485	51.4	50
1,2,3-Trimethylbenzene	5780		mg/kg	485	54.1	50
1-Methyl-2-Isopropylbenzene	70.6	J	mg/kg	485	52.7	50
Indane	3210		mg/kg	485	29.8	50
1,3-Diethylbenzene	1490		mg/kg	485	60.4	50
1-Methyl-3-N-Propylbenzene	3400		mg/kg	485	49.0	50
Indene	235	J	mg/kg	485	28.2	50
1-Methyl-4-N-Propylbenzene	1580		mg/kg	485	60.7	50
n-Butylbenzene	1070		mg/kg	485	47.8	50
1,2-Dimethyl-4-Ethylbenzene	3870		mg/kg	485	59.5	50
1,2-Diethylbenzene	260	J	mg/kg	485	71.8	50
1-Methyl-2-N-Propylbenzene	1130		mg/kg	485	60.4	50
1,4-Dimethyl-2-Ethylbenzene	2640		mg/kg	485	45.4	50
Undecane	2340		mg/kg	485	53.9	50
1,3-Dimethyl-4-Ethylbenzene	2310		mg/kg	485	47.1	50
1,3-Dimethyl-5-Ethylbenzene	4270		mg/kg	485	57.3	50
1,3-Dimethyl-2-Ethylbenzene	319	J	mg/kg	485	36.2	50
1,2-Dimethyl-3-Ethylbenzene	898		mg/kg	485	30.8	50
1,2,4,5-Tetramethylbenzene	2750		mg/kg	485	37.6	50
1,2,3,5-Tetramethylbenzene	3460		mg/kg	485	36.9	50
N-Pentylbenzene	259	J	mg/kg	485	60.4	50
1,2,3,4-Tetramethylbenzene	963		mg/kg	485	51.9	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	485	69.2	50
Dodecane (C12)	2060		mg/kg	1210	159.	50
1,3,5-Triethylbenzene	118	J	mg/kg	485	92.2	50
Naphthalene	3610		mg/kg	485	203.	50
Benzothiophene	ND		mg/kg	485	256.	50
1,2,4-Triethylbenzene	ND		mg/kg	485	82.5	50
Hexylbenzene	178	J	mg/kg	485	93.4	50
MMT	ND		mg/kg	1210	312.	50
Tridecane	1530		mg/kg	1210	338.	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06 D	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	4460		mg/kg	1210	321.	50
1-Methylnaphthalene	2090		mg/kg	1210	356.	50
Tetradecane (C14)	960	J	mg/kg	1210	148.	50
Pentadecane	842	J	mg/kg	1210	271.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07 D
Client ID: TG02-MW-10-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 09:55
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/12/23 02:00
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	245	36.4	25
Isopentane	4990		mg/kg	245	44.9	25
1-Pentene	116	J	mg/kg	245	44.8	25
2-Methyl-1-Butene	300		mg/kg	245	38.2	25
Pentane	5940		mg/kg	245	76.5	25
trans-2-Pentene	562		mg/kg	245	33.1	25
Isoprene	ND		mg/kg	245	43.8	25
cis-2-Pentene	285		mg/kg	245	39.5	25
Tertiary Butanol	ND		mg/kg	3070	397.	25
2,2-Dimethylbutane	366		mg/kg	245	75.7	25
4-Methyl-1-pentene	50.7	J	mg/kg	245	38.2	25
Cyclopentane	966		mg/kg	245	63.7	25
2,3-Dimethylbutane	1170		mg/kg	245	101.	25
2-Methylpentane	4800		mg/kg	245	66.5	25
Methyl tert butyl ether	109	J	mg/kg	245	50.5	25
3-Methylpentane	3200		mg/kg	245	38.9	25
1-Hexene	107	J	mg/kg	245	34.5	25
n-Hexane	3680		mg/kg	245	40.4	25
Isopropyl Ether	ND		mg/kg	245	29.7	25
trans-2-Hexene	379		mg/kg	245	32.0	25
2-Methyl-2-pentene	585		mg/kg	245	37.5	25
cis-2-Hexene	210	J	mg/kg	245	33.2	25
Ethyl-Tert-Butyl-Ether	ND		mg/kg	245	37.2	25
2,2-Dimethylpentane	156	J	mg/kg	245	33.0	25
Methylcyclopentane	3860		mg/kg	245	32.9	25
2,4-Dimethylpentane	871		mg/kg	245	30.3	25
2,2,3-Trimethylbutane	69.3	J	mg/kg	245	33.1	25
1,2-Dichloroethane	ND		mg/kg	245	36.2	25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07 D
Client ID: TG02-MW-10-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 09:55
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	123	J	mg/kg	245	45.6	25
Cyclohexane	1980		mg/kg	245	30.3	25
2-Methylhexane	2590		mg/kg	245	38.6	25
Benzene	1630		mg/kg	245	37.4	25
2,3-Dimethylpentane	1700		mg/kg	245	32.5	25
Thiophene	ND		mg/kg	245	34.8	25
1,1-Dimethylcyclopentane	ND		mg/kg	245	29.4	25
3-Methylhexane	2740		mg/kg	245	39.2	25
Tertiary-Amyl Methyl Ether	ND		mg/kg	245	30.2	25
1,3-Dimethylcyclopentane (cis)	1570		mg/kg	245	36.9	25
3-Ethylpentane	234	J	mg/kg	245	35.4	25
1-Heptene/1,2-DMCP (trans)	1850		mg/kg	491	71.8	25
Isooctane	4460		mg/kg	245	26.7	25
trans-3-Heptene	184	J	mg/kg	245	38.2	25
Heptane	2930		mg/kg	245	42.7	25
trans-2-Heptene	179	J	mg/kg	245	31.4	25
cis-2-Heptene	ND		mg/kg	245	47.5	25
2,2-Dimethylhexane	ND		mg/kg	245	35.6	25
Methylcyclohexane	4360		mg/kg	245	33.1	25
2,5-Dimethylhexane	1180		mg/kg	245	42.7	25
2,4-Dimethylhexane	1200		mg/kg	245	29.8	25
Ethylcyclopentane	653		mg/kg	245	32.5	25
2,2,3-Trimethylpentane	334		mg/kg	245	42.6	25
2,3,4-Trimethylpentane	3010		mg/kg	245	32.0	25
2,3,3-Trimethylpentane	3300		mg/kg	245	48.7	25
2,3-Dimethylhexane	1090		mg/kg	245	59.5	25
2-Methylheptane	2830		mg/kg	245	41.5	25
4-Methylheptane	952		mg/kg	245	42.2	25
3-Methylheptane	2100		mg/kg	245	35.0	25
3-Ethylhexane	387		mg/kg	245	43.9	25
Toluene	10400		mg/kg	245	33.2	25
2-Methylthiophene	ND		mg/kg	245	20.8	25
1,4-Dimethylcyclohexane (trans)	680		mg/kg	245	31.9	25
3-Methylthiophene	ND		mg/kg	245	28.7	25
1-Octene	ND		mg/kg	613	37.6	25
Octane	2320		mg/kg	245	28.8	25
1,2-Dimethylcyclohexane (trans)	744		mg/kg	245	36.1	25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07 D Date Collected: 12/20/22 09:55
Client ID: TG02-MW-10-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	245	39.2	25
cis-2-Octene	51.8	J	mg/kg	245	28.1	25
Isopropylcyclopentane	90.2	J	mg/kg	245	35.9	25
1,2-Dimethylcyclohexane (cis)	426		mg/kg	245	71.3	25
2,5-Dimethylheptane	849		mg/kg	245	41.1	25
3,5-Dimethylheptane	235	J	mg/kg	245	34.6	25
3,3-Dimethylheptane	86.2	J	mg/kg	245	29.7	25
1,1,4-Trimethylcyclohexane	ND		mg/kg	245	24.4	25
2,3-Dimethylheptane	668		mg/kg	245	28.0	25
3,4-Dimethylheptane	429		mg/kg	245	41.7	25
4-Methyloctane	974		mg/kg	245	41.0	25
2-Methyloctane	1280		mg/kg	245	62.8	25
Ethylbenzene	3050		mg/kg	245	26.5	25
2-Ethylthiophene	ND		mg/kg	245	21.6	25
3-Methyloctane	1420		mg/kg	245	27.5	25
3,3-Diethylpentane	ND		mg/kg	245	28.6	25
p/m-Xylene	12600		mg/kg	491	46.7	25
1-Nonene	ND		mg/kg	613	33.1	25
trans-3-Nonene	ND		mg/kg	245	29.1	25
cis-3-Nonene	ND		mg/kg	245	45.9	25
Nonane (C9)	1280		mg/kg	245	38.2	25
Styrene	28.3	J	mg/kg	245	24.8	25
o-Xylene	4410		mg/kg	245	25.6	25
Xylene (Total)[1]	17000		mg/kg	245	25.6	25
2-Nonene	ND		mg/kg	613	31.2	25
Isopropylcyclohexane	ND		mg/kg	245	26.0	25
Isopropylbenzene	377		mg/kg	245	22.9	25
3,3-Dimethyloctane	121	J	mg/kg	245	24.8	25
n-Propylbenzene	1220		mg/kg	245	21.7	25
2-Methylnonane	1260		mg/kg	245	34.7	25
3-Methylnonane	885		mg/kg	245	34.2	25
1-Methyl-3-Ethylbenzene	2880		mg/kg	245	38.8	25
1-Methyl-4-Ethylbenzene	1480		mg/kg	245	34.6	25
1,3,5-Trimethylbenzene	2060		mg/kg	245	28.2	25
1-Decene	ND		mg/kg	245	31.9	25
Isobutylcyclohexane	156	J	mg/kg	245	20.0	25
1-Methyl-2-Ethylbenzene	1220		mg/kg	245	20.8	25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-07 D	Date Collected:	12/20/22 09:55
Client ID:	TG02-MW-10-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	1030		mg/kg	245	33.2	25
tert-Butylbenzene	31.3	J	mg/kg	245	25.9	25
1,2,4-Trimethylbenzene	5530		mg/kg	245	25.4	25
Isobutylbenzene	158	J	mg/kg	245	33.1	25
sec-Butylbenzene	197	J	mg/kg	245	31.8	25
1-Methyl-3-Isopropylbenzene	191	J	mg/kg	245	31.6	25
1-Methyl-4-Isopropylbenzene	123	J	mg/kg	245	26.0	25
1,2,3-Trimethylbenzene	1360		mg/kg	245	27.4	25
1-Methyl-2-Isopropylbenzene	50.5	J	mg/kg	245	26.6	25
Indane	766		mg/kg	245	15.1	25
1,3-Diethylbenzene	444		mg/kg	245	30.5	25
1-Methyl-3-N-Propylbenzene	662		mg/kg	245	24.8	25
Indene	58.0	J	mg/kg	245	14.2	25
1-Methyl-4-N-Propylbenzene	469		mg/kg	245	30.7	25
n-Butylbenzene	388		mg/kg	245	24.2	25
1,2-Dimethyl-4-Ethylbenzene	922		mg/kg	245	30.0	25
1,2-Diethylbenzene	111	J	mg/kg	245	36.3	25
1-Methyl-2-N-Propylbenzene	349		mg/kg	245	30.5	25
1,4-Dimethyl-2-Ethylbenzene	627		mg/kg	245	22.9	25
Undecane	695		mg/kg	245	27.2	25
1,3-Dimethyl-4-Ethylbenzene	480		mg/kg	245	23.8	25
1,3-Dimethyl-5-Ethylbenzene	1270		mg/kg	245	28.9	25
1,3-Dimethyl-2-Ethylbenzene	135	J	mg/kg	245	18.3	25
1,2-Dimethyl-3-Ethylbenzene	217	J	mg/kg	245	15.6	25
1,2,4,5-Tetramethylbenzene	737		mg/kg	245	19.0	25
1,2,3,5-Tetramethylbenzene	928		mg/kg	245	18.6	25
N-Pentylbenzene	97.8	J	mg/kg	245	30.5	25
1,2,3,4-Tetramethylbenzene	474		mg/kg	245	26.2	25
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	245	35.0	25
Dodecane (C12)	522	J	mg/kg	613	80.6	25
1,3,5-Triethylbenzene	ND		mg/kg	245	46.6	25
Naphthalene	956		mg/kg	245	102.	25
Benzothiophene	ND		mg/kg	245	130.	25
1,2,4-Triethylbenzene	ND		mg/kg	245	41.7	25
Hexylbenzene	81.7	J	mg/kg	245	47.2	25
MMT	ND		mg/kg	613	158.	25
Tridecane	450	J	mg/kg	613	171.	25

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-07 D	Date Collected:	12/20/22 09:55
Client ID:	TG02-MW-10-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	1400		mg/kg	613	162.	25
1-Methylnaphthalene	765		mg/kg	613	180.	25
Tetradecane (C14)	287	J	mg/kg	613	75.1	25
Pentadecane	346	J	mg/kg	613	137.	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08 D2	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/12/23 05:36
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Toluene	62600		mg/kg	1990	270.	200

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	92		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08 D	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/10/23 04:05
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	91.1	J	mg/kg	498	74.0	50
Isopentane	28700		mg/kg	498	91.1	50
1-Pentene	498		mg/kg	498	90.9	50
2-Methyl-1-Butene	1720		mg/kg	498	77.4	50
Pentane	35900		mg/kg	498	155.	50
trans-2-Pentene	2710		mg/kg	498	67.2	50
Isoprene	ND		mg/kg	498	88.9	50
cis-2-Pentene	1360		mg/kg	498	80.2	50
Tertiary Butanol	ND		mg/kg	6220	807.	50
2,2-Dimethylbutane	2260		mg/kg	498	154.	50
4-Methyl-1-pentene	170	J	mg/kg	498	77.4	50
Cyclopentane	5260		mg/kg	498	129.	50
2,3-Dimethylbutane	5610		mg/kg	498	206.	50
2-Methylpentane	26800		mg/kg	498	135.	50
Methyl tert butyl ether	ND		mg/kg	498	102.	50
3-Methylpentane	17400		mg/kg	498	78.9	50
1-Hexene	412	J	mg/kg	498	70.0	50
n-Hexane	22300		mg/kg	498	81.9	50
Isopropyl Ether	ND		mg/kg	498	60.2	50
trans-2-Hexene	2070		mg/kg	498	65.0	50
2-Methyl-2-pentene	3040		mg/kg	498	76.2	50
cis-2-Hexene	1180		mg/kg	498	67.5	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	498	75.4	50
2,2-Dimethylpentane	687		mg/kg	498	67.0	50
Methylcyclopentane	18200		mg/kg	498	66.7	50
2,4-Dimethylpentane	2620		mg/kg	498	61.5	50
2,2,3-Trimethylbutane	229	J	mg/kg	498	67.2	50
1,2-Dichloroethane	ND		mg/kg	498	73.4	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-08 D
Client ID: TG02-MW-11-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	497	J	mg/kg	498	92.6	50
Cyclohexane	8460		mg/kg	498	61.5	50
2-Methylhexane	11300		mg/kg	498	78.4	50
Benzene	8050		mg/kg	498	75.9	50
2,3-Dimethylpentane	4290		mg/kg	498	66.0	50
Thiophene	ND		mg/kg	498	70.7	50
1,1-Dimethylcyclopentane	ND		mg/kg	498	59.8	50
3-Methylhexane	11400		mg/kg	498	79.7	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	498	61.2	50
1,3-Dimethylcyclopentane (cis)	6360		mg/kg	498	75.0	50
3-Ethylpentane	1080		mg/kg	498	72.0	50
1-Heptene/1,2-DMCP (trans)	6430		mg/kg	996	146.	50
Isooctane	7810		mg/kg	498	54.3	50
trans-3-Heptene	1120		mg/kg	498	77.4	50
Heptane	14300		mg/kg	498	86.6	50
trans-2-Heptene	1080		mg/kg	498	63.7	50
cis-2-Heptene	604		mg/kg	498	96.4	50
2,2-Dimethylhexane	ND		mg/kg	498	72.2	50
Methylcyclohexane	12700		mg/kg	498	67.2	50
2,5-Dimethylhexane	2620		mg/kg	498	86.6	50
2,4-Dimethylhexane	3140		mg/kg	498	60.5	50
Ethylcyclopentane	2400		mg/kg	498	66.0	50
2,2,3-Trimethylpentane	512		mg/kg	498	86.4	50
2,3,4-Trimethylpentane	4080		mg/kg	498	65.0	50
2,3,3-Trimethylpentane	4440		mg/kg	498	98.8	50
2,3-Dimethylhexane	2310		mg/kg	498	121.	50
2-Methylheptane	9200		mg/kg	498	84.2	50
4-Methylheptane	3240		mg/kg	498	85.6	50
3-Methylheptane	7700		mg/kg	498	71.0	50
3-Ethylhexane	1470		mg/kg	498	89.1	50
Toluene	67300	E	mg/kg	498	67.5	50
2-Methylthiophene	ND		mg/kg	498	42.3	50
1,4-Dimethylcyclohexane (trans)	1500		mg/kg	498	64.7	50
3-Methylthiophene	ND		mg/kg	498	58.3	50
1-Octene	ND		mg/kg	1240	76.4	50
Octane	10700		mg/kg	498	58.5	50
1,2-Dimethylcyclohexane (trans)	1600		mg/kg	498	73.2	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08 D	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	498	79.7	50
cis-2-Octene	354	J	mg/kg	498	57.0	50
Isopropylcyclopentane	348	J	mg/kg	498	73.0	50
1,2-Dimethylcyclohexane (cis)	1290		mg/kg	498	145.	50
2,5-Dimethylheptane	2360		mg/kg	498	83.4	50
3,5-Dimethylheptane	580		mg/kg	498	70.2	50
3,3-Dimethylheptane	177	J	mg/kg	498	60.2	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	498	49.6	50
2,3-Dimethylheptane	1370		mg/kg	498	56.8	50
3,4-Dimethylheptane	1100		mg/kg	498	84.7	50
4-Methyloctane	3000		mg/kg	498	83.2	50
2-Methyloctane	3850		mg/kg	498	127.	50
Ethylbenzene	17800		mg/kg	498	53.8	50
2-Ethylthiophene	ND		mg/kg	498	43.8	50
3-Methyloctane	3880		mg/kg	498	55.8	50
3,3-Diethylpentane	ND		mg/kg	498	58.0	50
p/m-Xylene	77300		mg/kg	996	94.9	50
1-Nonene	ND		mg/kg	1240	67.2	50
trans-3-Nonene	ND		mg/kg	498	59.0	50
cis-3-Nonene	ND		mg/kg	498	93.1	50
Nonane (C9)	6000		mg/kg	498	77.4	50
Styrene	82.7	J	mg/kg	498	50.3	50
o-Xylene	26900		mg/kg	498	52.0	50
Xylene (Total)[1]	104000		mg/kg	498	52.0	50
2-Nonene	ND		mg/kg	1240	63.2	50
Isopropylcyclohexane	ND		mg/kg	498	52.8	50
Isopropylbenzene	1240		mg/kg	498	46.6	50
3,3-Dimethyloctane	122	J	mg/kg	498	50.3	50
n-Propylbenzene	5210		mg/kg	498	44.1	50
2-Methylnonane	2220		mg/kg	498	70.5	50
3-Methylnonane	1890		mg/kg	498	69.5	50
1-Methyl-3-Ethylbenzene	18200		mg/kg	498	78.7	50
1-Methyl-4-Ethylbenzene	8690		mg/kg	498	70.2	50
1,3,5-Trimethylbenzene	10400		mg/kg	498	57.3	50
1-Decene	ND		mg/kg	498	64.7	50
Isobutylcyclohexane	ND		mg/kg	498	40.6	50
1-Methyl-2-Ethylbenzene	5960		mg/kg	498	42.3	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08 D	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	3190		mg/kg	498	67.5	50
tert-Butylbenzene	ND		mg/kg	498	52.5	50
1,2,4-Trimethylbenzene	31200		mg/kg	498	51.5	50
Isobutylbenzene	379	J	mg/kg	498	67.2	50
sec-Butylbenzene	409	J	mg/kg	498	64.5	50
1-Methyl-3-Isopropylbenzene	655		mg/kg	498	64.2	50
1-Methyl-4-Isopropylbenzene	251	J	mg/kg	498	52.8	50
1,2,3-Trimethylbenzene	6460		mg/kg	498	55.5	50
1-Methyl-2-Isopropylbenzene	64.2	J	mg/kg	498	54.0	50
Indane	3760		mg/kg	498	30.6	50
1,3-Diethylbenzene	1640		mg/kg	498	62.0	50
1-Methyl-3-N-Propylbenzene	3720		mg/kg	498	50.3	50
Indene	200	J	mg/kg	498	28.9	50
1-Methyl-4-N-Propylbenzene	1750		mg/kg	498	62.2	50
n-Butylbenzene	1190		mg/kg	498	49.0	50
1,2-Dimethyl-4-Ethylbenzene	4220		mg/kg	498	61.0	50
1,2-Diethylbenzene	292	J	mg/kg	498	73.7	50
1-Methyl-2-N-Propylbenzene	1210		mg/kg	498	62.0	50
1,4-Dimethyl-2-Ethylbenzene	2850		mg/kg	498	46.6	50
Undecane	2160		mg/kg	498	55.3	50
1,3-Dimethyl-4-Ethylbenzene	2480		mg/kg	498	48.3	50
1,3-Dimethyl-5-Ethylbenzene	4670		mg/kg	498	58.8	50
1,3-Dimethyl-2-Ethylbenzene	272	J	mg/kg	498	37.1	50
1,2-Dimethyl-3-Ethylbenzene	962		mg/kg	498	31.6	50
1,2,4,5-Tetramethylbenzene	2980		mg/kg	498	38.6	50
1,2,3,5-Tetramethylbenzene	3850		mg/kg	498	37.8	50
N-Pentylbenzene	311	J	mg/kg	498	62.0	50
1,2,3,4-Tetramethylbenzene	993		mg/kg	498	53.3	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	498	71.0	50
Dodecane (C12)	1970		mg/kg	1240	164.	50
1,3,5-Triethylbenzene	ND		mg/kg	498	94.6	50
Naphthalene	4040		mg/kg	498	208.	50
Benzothiophene	ND		mg/kg	498	263.	50
1,2,4-Triethylbenzene	ND		mg/kg	498	84.7	50
Hexylbenzene	209	J	mg/kg	498	95.9	50
MMT	ND		mg/kg	1240	320.	50
Tridecane	1480		mg/kg	1240	347.	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08 D	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	4700		mg/kg	1240	329.	50
1-Methylnaphthalene	2230		mg/kg	1240	366.	50
Tetradecane (C14)	720	J	mg/kg	1240	152.	50
Pentadecane	525	J	mg/kg	1240	278.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	93		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09 D
Client ID: TG02-MW-12-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 12:35
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/10/23 05:16
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	494	73.3	50
Isopentane	11500		mg/kg	494	90.3	50
1-Pentene	307	J	mg/kg	494	90.1	50
2-Methyl-1-Butene	1130		mg/kg	494	76.8	50
Pentane	13900		mg/kg	494	154.	50
trans-2-Pentene	1540		mg/kg	494	66.6	50
Isoprene	ND		mg/kg	494	88.1	50
cis-2-Pentene	848		mg/kg	494	79.5	50
Tertiary Butanol	ND		mg/kg	6170	800.	50
2,2-Dimethylbutane	1170		mg/kg	494	152.	50
4-Methyl-1-pentene	168	J	mg/kg	494	76.8	50
Cyclopentane	2860		mg/kg	494	128.	50
2,3-Dimethylbutane	4410		mg/kg	494	204.	50
2-Methylpentane	19300		mg/kg	494	134.	50
Methyl tert butyl ether	ND		mg/kg	494	102.	50
3-Methylpentane	13200		mg/kg	494	78.2	50
1-Hexene	527		mg/kg	494	69.3	50
n-Hexane	16100		mg/kg	494	81.2	50
Isopropyl Ether	ND		mg/kg	494	59.7	50
trans-2-Hexene	1710		mg/kg	494	64.4	50
2-Methyl-2-pentene	2430		mg/kg	494	75.5	50
cis-2-Hexene	926		mg/kg	494	66.9	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	494	74.8	50
2,2-Dimethylpentane	623		mg/kg	494	66.4	50
Methylcyclopentane	14300		mg/kg	494	66.1	50
2,4-Dimethylpentane	2980		mg/kg	494	61.0	50
2,2,3-Trimethylbutane	236	J	mg/kg	494	66.6	50
1,2-Dichloroethane	ND		mg/kg	494	72.8	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09 D	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	523		mg/kg	494	91.8	50
Cyclohexane	6340		mg/kg	494	61.0	50
2-Methylhexane	10600		mg/kg	494	77.7	50
Benzene	5770		mg/kg	494	75.3	50
2,3-Dimethylpentane	4640		mg/kg	494	65.4	50
Thiophene	ND		mg/kg	494	70.1	50
1,1-Dimethylcyclopentane	ND		mg/kg	494	59.2	50
3-Methylhexane	10800		mg/kg	494	79.0	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	494	60.7	50
1,3-Dimethylcyclopentane (cis)	5570		mg/kg	494	74.3	50
3-Ethylpentane	960		mg/kg	494	71.3	50
1-Heptene/1,2-DMCP (trans)	5910		mg/kg	987	144.	50
Isooctane	13100		mg/kg	494	53.8	50
trans-3-Heptene	1020		mg/kg	494	76.8	50
Heptane	12000		mg/kg	494	85.9	50
trans-2-Heptene	951		mg/kg	494	63.2	50
cis-2-Heptene	574		mg/kg	494	95.5	50
2,2-Dimethylhexane	ND		mg/kg	494	71.6	50
Methylcyclohexane	10500		mg/kg	494	66.6	50
2,5-Dimethylhexane	3010		mg/kg	494	85.9	50
2,4-Dimethylhexane	3420		mg/kg	494	60.0	50
Ethylcyclopentane	2050		mg/kg	494	65.4	50
2,2,3-Trimethylpentane	787		mg/kg	494	85.6	50
2,3,4-Trimethylpentane	6890		mg/kg	494	64.4	50
2,3,3-Trimethylpentane	7140		mg/kg	494	98.0	50
2,3-Dimethylhexane	2640		mg/kg	494	120.	50
2-Methylheptane	7390		mg/kg	494	83.4	50
4-Methylheptane	2680		mg/kg	494	84.9	50
3-Methylheptane	6400		mg/kg	494	70.3	50
3-Ethylhexane	1200		mg/kg	494	88.4	50
Toluene	39600		mg/kg	494	66.9	50
2-Methylthiophene	ND		mg/kg	494	42.0	50
1,4-Dimethylcyclohexane (trans)	1090		mg/kg	494	64.2	50
3-Methylthiophene	ND		mg/kg	494	57.7	50
1-Octene	ND		mg/kg	1230	75.8	50
Octane	7860		mg/kg	494	58.0	50
1,2-Dimethylcyclohexane (trans)	1010		mg/kg	494	72.6	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09 D
Client ID: TG02-MW-12-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 12:35
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	494	79.0	50
cis-2-Octene	290	J	mg/kg	494	56.5	50
Isopropylcyclopentane	281	J	mg/kg	494	72.3	50
1,2-Dimethylcyclohexane (cis)	1110		mg/kg	494	143.	50
2,5-Dimethylheptane	2030		mg/kg	494	82.7	50
3,5-Dimethylheptane	525		mg/kg	494	69.6	50
3,3-Dimethylheptane	182	J	mg/kg	494	59.7	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	494	49.1	50
2,3-Dimethylheptane	1220		mg/kg	494	56.3	50
3,4-Dimethylheptane	1040		mg/kg	494	83.9	50
4-Methyloctane	2290		mg/kg	494	82.4	50
2-Methyloctane	3270		mg/kg	494	126.	50
Ethylbenzene	13600		mg/kg	494	53.3	50
2-Ethylthiophene	ND		mg/kg	494	43.4	50
3-Methyloctane	3220		mg/kg	494	55.3	50
3,3-Diethylpentane	ND		mg/kg	494	57.5	50
p/m-Xylene	60400		mg/kg	987	94.0	50
1-Nonene	ND		mg/kg	1230	66.6	50
trans-3-Nonene	ND		mg/kg	494	58.5	50
cis-3-Nonene	ND		mg/kg	494	92.3	50
Nonane (C9)	4800		mg/kg	494	76.8	50
Styrene	68.8	J	mg/kg	494	49.8	50
o-Xylene	20800		mg/kg	494	51.6	50
Xylene (Total)[1]	81200		mg/kg	494	51.6	50
2-Nonene	ND		mg/kg	1230	62.7	50
Isopropylcyclohexane	ND		mg/kg	494	52.3	50
Isopropylbenzene	975		mg/kg	494	46.2	50
3,3-Dimethyloctane	112	J	mg/kg	494	49.8	50
n-Propylbenzene	3990		mg/kg	494	43.7	50
2-Methylnonane	2080		mg/kg	494	69.8	50
3-Methylnonane	1730		mg/kg	494	68.8	50
1-Methyl-3-Ethylbenzene	14600		mg/kg	494	78.0	50
1-Methyl-4-Ethylbenzene	6940		mg/kg	494	69.6	50
1,3,5-Trimethylbenzene	8470		mg/kg	494	56.8	50
1-Decene	ND		mg/kg	494	64.2	50
Isobutylcyclohexane	ND		mg/kg	494	40.2	50
1-Methyl-2-Ethylbenzene	4840		mg/kg	494	42.0	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09 D	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	3260		mg/kg	494	66.9	50
tert-Butylbenzene	ND		mg/kg	494	52.1	50
1,2,4-Trimethylbenzene	25400		mg/kg	494	51.1	50
Isobutylbenzene	326	J	mg/kg	494	66.6	50
sec-Butylbenzene	397	J	mg/kg	494	63.9	50
1-Methyl-3-Isopropylbenzene	599		mg/kg	494	63.7	50
1-Methyl-4-Isopropylbenzene	244	J	mg/kg	494	52.3	50
1,2,3-Trimethylbenzene	5410		mg/kg	494	55.0	50
1-Methyl-2-Isopropylbenzene	63.9	J	mg/kg	494	53.6	50
Indane	2970		mg/kg	494	30.4	50
1,3-Diethylbenzene	1370		mg/kg	494	61.4	50
1-Methyl-3-N-Propylbenzene	3120		mg/kg	494	49.8	50
Indene	190	J	mg/kg	494	28.6	50
1-Methyl-4-N-Propylbenzene	1470		mg/kg	494	61.7	50
n-Butylbenzene	1010		mg/kg	494	48.6	50
1,2-Dimethyl-4-Ethylbenzene	3550		mg/kg	494	60.5	50
1,2-Diethylbenzene	276	J	mg/kg	494	73.0	50
1-Methyl-2-N-Propylbenzene	1120		mg/kg	494	61.4	50
1,4-Dimethyl-2-Ethylbenzene	2450		mg/kg	494	46.2	50
Undecane	3160		mg/kg	494	54.8	50
1,3-Dimethyl-4-Ethylbenzene	2150		mg/kg	494	47.9	50
1,3-Dimethyl-5-Ethylbenzene	3990		mg/kg	494	58.2	50
1,3-Dimethyl-2-Ethylbenzene	328	J	mg/kg	494	36.8	50
1,2-Dimethyl-3-Ethylbenzene	877		mg/kg	494	31.3	50
1,2,4,5-Tetramethylbenzene	2310		mg/kg	494	38.2	50
1,2,3,5-Tetramethylbenzene	3290		mg/kg	494	37.5	50
N-Pentylbenzene	277	J	mg/kg	494	61.4	50
1,2,3,4-Tetramethylbenzene	1140		mg/kg	494	52.8	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	494	70.3	50
Dodecane (C12)	3220		mg/kg	1230	162.	50
1,3,5-Triethylbenzene	ND		mg/kg	494	93.8	50
Naphthalene	3560		mg/kg	494	206.	50
Benzothiophene	ND		mg/kg	494	261.	50
1,2,4-Triethylbenzene	97.7	J	mg/kg	494	83.9	50
Hexylbenzene	237	J	mg/kg	494	95.0	50
MMT	ND		mg/kg	1230	317.	50
Tridecane	2560		mg/kg	1230	344.	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09 D	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	4610		mg/kg	1230	326.	50
1-Methylnaphthalene	2360		mg/kg	1230	362.	50
Tetradecane (C14)	2140		mg/kg	1230	151.	50
Pentadecane	2190		mg/kg	1230	275.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10 D
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8260D
Analytical Date: 01/10/23 06:28
Analyst: RAY
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		mg/kg	484	71.9	50
Isopentane	2620		mg/kg	484	88.6	50
1-Pentene	ND		mg/kg	484	88.3	50
2-Methyl-1-Butene	231	J	mg/kg	484	75.3	50
Pentane	3040		mg/kg	484	151.	50
trans-2-Pentene	302	J	mg/kg	484	65.3	50
Isoprene	ND		mg/kg	484	86.4	50
cis-2-Pentene	190	J	mg/kg	484	77.9	50
Tertiary Butanol	ND		mg/kg	6050	784.	50
2,2-Dimethylbutane	608		mg/kg	484	149.	50
4-Methyl-1-pentene	94.1	J	mg/kg	484	75.3	50
Cyclopentane	1360		mg/kg	484	126.	50
2,3-Dimethylbutane	3560		mg/kg	484	200.	50
2-Methylpentane	14600		mg/kg	484	131.	50
Methyl tert butyl ether	362	J	mg/kg	484	99.7	50
3-Methylpentane	11500		mg/kg	484	76.7	50
1-Hexene	297	J	mg/kg	484	68.0	50
n-Hexane	12200		mg/kg	484	79.6	50
Isopropyl Ether	ND		mg/kg	484	58.6	50
trans-2-Hexene	972		mg/kg	484	63.2	50
2-Methyl-2-pentene	1540		mg/kg	484	74.0	50
cis-2-Hexene	616		mg/kg	484	65.6	50
Ethyl-Tert-Butyl-Ether	ND		mg/kg	484	73.3	50
2,2-Dimethylpentane	833		mg/kg	484	65.1	50
Methylcyclopentane	12200		mg/kg	484	64.8	50
2,4-Dimethylpentane	3560		mg/kg	484	59.8	50
2,2,3-Trimethylbutane	262	J	mg/kg	484	65.3	50
1,2-Dichloroethane	ND		mg/kg	484	71.4	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10 D
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	794		mg/kg	484	90.0	50
Cyclohexane	5630		mg/kg	484	59.8	50
2-Methylhexane	12600		mg/kg	484	76.2	50
Benzene	6500		mg/kg	484	73.8	50
2,3-Dimethylpentane	5780		mg/kg	484	64.1	50
Thiophene	ND		mg/kg	484	68.7	50
1,1-Dimethylcyclopentane	ND		mg/kg	484	58.1	50
3-Methylhexane	13200		mg/kg	484	77.4	50
Tertiary-Amyl Methyl Ether	ND		mg/kg	484	59.5	50
1,3-Dimethylcyclopentane (cis)	5030		mg/kg	484	72.8	50
3-Ethylpentane	1190		mg/kg	484	69.9	50
1-Heptene/1,2-DMCP (trans)	5620		mg/kg	968	142.	50
Isooctane	12100		mg/kg	484	52.8	50
trans-3-Heptene	845		mg/kg	484	75.3	50
Heptane	13700		mg/kg	484	84.2	50
trans-2-Heptene	765		mg/kg	484	62.0	50
cis-2-Heptene	513		mg/kg	484	93.6	50
2,2-Dimethylhexane	ND		mg/kg	484	70.2	50
Methylcyclohexane	11800		mg/kg	484	65.3	50
2,5-Dimethylhexane	3230		mg/kg	484	84.2	50
2,4-Dimethylhexane	3640		mg/kg	484	58.8	50
Ethylcyclopentane	2090		mg/kg	484	64.1	50
2,2,3-Trimethylpentane	740		mg/kg	484	84.0	50
2,3,4-Trimethylpentane	6440		mg/kg	484	63.2	50
2,3,3-Trimethylpentane	6430		mg/kg	484	96.1	50
2,3-Dimethylhexane	2790		mg/kg	484	117.	50
2-Methylheptane	8560		mg/kg	484	81.8	50
4-Methylheptane	3230		mg/kg	484	83.2	50
3-Methylheptane	7480		mg/kg	484	69.0	50
3-Ethylhexane	1420		mg/kg	484	86.6	50
Toluene	38200		mg/kg	484	65.6	50
2-Methylthiophene	ND		mg/kg	484	41.1	50
1,4-Dimethylcyclohexane (trans)	1580		mg/kg	484	62.9	50
3-Methylthiophene	ND		mg/kg	484	56.6	50
1-Octene	ND		mg/kg	1210	74.3	50
Octane	9210		mg/kg	484	56.9	50
1,2-Dimethylcyclohexane (trans)	1690		mg/kg	484	71.2	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10 D
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		mg/kg	484	77.4	50
cis-2-Octene	260	J	mg/kg	484	55.4	50
Isopropylcyclopentane	310	J	mg/kg	484	70.9	50
1,2-Dimethylcyclohexane (cis)	1100		mg/kg	484	141.	50
2,5-Dimethylheptane	2360		mg/kg	484	81.1	50
3,5-Dimethylheptane	612		mg/kg	484	68.2	50
3,3-Dimethylheptane	234	J	mg/kg	484	58.6	50
1,1,4-Trimethylcyclohexane	ND		mg/kg	484	48.2	50
2,3-Dimethylheptane	1470		mg/kg	484	55.2	50
3,4-Dimethylheptane	1120		mg/kg	484	82.3	50
4-Methyloctane	2580		mg/kg	484	80.8	50
2-Methyloctane	3670		mg/kg	484	124.	50
Ethylbenzene	14600		mg/kg	484	52.3	50
2-Ethylthiophene	ND		mg/kg	484	42.6	50
3-Methyloctane	3610		mg/kg	484	54.2	50
3,3-Diethylpentane	ND		mg/kg	484	56.4	50
p/m-Xylene	62300		mg/kg	968	92.2	50
1-Nonene	ND		mg/kg	1210	65.3	50
trans-3-Nonene	ND		mg/kg	484	57.4	50
cis-3-Nonene	ND		mg/kg	484	90.5	50
Nonane (C9)	5450		mg/kg	484	75.3	50
Styrene	64.1	J	mg/kg	484	48.9	50
o-Xylene	21000		mg/kg	484	50.6	50
Xylene (Total)[1]	83300		mg/kg	484	50.6	50
2-Nonene	ND		mg/kg	1210	61.5	50
Isopropylcyclohexane	ND		mg/kg	484	51.3	50
Isopropylbenzene	1100		mg/kg	484	45.2	50
3,3-Dimethyloctane	155	J	mg/kg	484	48.9	50
n-Propylbenzene	4370		mg/kg	484	42.8	50
2-Methylnonane	2160		mg/kg	484	68.5	50
3-Methylnonane	1720		mg/kg	484	67.5	50
1-Methyl-3-Ethylbenzene	15200		mg/kg	484	76.5	50
1-Methyl-4-Ethylbenzene	7500		mg/kg	484	68.2	50
1,3,5-Trimethylbenzene	8960		mg/kg	484	55.7	50
1-Decene	ND		mg/kg	484	62.9	50
Isobutylcyclohexane	ND		mg/kg	484	39.4	50
1-Methyl-2-Ethylbenzene	5120		mg/kg	484	41.1	50

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10 D	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	3480		mg/kg	484	65.6	50
tert-Butylbenzene	ND		mg/kg	484	51.1	50
1,2,4-Trimethylbenzene	27200		mg/kg	484	50.1	50
Isobutylbenzene	400	J	mg/kg	484	65.3	50
sec-Butylbenzene	473	J	mg/kg	484	62.7	50
1-Methyl-3-Isopropylbenzene	680		mg/kg	484	62.4	50
1-Methyl-4-Isopropylbenzene	294	J	mg/kg	484	51.3	50
1,2,3-Trimethylbenzene	5760		mg/kg	484	54.0	50
1-Methyl-2-Isopropylbenzene	89.3	J	mg/kg	484	52.5	50
Indane	2990		mg/kg	484	29.8	50
1,3-Diethylbenzene	1520		mg/kg	484	60.3	50
1-Methyl-3-N-Propylbenzene	3300		mg/kg	484	48.9	50
Indene	243	J	mg/kg	484	28.1	50
1-Methyl-4-N-Propylbenzene	1670		mg/kg	484	60.5	50
n-Butylbenzene	1170		mg/kg	484	47.7	50
1,2-Dimethyl-4-Ethylbenzene	3860		mg/kg	484	59.3	50
1,2-Diethylbenzene	286	J	mg/kg	484	71.6	50
1-Methyl-2-N-Propylbenzene	1250		mg/kg	484	60.3	50
1,4-Dimethyl-2-Ethylbenzene	2650		mg/kg	484	45.2	50
Undecane	2880		mg/kg	484	53.7	50
1,3-Dimethyl-4-Ethylbenzene	2330		mg/kg	484	47.0	50
1,3-Dimethyl-5-Ethylbenzene	4350		mg/kg	484	57.1	50
1,3-Dimethyl-2-Ethylbenzene	375	J	mg/kg	484	36.1	50
1,2-Dimethyl-3-Ethylbenzene	914		mg/kg	484	30.7	50
1,2,4,5-Tetramethylbenzene	2710		mg/kg	484	37.5	50
1,2,3,5-Tetramethylbenzene	3570		mg/kg	484	36.8	50
N-Pentylbenzene	275	J	mg/kg	484	60.3	50
1,2,3,4-Tetramethylbenzene	1070		mg/kg	484	51.8	50
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	484	69.0	50
Dodecane (C12)	2680		mg/kg	1210	159.	50
1,3,5-Triethylbenzene	ND		mg/kg	484	92.0	50
Naphthalene	3580		mg/kg	484	202.	50
Benzothiophene	ND		mg/kg	484	256.	50
1,2,4-Triethylbenzene	ND		mg/kg	484	82.3	50
Hexylbenzene	226	J	mg/kg	484	93.2	50
MMT	ND		mg/kg	1210	311.	50
Tridecane	2240		mg/kg	1210	337.	50

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10 D	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	4650		mg/kg	1210	320.	50
1-Methylnaphthalene	2340		mg/kg	1210	355.	50
Tetradecane (C14)	1700		mg/kg	1210	148.	50
Pentadecane	1640		mg/kg	1210	270.	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/12/23 19:35
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3-Methyl-1-butene	ND		ug/l	2.00	0.297	1
Isopentane	ND		ug/l	2.00	0.366	1
1-Pentene	ND		ug/l	2.00	0.365	1
2-Methyl-1-Butene	ND		ug/l	2.00	0.311	1
Pentane	ND		ug/l	2.00	0.624	1
trans-2-Pentene	ND		ug/l	2.00	0.270	1
Isoprene	ND		ug/l	2.00	0.357	1
cis-2-Pentene	ND		ug/l	2.00	0.322	1
Tertiary Butanol	1220	E	ug/l	25.0	3.24	1
2,2-Dimethylbutane	ND		ug/l	2.00	0.617	1
4-Methyl-1-pentene	ND		ug/l	2.00	0.311	1
Cyclopentane	ND		ug/l	2.00	0.519	1
2,3-Dimethylbutane	ND		ug/l	2.00	0.826	1
2-Methylpentane	ND		ug/l	2.00	0.542	1
Methyl tert butyl ether	20.5		ug/l	2.00	0.412	1
3-Methylpentane	ND		ug/l	2.00	0.317	1
1-Hexene	ND		ug/l	2.00	0.281	1
n-Hexane	ND		ug/l	2.00	0.329	1
Isopropyl Ether	ND		ug/l	2.00	0.242	1
trans-2-Hexene	ND		ug/l	2.00	0.261	1
2-Methyl-2-pentene	ND		ug/l	2.00	0.306	1
cis-2-Hexene	ND		ug/l	2.00	0.271	1
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.00	0.303	1
2,2-Dimethylpentane	ND		ug/l	2.00	0.269	1
Methylcyclopentane	ND		ug/l	2.00	0.268	1
2,4-Dimethylpentane	ND		ug/l	2.00	0.247	1
2,2,3-Trimethylbutane	0.290	J	ug/l	2.00	0.270	1
1,2-Dichloroethane	ND		ug/l	2.00	0.295	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-11 Date Collected: 12/19/22 15:25
Client ID: TG02-MW-17-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
3,3-Dimethylpentane	ND		ug/l	2.00	0.372	1
Cyclohexane	ND		ug/l	2.00	0.247	1
2-Methylhexane	ND		ug/l	2.00	0.315	1
Benzene	ND		ug/l	2.00	0.305	1
2,3-Dimethylpentane	ND		ug/l	2.00	0.265	1
Thiophene	ND		ug/l	2.00	0.284	1
1,1-Dimethylcyclopentane	ND		ug/l	2.00	0.240	1
3-Methylhexane	ND		ug/l	2.00	0.320	1
Tertiary-Amyl Methyl Ether	ND		ug/l	2.00	0.246	1
1,3-Dimethylcyclopentane (cis)	ND		ug/l	2.00	0.301	1
3-Ethylpentane	ND		ug/l	2.00	0.289	1
1-Heptene/1,2-DMCP (trans)	ND		ug/l	4.00	0.585	1
Isooctane	4.57		ug/l	2.00	0.218	1
trans-3-Heptene	ND		ug/l	2.00	0.311	1
Heptane	ND		ug/l	2.00	0.348	1
trans-2-Heptene	ND		ug/l	2.00	0.256	1
cis-2-Heptene	ND		ug/l	2.00	0.387	1
2,2-Dimethylhexane	ND		ug/l	2.00	0.290	1
Methylcyclohexane	ND		ug/l	2.00	0.270	1
2,5-Dimethylhexane	ND		ug/l	2.00	0.348	1
2,4-Dimethylhexane	ND		ug/l	2.00	0.243	1
Ethylcyclopentane	ND		ug/l	2.00	0.265	1
2,2,3-Trimethylpentane	0.708	J	ug/l	2.00	0.347	1
2,3,4-Trimethylpentane	3.46		ug/l	2.00	0.261	1
2,3,3-Trimethylpentane	13.8		ug/l	2.00	0.397	1
2,3-Dimethylhexane	ND		ug/l	2.00	0.485	1
2-Methylheptane	ND		ug/l	2.00	0.338	1
4-Methylheptane	ND		ug/l	2.00	0.344	1
3-Methylheptane	ND		ug/l	2.00	0.385	1
3-Ethylhexane	ND		ug/l	2.00	0.358	1
Toluene	ND		ug/l	2.00	0.271	1
2-Methylthiophene	ND		ug/l	2.00	0.170	1
1,4-Dimethylcyclohexane (trans)	ND		ug/l	2.00	0.260	1
3-Methylthiophene	ND		ug/l	2.00	0.234	1
1-Octene	ND		ug/l	5.00	0.307	1
Octane	ND		ug/l	2.00	0.235	1
1,2-Dimethylcyclohexane (trans)	ND		ug/l	2.00	0.294	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
1,2-Dibromoethane	ND		ug/l	2.00	0.320	1
cis-2-Octene	ND		ug/l	2.00	0.229	1
Isopropylcyclopentane	ND		ug/l	2.00	0.293	1
1,2-Dimethylcyclohexane (cis)	ND		ug/l	2.00	0.581	1
2,5-Dimethylheptane	0.462	J	ug/l	2.00	0.335	1
3,5-Dimethylheptane	ND		ug/l	2.00	0.282	1
3,3-Dimethylheptane	ND		ug/l	2.00	0.242	1
1,1,4-Trimethylcyclohexane	ND		ug/l	2.00	0.199	1
2,3-Dimethylheptane	0.656	J	ug/l	2.00	0.228	1
3,4-Dimethylheptane	ND		ug/l	2.00	0.340	1
4-Methyloctane	ND		ug/l	2.00	0.334	1
2-Methyloctane	ND		ug/l	2.00	0.512	1
Ethylbenzene	ND		ug/l	2.00	0.216	1
2-Ethylthiophene	ND		ug/l	2.00	0.176	1
3-Methyloctane	ND		ug/l	2.00	0.224	1
3,3-Diethylpentane	ND		ug/l	2.00	0.233	1
p/m-Xylene	ND		ug/l	4.00	0.381	1
1-Nonene	ND		ug/l	5.00	0.270	1
trans-3-Nonene	ND		ug/l	2.00	0.237	1
cis-3-Nonene	ND		ug/l	2.00	0.374	1
Nonane (C9)	ND		ug/l	2.00	0.311	1
Styrene	ND		ug/l	2.00	0.202	1
o-Xylene	ND		ug/l	2.00	0.209	1
Xylene (Total)[1]	ND		ug/l	2.00	0.209	1
2-Nonene	ND		ug/l	5.00	0.254	1
Isopropylcyclohexane	ND		ug/l	2.00	0.212	1
Isopropylbenzene	ND		ug/l	2.00	0.187	1
3,3-Dimethyloctane	0.937	J	ug/l	2.00	0.202	1
n-Propylbenzene	ND		ug/l	2.00	0.177	1
2-Methylnonane	ND		ug/l	2.00	0.283	1
3-Methylnonane	ND		ug/l	2.00	0.279	1
1-Methyl-3-Ethylbenzene	ND		ug/l	2.00	0.316	1
1-Methyl-4-Ethylbenzene	ND		ug/l	2.00	0.282	1
1,3,5-Trimethylbenzene	ND		ug/l	2.00	0.230	1
1-Decene	ND		ug/l	2.00	0.260	1
Isobutylcyclohexane	ND		ug/l	2.00	0.163	1
1-Methyl-2-Ethylbenzene	ND		ug/l	2.00	0.170	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Decane (C10)	ND		ug/l	2.00	0.271	1
tert-Butylbenzene	ND		ug/l	2.00	0.211	1
1,2,4-Trimethylbenzene	ND		ug/l	2.00	0.207	1
Isobutylbenzene	ND		ug/l	2.00	0.270	1
sec-Butylbenzene	ND		ug/l	2.00	0.259	1
1-Methyl-3-Isopropylbenzene	ND		ug/l	2.00	0.258	1
1-Methyl-4-Isopropylbenzene	ND		ug/l	2.00	0.212	1
1,2,3-Trimethylbenzene	ND		ug/l	2.00	0.223	1
1-Methyl-2-Isopropylbenzene	0.380	J	ug/l	2.00	0.217	1
Indane	ND		ug/l	2.00	0.123	1
1,3-Diethylbenzene	ND		ug/l	2.00	0.249	1
1-Methyl-3-N-Propylbenzene	ND		ug/l	2.00	0.202	1
Indene	ND		ug/l	2.00	0.116	1
1-Methyl-4-N-Propylbenzene	ND		ug/l	2.00	0.250	1
n-Butylbenzene	ND		ug/l	2.00	0.197	1
1,2-Dimethyl-4-Ethylbenzene	ND		ug/l	2.00	0.245	1
1,2-Diethylbenzene	0.539	J	ug/l	2.00	0.296	1
1-Methyl-2-N-Propylbenzene	ND		ug/l	2.00	0.249	1
1,4-Dimethyl-2-Ethylbenzene	ND		ug/l	2.00	0.187	1
Undecane	1.87	J	ug/l	2.00	0.222	1
1,3-Dimethyl-4-Ethylbenzene	ND		ug/l	2.00	0.194	1
1,3-Dimethyl-5-Ethylbenzene	0.466	J	ug/l	2.00	0.236	1
1,3-Dimethyl-2-Ethylbenzene	0.863	J	ug/l	2.00	0.149	1
1,2-Dimethyl-3-Ethylbenzene	ND		ug/l	2.00	0.127	1
1,2,4,5-Tetramethylbenzene	2.00		ug/l	2.00	0.155	1
1,2,3,5-Tetramethylbenzene	ND		ug/l	2.00	0.152	1
N-Pentylbenzene	ND		ug/l	2.00	0.249	1
1,2,3,4-Tetramethylbenzene	3.38		ug/l	2.00	0.214	1
1,3-Dimethyl-5-tert-Butylbenzene	ND		ug/l	2.00	0.285	1
Dodecane (C12)	ND		ug/l	5.00	0.657	1
1,3,5-Triethylbenzene	ND		ug/l	2.00	0.380	1
Naphthalene	ND		ug/l	2.00	0.835	1
Benzothiophene	ND		ug/l	2.00	1.06	1
1,2,4-Triethylbenzene	ND		ug/l	2.00	0.340	1
Hexylbenzene	ND		ug/l	2.00	0.385	1
MMT	ND		ug/l	5.00	1.29	1
Tridecane	ND		ug/l	5.00	1.39	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
2-Methylnaphthalene	ND		ug/l	5.00	1.32	1
1-Methylnaphthalene	ND		ug/l	5.00	1.47	1
Tetradecane (C14)	1.54	J	ug/l	5.00	0.612	1
Pentadecane	4.90	J	ug/l	5.00	1.12	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11 D	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/13/23 10:44
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PIANO Volatile Organics by GC/MS - Mansfield Lab						
Tertiary Butanol	1280		ug/l	50.0	6.48	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					
3-Methyl-1-butene	ND		mg/kg	10.0	1.48
Isopentane	7.52	J	mg/kg	10.0	1.83
1-Pentene	ND		mg/kg	10.0	1.82
2-Methyl-1-Butene	ND		mg/kg	10.0	1.56
Pentane	ND		mg/kg	10.0	3.12
trans-2-Pentene	ND		mg/kg	10.0	1.35
Isoprene	ND		mg/kg	10.0	1.78
cis-2-Pentene	ND		mg/kg	10.0	1.61
Tertiary Butanol	ND		mg/kg	125	16.2
2,2-Dimethylbutane	ND		mg/kg	10.0	3.08
4-Methyl-1-pentene	ND		mg/kg	10.0	1.56
Cyclopentane	ND		mg/kg	10.0	2.60
2,3-Dimethylbutane	ND		mg/kg	10.0	4.13
2-Methylpentane	ND		mg/kg	10.0	2.71
Methyl tert butyl ether	ND		mg/kg	10.0	2.06
3-Methylpentane	ND		mg/kg	10.0	1.58
1-Hexene	ND		mg/kg	10.0	1.40
n-Hexane	4.77	J	mg/kg	10.0	1.64
Isopropyl Ether	ND		mg/kg	10.0	1.21
trans-2-Hexene	ND		mg/kg	10.0	1.30
2-Methyl-2-pentene	ND		mg/kg	10.0	1.53
cis-2-Hexene	ND		mg/kg	10.0	1.36
Ethyl-Tert-Butyl-Ether	ND		mg/kg	10.0	1.52
2,2-Dimethylpentane	ND		mg/kg	10.0	1.34
Methylcyclopentane	ND		mg/kg	10.0	1.34
2,4-Dimethylpentane	ND		mg/kg	10.0	1.24
2,2,3-Trimethylbutane	ND		mg/kg	10.0	1.35
1,2-Dichloroethane	ND		mg/kg	10.0	1.48
3,3-Dimethylpentane	ND		mg/kg	10.0	1.86

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					
Cyclohexane	ND		mg/kg	10.0	1.24
2-Methylhexane	ND		mg/kg	10.0	1.58
Benzene	ND		mg/kg	10.0	1.52
2,3-Dimethylpentane	ND		mg/kg	10.0	1.32
Thiophene	ND		mg/kg	10.0	1.42
1,1-Dimethylcyclopentane	ND		mg/kg	10.0	1.20
3-Methylhexane	ND		mg/kg	10.0	1.60
Tertiary-Amyl Methyl Ether	ND		mg/kg	10.0	1.23
1,3-Dimethylcyclopentane (cis)	ND		mg/kg	10.0	1.50
3-Ethylpentane	ND		mg/kg	10.0	1.44
1-Heptene/1,2-DMCP (trans)	ND		mg/kg	20.0	2.92
Isooctane	ND		mg/kg	10.0	1.09
trans-3-Heptene	ND		mg/kg	10.0	1.56
Heptane	ND		mg/kg	10.0	1.74
trans-2-Heptene	ND		mg/kg	10.0	1.28
cis-2-Heptene	ND		mg/kg	10.0	1.94
2,2-Dimethylhexane	ND		mg/kg	10.0	1.45
Methylcyclohexane	ND		mg/kg	10.0	1.35
2,5-Dimethylhexane	ND		mg/kg	10.0	1.74
2,4-Dimethylhexane	ND		mg/kg	10.0	1.22
Ethylcyclopentane	ND		mg/kg	10.0	1.32
2,2,3-Trimethylpentane	ND		mg/kg	10.0	1.74
2,3,4-Trimethylpentane	ND		mg/kg	10.0	1.30
2,3,3-Trimethylpentane	ND		mg/kg	10.0	1.98
2,3-Dimethylhexane	ND		mg/kg	10.0	2.42
2-Methylheptane	ND		mg/kg	10.0	1.69
4-Methylheptane	ND		mg/kg	10.0	1.72
3-Methylheptane	ND		mg/kg	10.0	1.42
3-Ethylhexane	ND		mg/kg	10.0	1.79

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					
Toluene	ND		mg/kg	10.0	1.36
2-Methylthiophene	ND		mg/kg	10.0	0.850
1,4-Dimethylcyclohexane (trans)	ND		mg/kg	10.0	1.30
3-Methylthiophene	ND		mg/kg	10.0	1.17
1-Octene	ND		mg/kg	25.0	1.54
Octane	ND		mg/kg	10.0	1.18
1,2-Dimethylcyclohexane (trans)	ND		mg/kg	10.0	1.47
1,2-Dibromoethane	ND		mg/kg	10.0	1.60
cis-2-Octene	ND		mg/kg	10.0	1.14
Isopropylcyclopentane	ND		mg/kg	10.0	1.46
1,2-Dimethylcyclohexane (cis)	ND		mg/kg	10.0	2.90
2,5-Dimethylheptane	ND		mg/kg	10.0	1.68
3,5-Dimethylheptane	ND		mg/kg	10.0	1.41
3,3-Dimethylheptane	ND		mg/kg	10.0	1.21
1,1,4-Trimethylcyclohexane	ND		mg/kg	10.0	0.995
2,3-Dimethylheptane	ND		mg/kg	10.0	1.14
3,4-Dimethylheptane	ND		mg/kg	10.0	1.70
4-Methyloctane	ND		mg/kg	10.0	1.67
2-Methyloctane	ND		mg/kg	10.0	2.56
Ethylbenzene	ND		mg/kg	10.0	1.08
2-Ethylthiophene	ND		mg/kg	10.0	0.880
3-Methyloctane	ND		mg/kg	10.0	1.12
3,3-Diethylpentane	ND		mg/kg	10.0	1.16
p/m-Xylene	ND		mg/kg	20.0	1.90
1-Nonene	ND		mg/kg	25.0	1.35
trans-3-Nonene	ND		mg/kg	10.0	1.18
cis-3-Nonene	ND		mg/kg	10.0	1.87
Nonane (C9)	ND		mg/kg	10.0	1.56
Styrene	ND		mg/kg	10.0	1.01

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					
o-Xylene	ND		mg/kg	10.0	1.04
Xylene (Total)[1]	ND		mg/kg	10.0	1.04
2-Nonene	ND		mg/kg	25.0	1.27
Isopropylcyclohexane	ND		mg/kg	10.0	1.06
Isopropylbenzene	ND		mg/kg	10.0	0.935
3,3-Dimethyloctane	ND		mg/kg	10.0	1.01
n-Propylbenzene	ND		mg/kg	10.0	0.885
2-Methylnonane	ND		mg/kg	10.0	1.42
3-Methylnonane	ND		mg/kg	10.0	1.40
1-Methyl-3-Ethylbenzene	ND		mg/kg	10.0	1.58
1-Methyl-4-Ethylbenzene	ND		mg/kg	10.0	1.41
1,3,5-Trimethylbenzene	ND		mg/kg	10.0	1.15
1-Decene	ND		mg/kg	10.0	1.30
Isobutylcyclohexane	ND		mg/kg	10.0	0.815
1-Methyl-2-Ethylbenzene	ND		mg/kg	10.0	0.850
Decane (C10)	ND		mg/kg	10.0	1.36
tert-Butylbenzene	ND		mg/kg	10.0	1.06
1,2,4-Trimethylbenzene	ND		mg/kg	10.0	1.04
Isobutylbenzene	ND		mg/kg	10.0	1.35
sec-Butylbenzene	ND		mg/kg	10.0	1.30
1-Methyl-3-Isopropylbenzene	ND		mg/kg	10.0	1.29
1-Methyl-4-Isopropylbenzene	ND		mg/kg	10.0	1.06
1,2,3-Trimethylbenzene	ND		mg/kg	10.0	1.12
1-Methyl-2-Isopropylbenzene	ND		mg/kg	10.0	1.08
Indane	ND		mg/kg	10.0	0.615
1,3-Diethylbenzene	ND		mg/kg	10.0	1.24
1-Methyl-3-N-Propylbenzene	ND		mg/kg	10.0	1.01
Indene	ND		mg/kg	10.0	0.580
1-Methyl-4-N-Propylbenzene	ND		mg/kg	10.0	1.25

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					
n-Butylbenzene	ND		mg/kg	10.0	0.985
1,2-Dimethyl-4-Ethylbenzene	ND		mg/kg	10.0	1.22
1,2-Diethylbenzene	ND		mg/kg	10.0	1.48
1-Methyl-2-N-Propylbenzene	ND		mg/kg	10.0	1.24
1,4-Dimethyl-2-Ethylbenzene	ND		mg/kg	10.0	0.935
Undecane	ND		mg/kg	10.0	1.11
1,3-Dimethyl-4-Ethylbenzene	ND		mg/kg	10.0	0.970
1,3-Dimethyl-5-Ethylbenzene	ND		mg/kg	10.0	1.18
1,3-Dimethyl-2-Ethylbenzene	ND		mg/kg	10.0	0.745
1,2-Dimethyl-3-Ethylbenzene	ND		mg/kg	10.0	0.635
1,2,4,5-Tetramethylbenzene	ND		mg/kg	10.0	0.775
1,2,3,5-Tetramethylbenzene	ND		mg/kg	10.0	0.760
N-Pentylbenzene	ND		mg/kg	10.0	1.24
1,2,3,4-Tetramethylbenzene	ND		mg/kg	10.0	1.07
1,3-Dimethyl-5-tert-Butylbenzene	ND		mg/kg	10.0	1.42
Dodecane (C12)	ND		mg/kg	25.0	3.28
1,3,5-Triethylbenzene	ND		mg/kg	10.0	1.90
Naphthalene	ND		mg/kg	10.0	4.18
Benzothiophene	ND		mg/kg	10.0	5.28
1,2,4-Triethylbenzene	ND		mg/kg	10.0	1.70
Hexylbenzene	ND		mg/kg	10.0	1.92
MMT	ND		mg/kg	25.0	6.43
Tridecane	ND		mg/kg	25.0	6.96
2-Methylnaphthalene	ND		mg/kg	25.0	6.61
1-Methylnaphthalene	ND		mg/kg	25.0	7.34
Tetradecane (C14)	ND		mg/kg	25.0	3.06
Pentadecane	ND		mg/kg	25.0	5.58

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 16:41
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 01-10 Batch: WG1731717-6					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	94		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	98		70-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					
3-Methyl-1-butene	ND		ug/l	2.00	0.297
Isopentane	ND		ug/l	2.00	0.366
1-Pentene	ND		ug/l	2.00	0.365
2-Methyl-1-Butene	ND		ug/l	2.00	0.311
Pentane	ND		ug/l	2.00	0.624
trans-2-Pentene	ND		ug/l	2.00	0.270
Isoprene	ND		ug/l	2.00	0.357
cis-2-Pentene	ND		ug/l	2.00	0.322
Tertiary Butanol	31.6		ug/l	25.0	3.24
2,2-Dimethylbutane	ND		ug/l	2.00	0.617
4-Methyl-1-pentene	ND		ug/l	2.00	0.311
Cyclopentane	ND		ug/l	2.00	0.519
2,3-Dimethylbutane	ND		ug/l	2.00	0.826
2-Methylpentane	ND		ug/l	2.00	0.542
Methyl tert butyl ether	ND		ug/l	2.00	0.412
3-Methylpentane	ND		ug/l	2.00	0.317
1-Hexene	ND		ug/l	2.00	0.281
n-Hexane	ND		ug/l	2.00	0.329
Isopropyl Ether	ND		ug/l	2.00	0.242
trans-2-Hexene	ND		ug/l	2.00	0.261
2-Methyl-2-pentene	ND		ug/l	2.00	0.306
cis-2-Hexene	ND		ug/l	2.00	0.271
Ethyl-Tert-Butyl-Ether	ND		ug/l	2.00	0.303
2,2-Dimethylpentane	ND		ug/l	2.00	0.269
Methylcyclopentane	ND		ug/l	2.00	0.268
2,4-Dimethylpentane	ND		ug/l	2.00	0.247
2,2,3-Trimethylbutane	ND		ug/l	2.00	0.270
1,2-Dichloroethane	ND		ug/l	2.00	0.295
3,3-Dimethylpentane	ND		ug/l	2.00	0.372

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					
Cyclohexane	ND		ug/l	2.00	0.247
2-Methylhexane	ND		ug/l	2.00	0.315
Benzene	ND		ug/l	2.00	0.305
2,3-Dimethylpentane	ND		ug/l	2.00	0.265
Thiophene	ND		ug/l	2.00	0.284
1,1-Dimethylcyclopentane	ND		ug/l	2.00	0.240
3-Methylhexane	ND		ug/l	2.00	0.320
Tertiary-Amyl Methyl Ether	ND		ug/l	2.00	0.246
1,3-Dimethylcyclopentane (cis)	ND		ug/l	2.00	0.301
3-Ethylpentane	ND		ug/l	2.00	0.289
1-Heptene/1,2-DMCP (trans)	ND		ug/l	4.00	0.585
Isooctane	ND		ug/l	2.00	0.218
trans-3-Heptene	ND		ug/l	2.00	0.311
Heptane	ND		ug/l	2.00	0.348
trans-2-Heptene	ND		ug/l	2.00	0.256
cis-2-Heptene	ND		ug/l	2.00	0.387
2,2-Dimethylhexane	ND		ug/l	2.00	0.290
Methylcyclohexane	ND		ug/l	2.00	0.270
2,5-Dimethylhexane	ND		ug/l	2.00	0.348
2,4-Dimethylhexane	ND		ug/l	2.00	0.243
Ethylcyclopentane	ND		ug/l	2.00	0.265
2,2,3-Trimethylpentane	ND		ug/l	2.00	0.347
2,3,4-Trimethylpentane	ND		ug/l	2.00	0.261
2,3,3-Trimethylpentane	ND		ug/l	2.00	0.397
2,3-Dimethylhexane	ND		ug/l	2.00	0.485
2-Methylheptane	ND		ug/l	2.00	0.338
4-Methylheptane	ND		ug/l	2.00	0.344
3-Methylheptane	ND		ug/l	2.00	0.385
3-Ethylhexane	ND		ug/l	2.00	0.358

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					
Toluene	ND		ug/l	2.00	0.271
2-Methylthiophene	ND		ug/l	2.00	0.170
1,4-Dimethylcyclohexane (trans)	ND		ug/l	2.00	0.260
3-Methylthiophene	ND		ug/l	2.00	0.234
1-Octene	ND		ug/l	5.00	0.307
Octane	ND		ug/l	2.00	0.235
1,2-Dimethylcyclohexane (trans)	ND		ug/l	2.00	0.294
1,2-Dibromoethane	ND		ug/l	2.00	0.320
cis-2-Octene	ND		ug/l	2.00	0.229
Isopropylcyclopentane	ND		ug/l	2.00	0.293
1,2-Dimethylcyclohexane (cis)	ND		ug/l	2.00	0.581
2,5-Dimethylheptane	ND		ug/l	2.00	0.335
3,5-Dimethylheptane	ND		ug/l	2.00	0.282
3,3-Dimethylheptane	ND		ug/l	2.00	0.242
1,1,4-Trimethylcyclohexane	ND		ug/l	2.00	0.199
2,3-Dimethylheptane	ND		ug/l	2.00	0.228
3,4-Dimethylheptane	ND		ug/l	2.00	0.340
4-Methyloctane	ND		ug/l	2.00	0.334
2-Methyloctane	ND		ug/l	2.00	0.512
Ethylbenzene	ND		ug/l	2.00	0.216
2-Ethylthiophene	ND		ug/l	2.00	0.176
3-Methyloctane	ND		ug/l	2.00	0.224
3,3-Diethylpentane	ND		ug/l	2.00	0.233
p/m-Xylene	ND		ug/l	4.00	0.381
1-Nonene	ND		ug/l	5.00	0.270
trans-3-Nonene	ND		ug/l	2.00	0.237
cis-3-Nonene	ND		ug/l	2.00	0.374
Nonane (C9)	ND		ug/l	2.00	0.311
Styrene	ND		ug/l	2.00	0.202

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					
o-Xylene	ND		ug/l	2.00	0.209
Xylene (Total)[1]	ND		ug/l	2.00	0.209
2-Nonene	ND		ug/l	5.00	0.254
Isopropylcyclohexane	ND		ug/l	2.00	0.212
Isopropylbenzene	ND		ug/l	2.00	0.187
3,3-Dimethyloctane	ND		ug/l	2.00	0.202
n-Propylbenzene	ND		ug/l	2.00	0.177
2-Methylnonane	ND		ug/l	2.00	0.283
3-Methylnonane	ND		ug/l	2.00	0.279
1-Methyl-3-Ethylbenzene	ND		ug/l	2.00	0.316
1-Methyl-4-Ethylbenzene	ND		ug/l	2.00	0.282
1,3,5-Trimethylbenzene	ND		ug/l	2.00	0.230
1-Decene	ND		ug/l	2.00	0.260
Isobutylcyclohexane	ND		ug/l	2.00	0.163
1-Methyl-2-Ethylbenzene	ND		ug/l	2.00	0.170
Decane (C10)	ND		ug/l	2.00	0.271
tert-Butylbenzene	ND		ug/l	2.00	0.211
1,2,4-Trimethylbenzene	ND		ug/l	2.00	0.207
Isobutylbenzene	ND		ug/l	2.00	0.270
sec-Butylbenzene	ND		ug/l	2.00	0.259
1-Methyl-3-Isopropylbenzene	ND		ug/l	2.00	0.258
1-Methyl-4-Isopropylbenzene	ND		ug/l	2.00	0.212
1,2,3-Trimethylbenzene	ND		ug/l	2.00	0.223
1-Methyl-2-Isopropylbenzene	ND		ug/l	2.00	0.217
Indane	ND		ug/l	2.00	0.123
1,3-Diethylbenzene	ND		ug/l	2.00	0.249
1-Methyl-3-N-Propylbenzene	ND		ug/l	2.00	0.202
Indene	ND		ug/l	2.00	0.116
1-Methyl-4-N-Propylbenzene	ND		ug/l	2.00	0.250

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					
n-Butylbenzene	ND		ug/l	2.00	0.197
1,2-Dimethyl-4-Ethylbenzene	ND		ug/l	2.00	0.245
1,2-Diethylbenzene	ND		ug/l	2.00	0.296
1-Methyl-2-N-Propylbenzene	ND		ug/l	2.00	0.249
1,4-Dimethyl-2-Ethylbenzene	ND		ug/l	2.00	0.187
Undecane	ND		ug/l	2.00	0.222
1,3-Dimethyl-4-Ethylbenzene	ND		ug/l	2.00	0.194
1,3-Dimethyl-5-Ethylbenzene	ND		ug/l	2.00	0.236
1,3-Dimethyl-2-Ethylbenzene	ND		ug/l	2.00	0.149
1,2-Dimethyl-3-Ethylbenzene	ND		ug/l	2.00	0.127
1,2,4,5-Tetramethylbenzene	ND		ug/l	2.00	0.155
1,2,3,5-Tetramethylbenzene	ND		ug/l	2.00	0.152
N-Pentylbenzene	ND		ug/l	2.00	0.249
1,2,3,4-Tetramethylbenzene	ND		ug/l	2.00	0.214
1,3-Dimethyl-5-tert-Butylbenzene	ND		ug/l	2.00	0.285
Dodecane (C12)	ND		ug/l	5.00	0.657
1,3,5-Triethylbenzene	ND		ug/l	2.00	0.380
Naphthalene	ND		ug/l	2.00	0.835
Benzothiophene	ND		ug/l	2.00	1.06
1,2,4-Triethylbenzene	ND		ug/l	2.00	0.340
Hexylbenzene	ND		ug/l	2.00	0.385
MMT	ND		ug/l	5.00	1.29
Tridecane	ND		ug/l	5.00	1.39
2-Methylnaphthalene	ND		ug/l	5.00	1.32
1-Methylnaphthalene	ND		ug/l	5.00	1.47
Tetradecane (C14)	ND		ug/l	5.00	0.612
Pentadecane	ND		ug/l	5.00	1.12

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/12/23 18:23
Analyst: RAY

Parameter	Result	Qualifier	Units	RL	MDL
PIANO Volatile Organics by GC/MS - Mansfield Lab for sample(s): 11 Batch: WG1733214-5					

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Dibromofluoromethane	95		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-10 Batch: WG1731717-3 WG1731717-4								
1-Pentene	79		82		50-130	4		30
Pentane	83		87		50-130	5		30
Tertiary Butanol	87		93		50-130	7		30
Cyclopentane	88		88		50-130	0		30
2-Methylpentane	89		93		50-130	4		30
Methyl tert butyl ether	85		88		50-130	3		30
3-Methylpentane	93		97		50-130	4		30
1-Hexene	93		97		50-130	4		30
n-Hexane	78		82		50-130	5		30
Isopropyl Ether	86		89		50-130	3		30
Ethyl-Tert-Butyl-Ether	87		90		50-130	3		30
Methylcyclopentane	93		98		50-130	5		30
2,4-Dimethylpentane	96		97		50-130	1		30
Cyclohexane	96		100		50-130	4		30
2-Methylhexane	92		95		50-130	3		30
Benzene	90		93		50-130	3		30
2,3-Dimethylpentane	92		97		50-130	5		30
3-Methylhexane	82		86		50-130	5		30
Tertiary-Amyl Methyl Ether	80		83		50-130	4		30
Isooctane	90		94		50-130	4		30
Heptane	93		97		50-130	4		30
Methylcyclohexane	93		97		50-130	4		30
2-Methylheptane	91		95		50-130	4		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-10 Batch: WG1731717-3 WG1731717-4								
3-Methylheptane	89		92		50-130	3		30
Toluene	92		95		50-130	3		30
Octane	90		95		50-130	5		30
Ethylbenzene	90		92		50-130	2		30
p/m-Xylene	92		95		50-130	3		30
Nonane (C9)	82		84		50-130	2		30
o-Xylene	92		94		50-130	2		30
Isopropylbenzene	91		94		50-130	3		30
n-Propylbenzene	92		94		50-130	2		30
1-Methyl-3-Ethylbenzene	90		93		50-130	3		30
1-Methyl-4-Ethylbenzene	94		97		50-130	3		30
1,3,5-Trimethylbenzene	91		94		50-130	3		30
1-Decene	72		76		50-130	5		30
1-Methyl-2-Ethylbenzene	92		94		50-130	2		30
Decane (C10)	87		91		50-130	4		30
1,2,4-Trimethylbenzene	87		89		50-130	2		30
sec-Butylbenzene	94		97		50-130	3		30
1-Methyl-4-N-Propylbenzene	86		88		50-130	2		30
n-Butylbenzene	87		90		50-130	3		30
1,2-Diethylbenzene	87		89		50-130	2		30
Undecane	90		94		50-130	4		30
N-Pentylbenzene	87		90		50-130	3		30
Dodecane (C12)	105		108		50-130	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 01-10 Batch: WG1731717-3 WG1731717-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Dibromofluoromethane	92		93		70-130
Toluene-d8	98		98		70-130
4-Bromofluorobenzene	100		100		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 11 Batch: WG1733214-3 WG1733214-4								
1-Pentene	79		82		50-130	4		30
Pentane	83		87		50-130	5		30
Tertiary Butanol	87		93		50-130	7		30
Cyclopentane	88		88		50-130	0		30
2-Methylpentane	89		93		50-130	4		30
Methyl tert butyl ether	85		88		50-130	3		30
3-Methylpentane	93		96		50-130	3		30
1-Hexene	94		96		50-130	2		30
n-Hexane	78		82		50-130	5		30
Isopropyl Ether	86		89		50-130	3		30
Ethyl-Tert-Butyl-Ether	87		90		50-130	3		30
Methylcyclopentane	94		98		50-130	4		30
2,4-Dimethylpentane	96		96		50-130	0		30
Cyclohexane	96		100		50-130	4		30
2-Methylhexane	92		95		50-130	3		30
Benzene	90		93		50-130	3		30
2,3-Dimethylpentane	92		98		50-130	6		30
3-Methylhexane	82		86		50-130	5		30
Tertiary-Amyl Methyl Ether	80		83		50-130	4		30
Isooctane	90		94		50-130	4		30
Heptane	93		98		50-130	5		30
Methylcyclohexane	92		97		50-130	5		30
2-Methylheptane	92		95		50-130	3		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 11 Batch: WG1733214-3 WG1733214-4								
3-Methylheptane	89		92		50-130	3		30
Toluene	92		96		50-130	4		30
Octane	90		95		50-130	5		30
Ethylbenzene	90		92		50-130	2		30
p/m-Xylene	92		94		50-130	2		30
Nonane (C9)	82		84		50-130	2		30
o-Xylene	92		94		50-130	2		30
Isopropylbenzene	92		94		50-130	2		30
n-Propylbenzene	92		94		50-130	2		30
1-Methyl-3-Ethylbenzene	90		93		50-130	3		30
1-Methyl-4-Ethylbenzene	94		97		50-130	3		30
1,3,5-Trimethylbenzene	92		94		50-130	2		30
1-Decene	72		76		50-130	5		30
1-Methyl-2-Ethylbenzene	92		94		50-130	2		30
Decane (C10)	87		91		50-130	4		30
1,2,4-Trimethylbenzene	88		89		50-130	1		30
sec-Butylbenzene	94		97		50-130	3		30
1-Methyl-4-N-Propylbenzene	86		88		50-130	2		30
n-Butylbenzene	87		90		50-130	3		30
1,2-Diethylbenzene	86		89		50-130	3		30
Undecane	90		94		50-130	4		30
N-Pentylbenzene	87		90		50-130	3		30
Dodecane (C12)	104		108		50-130	4		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002
Lab Number: L2271579
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PIANO Volatile Organics by GC/MS - Mansfield Lab Associated sample(s): 11 Batch: WG1733214-3 WG1733214-4								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Dibromofluoromethane	92		93		70-130
Toluene-d8	97		98		70-130
4-Bromofluorobenzene	100		100		70-130

SEMIVOLATILES

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-01
Client ID: TG02-MW-03-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 09:10
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 18:03
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	129		mg/kg	0.976	0.300	1
Tetramethyl Lead	10.4		mg/kg	0.976	0.300	1
Trimethyl Ethyl Lead	47.6		mg/kg	0.976	0.300	1
Diethyl Dimethyl Lead	141		mg/kg	0.976	0.300	1
Methyl Triethyl Lead	188		mg/kg	0.976	0.300	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 04:13		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3940	E	mg/kg	2.68	0.770	1
C1-Naphthalenes	5740	E	mg/kg	2.68	0.770	1
C2-Naphthalenes	4100		mg/kg	2.68	0.770	1
C3-Naphthalenes	2210		mg/kg	2.68	0.770	1
C4-Naphthalenes	964		mg/kg	2.68	0.770	1
2-Methylnaphthalene	5560	E	mg/kg	2.68	0.691	1
1-Methylnaphthalene	3000		mg/kg	2.68	0.845	1
Biphenyl	112		mg/kg	2.68	0.828	1
2,6-Dimethylnaphthalene	1900		mg/kg	2.68	0.637	1
Dibenzofuran	53.3		mg/kg	2.68	0.844	1
Acenaphthylene	10.1		mg/kg	2.68	0.512	1
Acenaphthene	65.2		mg/kg	2.68	0.472	1
2,3,5-Trimethylnaphthalene	231		mg/kg	2.68	0.438	1
Fluorene	107		mg/kg	2.68	0.715	1
C1-Fluorenes	206		mg/kg	2.68	0.715	1
C2-Fluorenes	328		mg/kg	2.68	0.715	1
C3-Fluorenes	228		mg/kg	2.68	0.715	1
Dibenzothiophene	46.6		mg/kg	2.68	0.739	1
C1-Dibenzothiophenes BS	127		mg/kg	2.68	0.739	1
C2-Dibenzothiophenes	142		mg/kg	2.68	0.739	1
C3-Dibenzothiophenes	76.7		mg/kg	2.68	0.739	1
C4-Dibenzothiophenes	28.8		mg/kg	2.68	0.739	1
Phenanthrene	192		mg/kg	2.68	0.888	1
C1-Phenanthrenes/Anthracenes	350		mg/kg	2.68	0.888	1
C2-Phenanthrenes/Anthr BS	292		mg/kg	2.68	0.888	1
C3-Phenanthrenes/Anthracenes	108		mg/kg	2.68	0.888	1
C4-Phenanthrenes/Anthracenes	36.5		mg/kg	2.68	0.888	1
Retene	ND		mg/kg	2.68	0.658	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-01 Date Collected: 12/20/22 09:10
Client ID: TG02-MW-03-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	24.1		mg/kg	2.68	0.553	1
Carbazole	5.17		mg/kg	2.68	0.877	1
Fluoranthene	20.5		mg/kg	2.68	0.852	1
Benzo(b)fluorene	6.57		mg/kg	2.68	0.776	1
Pyrene	29.3		mg/kg	2.68	0.705	1
C1-Fluoranthenes/Pyrenes	31.6		mg/kg	2.68	0.705	1
C2-Fluoranthenes/Pyrenes	19.3		mg/kg	2.68	0.705	1
C3-Fluoranthenes/Pyrenes	13.2		mg/kg	2.68	0.705	1
C4-Fluoranthenes/Pyrenes	5.66		mg/kg	2.68	0.705	1
Benz(a)anthracene	7.68		mg/kg	2.68	0.546	1
Chrysene/Triphenylene	9.80		mg/kg	2.68	0.542	1
C1-Chrysenes	6.93		mg/kg	2.68	0.542	1
C2-Chrysenes BS	3.97		mg/kg	2.68	0.542	1
C3-Chrysenes	ND		mg/kg	2.68	0.542	1
C4-Chrysenes	ND		mg/kg	2.68	0.542	1
Benzo(b)fluoranthene	4.10		mg/kg	2.68	0.697	1
Benzo(j)+(k)fluoranthene	5.62		mg/kg	2.68	0.532	1
Benzo(a)fluoranthene	0.888	J	mg/kg	2.68	0.532	1
Benzo(e)pyrene	4.19		mg/kg	2.68	0.553	1
Benzo(a)pyrene	6.20		mg/kg	2.68	0.765	1
Perylene	1.43	J	mg/kg	2.68	0.517	1
Indeno(1,2,3-cd)pyrene	2.81		mg/kg	2.68	0.728	1
Dibenz(a,h)+(a,c)anthracene	0.923	J	mg/kg	2.68	0.724	1
Benzo(g,h,i)perylene	4.08		mg/kg	2.68	0.712	1
Hopane (T19)	ND		mg/kg	2.68	0.763	1
C23 Tricyclic Terpane (T4)	ND		mg/kg	2.68	0.763	1
C24 Tricyclic Terpane (T5)	0.974	J	mg/kg	2.68	0.763	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.68	0.763	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.68	0.763	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.68	0.763	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.68	0.763	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.68	0.763	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.68	0.763	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.68	0.763	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.68	0.763	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.68	0.763	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.68	0.763	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.68	0.763	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.68	0.763	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.68	0.763	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.68	0.763	1
30-Norhopane (T15)	ND		mg/kg	2.68	0.763	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.68	0.763	1
17a(H)-Diahopane (X)	ND		mg/kg	2.68	0.763	1
30-Normoretane (T17)	ND		mg/kg	2.68	0.763	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.68	0.763	1
Moretane (T20)	ND		mg/kg	2.68	0.763	1
30-Homohopane-22S (T21)	ND		mg/kg	2.68	0.763	1
30-Homohopane-22R (T22)	ND		mg/kg	2.68	0.763	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.68	0.763	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.68	0.763	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.68	0.763	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.68	0.763	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.68	0.763	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.68	0.763	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.68	0.763	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.68	0.763	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.68	0.595	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.68	0.595	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.68	0.595	1
17a(H)20SC27/C29dia	ND		mg/kg	2.68	0.595	1
17a(H)20RC27/C29dia	ND		mg/kg	2.68	0.595	1
Unknown Sterane (S18)	ND		mg/kg	2.68	0.595	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.68	0.595	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.68	0.595	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.68	0.595	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.68	0.595	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.68	0.595	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.68	0.595	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.68	0.595	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.68	0.595	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.68	0.595	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.68	0.595	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.68	0.595	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	0.987	J	mg/kg	2.68	0.595	1
C28,20S TAS	ND		mg/kg	2.68	0.595	1
C27,20R TAS	ND		mg/kg	2.68	0.595	1
C28,20R TAS	ND		mg/kg	2.68	0.595	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	101		50-130
Phenanthrene-d10	99		50-130
Benzo(a)pyrene-d12	116		50-130
5B(H)Cholane-Surr	91		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-01 D
Client ID: TG02-MW-03-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 09:10
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/17/23 15:11
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3380		mg/kg	10.7	3.08	4
C1-Naphthalenes	4710		mg/kg	10.7	3.08	4
2-Methylnaphthalene	4540		mg/kg	10.7	2.76	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	81		50-130
Phenanthrene-d10	73		50-130
Benzo(a)pyrene-d12	82		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02
Client ID: TG02-MW-04-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 13:15
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 18:47
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	474		mg/kg	0.971	0.299	1
Tetramethyl Lead	ND		mg/kg	0.971	0.299	1
Trimethyl Ethyl Lead	ND		mg/kg	0.971	0.299	1
Diethyl Dimethyl Lead	ND		mg/kg	0.971	0.299	1
Methyl Triethyl Lead	1.36		mg/kg	0.971	0.299	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02
Client ID: TG02-MW-04-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 13:15
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/13/23 05:38
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	8860	E	mg/kg	2.92	0.839	1
C1-Naphthalenes	7200	E	mg/kg	2.92	0.839	1
C2-Naphthalenes	4660		mg/kg	2.92	0.839	1
C3-Naphthalenes	2500		mg/kg	2.92	0.839	1
C4-Naphthalenes	1120		mg/kg	2.92	0.839	1
2-Methylnaphthalene	6820	E	mg/kg	2.92	0.752	1
1-Methylnaphthalene	3960	E	mg/kg	2.92	0.919	1
Biphenyl	499		mg/kg	2.92	0.902	1
2,6-Dimethylnaphthalene	2070		mg/kg	2.92	0.694	1
Dibenzofuran	273		mg/kg	2.92	0.919	1
Acenaphthylene	56.8		mg/kg	2.92	0.557	1
Acenaphthene	683		mg/kg	2.92	0.514	1
2,3,5-Trimethylnaphthalene	264		mg/kg	2.92	0.477	1
Fluorene	699		mg/kg	2.92	0.778	1
C1-Fluorenes	418		mg/kg	2.92	0.778	1
C2-Fluorenes	387		mg/kg	2.92	0.778	1
C3-Fluorenes	211		mg/kg	2.92	0.778	1
Dibenzothiophene	205		mg/kg	2.92	0.805	1
C1-Dibenzothiophenes BS	285		mg/kg	2.92	0.805	1
C2-Dibenzothiophenes	232		mg/kg	2.92	0.805	1
C3-Dibenzothiophenes	110		mg/kg	2.92	0.805	1
C4-Dibenzothiophenes	36.1		mg/kg	2.92	0.805	1
Phenanthrene	1820		mg/kg	2.92	0.967	1
C1-Phenanthrenes/Anthracenes	1090		mg/kg	2.92	0.967	1
C2-Phenanthrenes/Anthr BS	534		mg/kg	2.92	0.967	1
C3-Phenanthrenes/Anthracenes	171		mg/kg	2.92	0.967	1
C4-Phenanthrenes/Anthracenes	47.8		mg/kg	2.92	0.967	1
Retene	ND		mg/kg	2.92	0.716	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02 Date Collected: 12/20/22 13:15
Client ID: TG02-MW-04-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	484		mg/kg	2.92	0.602	1
Carbazole	32.4		mg/kg	2.92	0.955	1
Fluoranthene	647		mg/kg	2.92	0.927	1
Benzo(b)fluorene	98.7		mg/kg	2.92	0.845	1
Pyrene	648		mg/kg	2.92	0.768	1
C1-Fluoranthenes/Pyrenes	468		mg/kg	2.92	0.768	1
C2-Fluoranthenes/Pyrenes	164		mg/kg	2.92	0.768	1
C3-Fluoranthenes/Pyrenes	63.5		mg/kg	2.92	0.768	1
C4-Fluoranthenes/Pyrenes	26.4		mg/kg	2.92	0.768	1
Benz(a)anthracene	236		mg/kg	2.92	0.595	1
Chrysene/Triphenylene	261		mg/kg	2.92	0.590	1
C1-Chrysenes	177		mg/kg	2.92	0.590	1
C2-Chrysenes BS	74.5		mg/kg	2.92	0.590	1
C3-Chrysenes	35.6		mg/kg	2.92	0.590	1
C4-Chrysenes	ND		mg/kg	2.92	0.590	1
Benzo(b)fluoranthene	144		mg/kg	2.92	0.759	1
Benzo(j)+(k)fluoranthene	143		mg/kg	2.92	0.579	1
Benzo(a)fluoranthene	24.7		mg/kg	2.92	0.579	1
Benzo(e)pyrene	111		mg/kg	2.92	0.602	1
Benzo(a)pyrene	181		mg/kg	2.92	0.833	1
Perylene	34.1		mg/kg	2.92	0.563	1
Indeno(1,2,3-cd)pyrene	70.3		mg/kg	2.92	0.792	1
Dibenz(a,h)+(a,c)anthracene	28.1		mg/kg	2.92	0.788	1
Benzo(g,h,i)perylene	74.5		mg/kg	2.92	0.775	1
Hopane (T19)	ND		mg/kg	2.92	0.830	1
C23 Tricyclic Terpane (T4)	ND		mg/kg	2.92	0.830	1
C24 Tricyclic Terpane (T5)	ND		mg/kg	2.92	0.830	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.92	0.830	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.92	0.830	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.92	0.830	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.92	0.830	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.92	0.830	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.92	0.830	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.92	0.830	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.92	0.830	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.92	0.830	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.92	0.830	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02 Date Collected: 12/20/22 13:15
Client ID: TG02-MW-04-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.92	0.830	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.92	0.830	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.92	0.830	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.92	0.830	1
30-Norhopane (T15)	ND		mg/kg	2.92	0.830	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.92	0.830	1
17a(H)-Diahopane (X)	ND		mg/kg	2.92	0.830	1
30-Normoretane (T17)	ND		mg/kg	2.92	0.830	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.92	0.830	1
Moretane (T20)	ND		mg/kg	2.92	0.830	1
30-Homohopane-22S (T21)	ND		mg/kg	2.92	0.830	1
30-Homohopane-22R (T22)	ND		mg/kg	2.92	0.830	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.92	0.830	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.92	0.830	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.92	0.830	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.92	0.830	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.92	0.830	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.92	0.830	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.92	0.830	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.92	0.830	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.92	0.648	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.92	0.648	1
13b,17a-20S-Methyldiacholestane (S8)	2.21	J	mg/kg	2.92	0.648	1
17a(H)20SC27/C29dia	1.09	J	mg/kg	2.92	0.648	1
17a(H)20RC27/C29dia	2.12	J	mg/kg	2.92	0.648	1
Unknown Sterane (S18)	ND		mg/kg	2.92	0.648	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.92	0.648	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.92	0.648	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.92	0.648	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.92	0.648	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.92	0.648	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.92	0.648	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.92	0.648	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02 Date Collected: 12/20/22 13:15
Client ID: TG02-MW-04-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	1.27	J	mg/kg	2.92	0.648	1
C28,20S TAS	0.815	J	mg/kg	2.92	0.648	1
C27,20R TAS	ND		mg/kg	2.92	0.648	1
C28,20R TAS	ND		mg/kg	2.92	0.648	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	97		50-130
Phenanthrene-d10	96		50-130
Benzo(a)pyrene-d12	112		50-130
5B(H)Cholane-Surr	90		50-130

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-02 D
Client ID: TG02-MW-04-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 13:15
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/17/23 16:35
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	7100		mg/kg	11.7	3.35	4
C1-Naphthalenes	5670		mg/kg	11.7	3.35	4
2-Methylnaphthalene	5310		mg/kg	11.7	3.01	4
1-Methylnaphthalene	3170		mg/kg	11.7	3.68	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	73		50-130
Phenanthrene-d10	70		50-130
Benzo(a)pyrene-d12	84		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-03
Client ID: TG02-MW-05-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 13:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 19:32
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	126		mg/kg	0.946	0.291	1
Tetramethyl Lead	ND		mg/kg	0.946	0.291	1
Trimethyl Ethyl Lead	ND		mg/kg	0.946	0.291	1
Diethyl Dimethyl Lead	0.339	J	mg/kg	0.946	0.291	1
Methyl Triethyl Lead	12.7		mg/kg	0.946	0.291	1

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-03
Client ID: TG02-MW-05-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 13:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/13/23 07:03
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	1360		mg/kg	2.52	0.724	1
C1-Naphthalenes	2400		mg/kg	2.52	0.724	1
C2-Naphthalenes	2880		mg/kg	2.52	0.724	1
C3-Naphthalenes	2130		mg/kg	2.52	0.724	1
C4-Naphthalenes	1100		mg/kg	2.52	0.724	1
2-Methylnaphthalene	2210		mg/kg	2.52	0.650	1
1-Methylnaphthalene	1380		mg/kg	2.52	0.794	1
Biphenyl	34.2		mg/kg	2.52	0.779	1
2,6-Dimethylnaphthalene	1280		mg/kg	2.52	0.599	1
Dibenzofuran	50.3		mg/kg	2.52	0.794	1
Acenaphthylene	9.30		mg/kg	2.52	0.481	1
Acenaphthene	49.0		mg/kg	2.52	0.444	1
2,3,5-Trimethylnaphthalene	232		mg/kg	2.52	0.412	1
Fluorene	97.9		mg/kg	2.52	0.672	1
C1-Fluorenes	234		mg/kg	2.52	0.672	1
C2-Fluorenes	379		mg/kg	2.52	0.672	1
C3-Fluorenes	275		mg/kg	2.52	0.672	1
Dibenzothiophene	60.6		mg/kg	2.52	0.695	1
C1-Dibenzothiophenes BS	186		mg/kg	2.52	0.695	1
C2-Dibenzothiophenes	237		mg/kg	2.52	0.695	1
C3-Dibenzothiophenes	146		mg/kg	2.52	0.695	1
C4-Dibenzothiophenes	61.4		mg/kg	2.52	0.695	1
Phenanthrene	170		mg/kg	2.52	0.835	1
C1-Phenanthrenes/Anthracenes	339		mg/kg	2.52	0.835	1
C2-Phenanthrenes/Anthr BS	291		mg/kg	2.52	0.835	1
C3-Phenanthrenes/Anthracenes	128		mg/kg	2.52	0.835	1
C4-Phenanthrenes/Anthracenes	42.7		mg/kg	2.52	0.835	1
Retene	ND		mg/kg	2.52	0.618	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	18.4		mg/kg	2.52	0.520	1
Carbazole	5.11		mg/kg	2.52	0.825	1
Fluoranthene	3.72		mg/kg	2.52	0.801	1
Benzo(b)fluorene	1.52	J	mg/kg	2.52	0.730	1
Pyrene	10.4		mg/kg	2.52	0.663	1
C1-Fluoranthenes/Pyrenes	17.2		mg/kg	2.52	0.663	1
C2-Fluoranthenes/Pyrenes	11.9		mg/kg	2.52	0.663	1
C3-Fluoranthenes/Pyrenes	7.70		mg/kg	2.52	0.663	1
C4-Fluoranthenes/Pyrenes	4.13		mg/kg	2.52	0.663	1
Benz(a)anthracene	0.750	J	mg/kg	2.52	0.514	1
Chrysene/Triphenylene	2.29	J	mg/kg	2.52	0.510	1
C1-Chrysenes	2.89		mg/kg	2.52	0.510	1
C2-Chrysenes BS	2.39	J	mg/kg	2.52	0.510	1
C3-Chrysenes	ND		mg/kg	2.52	0.510	1
C4-Chrysenes	ND		mg/kg	2.52	0.510	1
Benzo(b)fluoranthene	ND		mg/kg	2.52	0.656	1
Benzo(j)+(k)fluoranthene	0.514	J	mg/kg	2.52	0.500	1
Benzo(a)fluoranthene	ND		mg/kg	2.52	0.500	1
Benzo(e)pyrene	0.653	J	mg/kg	2.52	0.520	1
Benzo(a)pyrene	ND		mg/kg	2.52	0.720	1
Perylene	ND		mg/kg	2.52	0.486	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.52	0.684	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.52	0.681	1
Benzo(g,h,i)perylene	ND		mg/kg	2.52	0.670	1
Hopane (T19)	ND		mg/kg	2.52	0.717	1
C23 Tricyclic Terpane (T4)	4.10		mg/kg	2.52	0.717	1
C24 Tricyclic Terpane (T5)	2.52		mg/kg	2.52	0.717	1
C25 Tricyclic Terpane (T6)	1.27	J	mg/kg	2.52	0.717	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.52	0.717	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.52	0.717	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.52	0.717	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.52	0.717	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.52	0.717	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.52	0.717	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.52	0.717	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.52	0.717	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.52	0.717	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.52	0.717	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.52	0.717	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.52	0.717	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.52	0.717	1
30-Norhopane (T15)	ND		mg/kg	2.52	0.717	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.52	0.717	1
17a(H)-Diahopane (X)	ND		mg/kg	2.52	0.717	1
30-Normoretane (T17)	ND		mg/kg	2.52	0.717	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.52	0.717	1
Moretane (T20)	ND		mg/kg	2.52	0.717	1
30-Homohopane-22S (T21)	ND		mg/kg	2.52	0.717	1
30-Homohopane-22R (T22)	ND		mg/kg	2.52	0.717	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.52	0.717	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.52	0.717	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.52	0.717	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.52	0.717	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.52	0.717	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.52	0.717	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.52	0.717	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.52	0.717	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.52	0.560	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.52	0.560	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.52	0.560	1
17a(H)20SC27/C29dia	ND		mg/kg	2.52	0.560	1
17a(H)20RC27/C29dia	ND		mg/kg	2.52	0.560	1
Unknown Sterane (S18)	ND		mg/kg	2.52	0.560	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.52	0.560	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.52	0.560	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.52	0.560	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.52	0.560	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.52	0.560	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.52	0.560	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.52	0.560	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.52	0.560	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.52	0.560	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.52	0.560	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.52	0.560	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	1.25	J	mg/kg	2.52	0.560	1
C28,20S TAS	ND		mg/kg	2.52	0.560	1
C27,20R TAS	ND		mg/kg	2.52	0.560	1
C28,20R TAS	ND		mg/kg	2.52	0.560	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	95		50-130
Phenanthrene-d10	93		50-130
Benzo(a)pyrene-d12	116		50-130
5B(H)Cholane-Surr	93		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/12/23 21:01		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	130		mg/kg	0.996	0.306	1
Tetramethyl Lead	ND		mg/kg	0.996	0.306	1
Trimethyl Ethyl Lead	ND		mg/kg	0.996	0.306	1
Diethyl Dimethyl Lead	ND		mg/kg	0.996	0.306	1
Methyl Triethyl Lead	1.38		mg/kg	0.996	0.306	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 08:29		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	1150		mg/kg	2.93	0.843	1
C1-Naphthalenes	2190		mg/kg	2.93	0.843	1
C2-Naphthalenes	2850		mg/kg	2.93	0.843	1
C3-Naphthalenes	1960		mg/kg	2.93	0.843	1
C4-Naphthalenes	955		mg/kg	2.93	0.843	1
2-Methylnaphthalene	2020		mg/kg	2.93	0.756	1
1-Methylnaphthalene	1250		mg/kg	2.93	0.924	1
Biphenyl	88.7		mg/kg	2.93	0.906	1
2,6-Dimethylnaphthalene	1300		mg/kg	2.93	0.697	1
Dibenzofuran	40.0		mg/kg	2.93	0.924	1
Acenaphthylene	10.3		mg/kg	2.93	0.560	1
Acenaphthene	36.4		mg/kg	2.93	0.517	1
2,3,5-Trimethylnaphthalene	220		mg/kg	2.93	0.480	1
Fluorene	74.0		mg/kg	2.93	0.782	1
C1-Fluorenes	152		mg/kg	2.93	0.782	1
C2-Fluorenes	245		mg/kg	2.93	0.782	1
C3-Fluorenes	175		mg/kg	2.93	0.782	1
Dibenzothiophene	47.6		mg/kg	2.93	0.809	1
C1-Dibenzothiophenes BS	124		mg/kg	2.93	0.809	1
C2-Dibenzothiophenes	121		mg/kg	2.93	0.809	1
C3-Dibenzothiophenes	63.5		mg/kg	2.93	0.809	1
C4-Dibenzothiophenes	22.8		mg/kg	2.93	0.809	1
Phenanthrene	147		mg/kg	2.93	0.972	1
C1-Phenanthrenes/Anthracenes	290		mg/kg	2.93	0.972	1
C2-Phenanthrenes/Anthr BS	237		mg/kg	2.93	0.972	1
C3-Phenanthrenes/Anthracenes	101		mg/kg	2.93	0.972	1
C4-Phenanthrenes/Anthracenes	35.9		mg/kg	2.93	0.972	1
Retene	ND		mg/kg	2.93	0.719	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	19.0		mg/kg	2.93	0.604	1
Carbazole	3.00		mg/kg	2.93	0.959	1
Fluoranthene	7.34		mg/kg	2.93	0.932	1
Benzo(b)fluorene	1.76	J	mg/kg	2.93	0.849	1
Pyrene	12.7		mg/kg	2.93	0.771	1
C1-Fluoranthenes/Pyrenes	15.0		mg/kg	2.93	0.771	1
C2-Fluoranthenes/Pyrenes	10.4		mg/kg	2.93	0.771	1
C3-Fluoranthenes/Pyrenes	7.95		mg/kg	2.93	0.771	1
C4-Fluoranthenes/Pyrenes	4.67		mg/kg	2.93	0.771	1
Benz(a)anthracene	2.60	J	mg/kg	2.93	0.598	1
Chrysene/Triphenylene	3.51		mg/kg	2.93	0.593	1
C1-Chrysenes	4.08		mg/kg	2.93	0.593	1
C2-Chrysenes BS	4.11		mg/kg	2.93	0.593	1
C3-Chrysenes	ND		mg/kg	2.93	0.593	1
C4-Chrysenes	ND		mg/kg	2.93	0.593	1
Benzo(b)fluoranthene	1.11	J	mg/kg	2.93	0.763	1
Benzo(j)+(k)fluoranthene	1.30	J	mg/kg	2.93	0.582	1
Benzo(a)fluoranthene	ND		mg/kg	2.93	0.582	1
Benzo(e)pyrene	1.21	J	mg/kg	2.93	0.605	1
Benzo(a)pyrene	1.50	J	mg/kg	2.93	0.837	1
Perylene	4.25		mg/kg	2.93	0.566	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.93	0.796	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.93	0.792	1
Benzo(g,h,i)perylene	0.850	J	mg/kg	2.93	0.779	1
Hopane (T19)	ND		mg/kg	2.93	0.835	1
C23 Tricyclic Terpane (T4)	2.22	J	mg/kg	2.93	0.835	1
C24 Tricyclic Terpane (T5)	1.48	J	mg/kg	2.93	0.835	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.93	0.835	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.93	0.835	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.93	0.835	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.93	0.835	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.93	0.835	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.93	0.835	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.93	0.835	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.93	0.835	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.93	0.835	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.93	0.835	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04 Date Collected: 12/19/22 09:05
Client ID: TG02-MW-06-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.93	0.835	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.93	0.835	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.93	0.835	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.93	0.835	1
30-Norhopane (T15)	ND		mg/kg	2.93	0.835	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.93	0.835	1
17a(H)-Diahopane (X)	ND		mg/kg	2.93	0.835	1
30-Normoretane (T17)	ND		mg/kg	2.93	0.835	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.93	0.835	1
Moretane (T20)	ND		mg/kg	2.93	0.835	1
30-Homohopane-22S (T21)	ND		mg/kg	2.93	0.835	1
30-Homohopane-22R (T22)	ND		mg/kg	2.93	0.835	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.93	0.835	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.93	0.835	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.93	0.835	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.93	0.835	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.93	0.835	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.93	0.835	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.93	0.835	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.93	0.835	1
13b(H),17a(H)-20S-Diacholestane (S4)	1.13	J	mg/kg	2.93	0.651	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.93	0.651	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.93	0.651	1
17a(H)20SC27/C29dia	0.753	J	mg/kg	2.93	0.651	1
17a(H)20RC27/C29dia	ND		mg/kg	2.93	0.651	1
Unknown Sterane (S18)	ND		mg/kg	2.93	0.651	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.93	0.651	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.93	0.651	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.93	0.651	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.93	0.651	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.93	0.651	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.93	0.651	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.93	0.651	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.93	0.651	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.93	0.651	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.93	0.651	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.93	0.651	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-04	Date Collected:	12/19/22 09:05
Client ID:	TG02-MW-06-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	ND		mg/kg	2.93	0.651	1
C28,20S TAS	ND		mg/kg	2.93	0.651	1
C27,20R TAS	ND		mg/kg	2.93	0.651	1
C28,20R TAS	ND		mg/kg	2.93	0.651	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	102		50-130
Phenanthrene-d10	97		50-130
Benzo(a)pyrene-d12	115		50-130
5B(H)Cholane-Surr	94		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/12/23 21:45		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	30.4		mg/kg	0.974	0.299	1
Tetramethyl Lead	1.48		mg/kg	0.974	0.299	1
Trimethyl Ethyl Lead	3.65		mg/kg	0.974	0.299	1
Diethyl Dimethyl Lead	12.9		mg/kg	0.974	0.299	1
Methyl Triethyl Lead	24.8		mg/kg	0.974	0.299	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/13/23 14:09
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	2870		mg/kg	2.61	0.750	1
C1-Naphthalenes	4800	E	mg/kg	2.61	0.750	1
C2-Naphthalenes	4220		mg/kg	2.61	0.750	1
C3-Naphthalenes	2200		mg/kg	2.61	0.750	1
C4-Naphthalenes	910		mg/kg	2.61	0.750	1
2-Methylnaphthalene	4650	E	mg/kg	2.61	0.673	1
1-Methylnaphthalene	2520		mg/kg	2.61	0.823	1
Biphenyl	212		mg/kg	2.61	0.807	1
2,6-Dimethylnaphthalene	2020		mg/kg	2.61	0.620	1
Dibenzofuran	56.7		mg/kg	2.61	0.822	1
Acenaphthylene	12.3		mg/kg	2.61	0.498	1
Acenaphthene	46.2		mg/kg	2.61	0.460	1
2,3,5-Trimethylnaphthalene	242		mg/kg	2.61	0.427	1
Fluorene	97.2		mg/kg	2.61	0.696	1
C1-Fluorenes	174		mg/kg	2.61	0.696	1
C2-Fluorenes	238		mg/kg	2.61	0.696	1
C3-Fluorenes	159		mg/kg	2.61	0.696	1
Dibenzothiophene	48.6		mg/kg	2.61	0.720	1
C1-Dibenzothiophenes BS	116		mg/kg	2.61	0.720	1
C2-Dibenzothiophenes	115		mg/kg	2.61	0.720	1
C3-Dibenzothiophenes	61.2		mg/kg	2.61	0.720	1
C4-Dibenzothiophenes	21.5		mg/kg	2.61	0.720	1
Phenanthrene	150		mg/kg	2.61	0.865	1
C1-Phenanthrenes/Anthracenes	258		mg/kg	2.61	0.865	1
C2-Phenanthrenes/Anthr BS	193		mg/kg	2.61	0.865	1
C3-Phenanthrenes/Anthracenes	76.4		mg/kg	2.61	0.865	1
C4-Phenanthrenes/Anthracenes	24.7		mg/kg	2.61	0.865	1
Retene	ND		mg/kg	2.61	0.640	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05 Date Collected: 12/20/22 10:30
Client ID: TG02-MW-08-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	12.8		mg/kg	2.61	0.538	1
Carbazole	4.23		mg/kg	2.61	0.854	1
Fluoranthene	7.18		mg/kg	2.61	0.830	1
Benzo(b)fluorene	2.50	J	mg/kg	2.61	0.756	1
Pyrene	12.6		mg/kg	2.61	0.687	1
C1-Fluoranthenes/Pyrenes	17.4		mg/kg	2.61	0.687	1
C2-Fluoranthenes/Pyrenes	12.4		mg/kg	2.61	0.687	1
C3-Fluoranthenes/Pyrenes	9.52		mg/kg	2.61	0.687	1
C4-Fluoranthenes/Pyrenes	5.86		mg/kg	2.61	0.687	1
Benz(a)anthracene	3.46		mg/kg	2.61	0.532	1
Chrysene/Triphenylene	3.83		mg/kg	2.61	0.528	1
C1-Chrysenes	5.95		mg/kg	2.61	0.528	1
C2-Chrysenes BS	6.34		mg/kg	2.61	0.528	1
C3-Chrysenes	ND		mg/kg	2.61	0.528	1
C4-Chrysenes	ND		mg/kg	2.61	0.528	1
Benzo(b)fluoranthene	1.54	J	mg/kg	2.61	0.679	1
Benzo(j)+(k)fluoranthene	1.31	J	mg/kg	2.61	0.518	1
Benzo(a)fluoranthene	ND		mg/kg	2.61	0.518	1
Benzo(e)pyrene	1.79	J	mg/kg	2.61	0.539	1
Benzo(a)pyrene	2.20	J	mg/kg	2.61	0.745	1
Perylene	ND		mg/kg	2.61	0.504	1
Indeno(1,2,3-cd)pyrene	0.836	J	mg/kg	2.61	0.709	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.61	0.705	1
Benzo(g,h,i)perylene	1.71	J	mg/kg	2.61	0.694	1
Hopane (T19)	ND		mg/kg	2.61	0.743	1
C23 Tricyclic Terpane (T4)	2.05	J	mg/kg	2.61	0.743	1
C24 Tricyclic Terpane (T5)	1.16	J	mg/kg	2.61	0.743	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.61	0.743	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.61	0.743	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.61	0.743	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.61	0.743	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.61	0.743	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.61	0.743	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.61	0.743	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.61	0.743	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.61	0.743	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.61	0.743	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.61	0.743	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.61	0.743	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.61	0.743	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.61	0.743	1
30-Norhopane (T15)	ND		mg/kg	2.61	0.743	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.61	0.743	1
17a(H)-Diahopane (X)	ND		mg/kg	2.61	0.743	1
30-Normoretane (T17)	ND		mg/kg	2.61	0.743	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.61	0.743	1
Moretane (T20)	ND		mg/kg	2.61	0.743	1
30-Homohopane-22S (T21)	ND		mg/kg	2.61	0.743	1
30-Homohopane-22R (T22)	ND		mg/kg	2.61	0.743	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.61	0.743	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.61	0.743	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.61	0.743	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.61	0.743	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.61	0.743	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.61	0.743	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.61	0.743	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.61	0.743	1
13b(H),17a(H)-20S-Diacholestane (S4)	0.942	J	mg/kg	2.61	0.580	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.61	0.580	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.61	0.580	1
17a(H)20SC27/C29dia	0.885	J	mg/kg	2.61	0.580	1
17a(H)20RC27/C29dia	ND		mg/kg	2.61	0.580	1
Unknown Sterane (S18)	ND		mg/kg	2.61	0.580	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.61	0.580	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.61	0.580	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.61	0.580	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.61	0.580	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.61	0.580	1
14b(H),17b(H)-20R-Cholestane (S14)	0.799	J	mg/kg	2.61	0.580	1
14b(H),17b(H)-20S-Cholestane (S15)	0.780	J	mg/kg	2.61	0.580	1
14b,17b-20R-Methylcholestane (S22)	0.618	J	mg/kg	2.61	0.580	1
14b,17b-20S-Methylcholestane (S23)	0.957	J	mg/kg	2.61	0.580	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	0.814	J	mg/kg	2.61	0.580	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	0.640	J	mg/kg	2.61	0.580	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	2.92		mg/kg	2.61	0.580	1
C28,20S TAS	1.63	J	mg/kg	2.61	0.580	1
C27,20R TAS	2.05	J	mg/kg	2.61	0.580	1
C28,20R TAS	1.20	J	mg/kg	2.61	0.580	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	106		50-130
Phenanthrene-d10	97		50-130
Benzo(a)pyrene-d12	113		50-130
5B(H)Cholane-Surr	90		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05 D
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/17/23 18:00
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C1-Naphthalenes	3980		mg/kg	10.4	3.00	4
2-Methylnaphthalene	3820		mg/kg	10.4	2.69	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	85		50-130
Phenanthrene-d10	73		50-130
Benzo(a)pyrene-d12	83		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06
Client ID: TG02-MW-09-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 11:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 22:30
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	43.4		mg/kg	0.978	0.301	1
Tetramethyl Lead	1.10		mg/kg	0.978	0.301	1
Trimethyl Ethyl Lead	2.52		mg/kg	0.978	0.301	1
Diethyl Dimethyl Lead	12.1		mg/kg	0.978	0.301	1
Methyl Triethyl Lead	24.5		mg/kg	0.978	0.301	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 15:34		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3180	E	mg/kg	2.07	0.595	1
C1-Naphthalenes	3710	E	mg/kg	2.07	0.595	1
C2-Naphthalenes	1370		mg/kg	2.07	0.595	1
C3-Naphthalenes	655		mg/kg	2.07	0.595	1
C4-Naphthalenes	300		mg/kg	2.07	0.595	1
2-Methylnaphthalene	3780	E	mg/kg	2.07	0.534	1
1-Methylnaphthalene	1760		mg/kg	2.07	0.653	1
Biphenyl	58.2		mg/kg	2.07	0.640	1
2,6-Dimethylnaphthalene	645		mg/kg	2.07	0.492	1
Dibenzofuran	14.0		mg/kg	2.07	0.652	1
Acenaphthylene	1.99	J	mg/kg	2.07	0.395	1
Acenaphthene	25.0		mg/kg	2.07	0.365	1
2,3,5-Trimethylnaphthalene	68.2		mg/kg	2.07	0.339	1
Fluorene	37.1		mg/kg	2.07	0.553	1
C1-Fluorenes	82.2		mg/kg	2.07	0.553	1
C2-Fluorenes	118		mg/kg	2.07	0.553	1
C3-Fluorenes	76.7		mg/kg	2.07	0.553	1
Dibenzothiophene	14.8		mg/kg	2.07	0.571	1
C1-Dibenzothiophenes BS	46.2		mg/kg	2.07	0.571	1
C2-Dibenzothiophenes	49.6		mg/kg	2.07	0.571	1
C3-Dibenzothiophenes	29.7		mg/kg	2.07	0.571	1
C4-Dibenzothiophenes	10.8		mg/kg	2.07	0.571	1
Phenanthrene	69.6		mg/kg	2.07	0.686	1
C1-Phenanthrenes/Anthracenes	116		mg/kg	2.07	0.686	1
C2-Phenanthrenes/Anthr BS	86.6		mg/kg	2.07	0.686	1
C3-Phenanthrenes/Anthracenes	34.6		mg/kg	2.07	0.686	1
C4-Phenanthrenes/Anthracenes	10.9		mg/kg	2.07	0.686	1
Retene	ND		mg/kg	2.07	0.508	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	7.56		mg/kg	2.07	0.427	1
Carbazole	1.27	J	mg/kg	2.07	0.678	1
Fluoranthene	6.01		mg/kg	2.07	0.658	1
Benzo(b)fluorene	1.50	J	mg/kg	2.07	0.600	1
Pyrene	9.42		mg/kg	2.07	0.545	1
C1-Fluoranthenes/Pyrenes	11.9		mg/kg	2.07	0.545	1
C2-Fluoranthenes/Pyrenes	6.39		mg/kg	2.07	0.545	1
C3-Fluoranthenes/Pyrenes	3.89		mg/kg	2.07	0.545	1
C4-Fluoranthenes/Pyrenes	ND		mg/kg	2.07	0.545	1
Benz(a)anthracene	1.67	J	mg/kg	2.07	0.422	1
Chrysene/Triphenylene	2.18		mg/kg	2.07	0.419	1
C1-Chrysenes	2.07		mg/kg	2.07	0.419	1
C2-Chrysenes BS	1.81	J	mg/kg	2.07	0.419	1
C3-Chrysenes	ND		mg/kg	2.07	0.419	1
C4-Chrysenes	ND		mg/kg	2.07	0.419	1
Benzo(b)fluoranthene	0.646	J	mg/kg	2.07	0.539	1
Benzo(j)+(k)fluoranthene	0.838	J	mg/kg	2.07	0.411	1
Benzo(a)fluoranthene	ND		mg/kg	2.07	0.411	1
Benzo(e)pyrene	1.07	J	mg/kg	2.07	0.427	1
Benzo(a)pyrene	1.16	J	mg/kg	2.07	0.591	1
Perylene	ND		mg/kg	2.07	0.400	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.07	0.562	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.07	0.560	1
Benzo(g,h,i)perylene	1.06	J	mg/kg	2.07	0.550	1
Hopane (T19)	ND		mg/kg	2.07	0.590	1
C23 Tricyclic Terpane (T4)	0.595	J	mg/kg	2.07	0.590	1
C24 Tricyclic Terpane (T5)	ND		mg/kg	2.07	0.590	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.07	0.590	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.07	0.590	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.07	0.590	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.07	0.590	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.07	0.590	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.07	0.590	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.07	0.590	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.07	0.590	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.07	0.590	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.07	0.590	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06 Date Collected: 12/19/22 11:30
Client ID: TG02-MW-09-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.07	0.590	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.07	0.590	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.07	0.590	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.07	0.590	1
30-Norhopane (T15)	ND		mg/kg	2.07	0.590	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.07	0.590	1
17a(H)-Diahopane (X)	ND		mg/kg	2.07	0.590	1
30-Normoretane (T17)	ND		mg/kg	2.07	0.590	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.07	0.590	1
Moretane (T20)	ND		mg/kg	2.07	0.590	1
30-Homohopane-22S (T21)	ND		mg/kg	2.07	0.590	1
30-Homohopane-22R (T22)	ND		mg/kg	2.07	0.590	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.07	0.590	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.07	0.590	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.07	0.590	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.07	0.590	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.07	0.590	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.07	0.590	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.07	0.590	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.07	0.590	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.07	0.460	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.07	0.460	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.07	0.460	1
17a(H)20SC27/C29dia	ND		mg/kg	2.07	0.460	1
17a(H)20RC27/C29dia	ND		mg/kg	2.07	0.460	1
Unknown Sterane (S18)	ND		mg/kg	2.07	0.460	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.07	0.460	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.07	0.460	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.07	0.460	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.07	0.460	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.07	0.460	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.07	0.460	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.07	0.460	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.07	0.460	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.07	0.460	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.07	0.460	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.07	0.460	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	ND		mg/kg	2.07	0.460	1
C28,20S TAS	ND		mg/kg	2.07	0.460	1
C27,20R TAS	ND		mg/kg	2.07	0.460	1
C28,20R TAS	ND		mg/kg	2.07	0.460	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	91		50-130
Phenanthrene-d10	103		50-130
Benzo(a)pyrene-d12	113		50-130
5B(H)Cholane-Surr	91		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06 D	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/17/23 19:25		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3000		mg/kg	8.29	2.38	4
C1-Naphthalenes	3380		mg/kg	8.29	2.38	4
2-Methylnaphthalene	3410		mg/kg	8.29	2.14	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	82		50-130
Phenanthrene-d10	81		50-130
Benzo(a)pyrene-d12	89		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07
Client ID: TG02-MW-10-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 09:55
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/13/23 16:59
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	1690		mg/kg	2.94	0.844	1
C1-Naphthalenes	2470		mg/kg	2.94	0.844	1
C2-Naphthalenes	2300		mg/kg	2.94	0.844	1
C3-Naphthalenes	1550		mg/kg	2.94	0.844	1
C4-Naphthalenes	888		mg/kg	2.94	0.844	1
2-Methylnaphthalene	2380		mg/kg	2.94	0.757	1
1-Methylnaphthalene	1310		mg/kg	2.94	0.925	1
Biphenyl	31.4		mg/kg	2.94	0.907	1
2,6-Dimethylnaphthalene	1070		mg/kg	2.94	0.698	1
Dibenzofuran	35.3		mg/kg	2.94	0.924	1
Acenaphthylene	7.93		mg/kg	2.94	0.560	1
Acenaphthene	37.5		mg/kg	2.94	0.517	1
2,3,5-Trimethylnaphthalene	166		mg/kg	2.94	0.480	1
Fluorene	77.8		mg/kg	2.94	0.783	1
C1-Fluorenes	156		mg/kg	2.94	0.783	1
C2-Fluorenes	200		mg/kg	2.94	0.783	1
C3-Fluorenes	118		mg/kg	2.94	0.783	1
Dibenzothiophene	55.2		mg/kg	2.94	0.809	1
C1-Dibenzothiophenes BS	117		mg/kg	2.94	0.809	1
C2-Dibenzothiophenes	98.8		mg/kg	2.94	0.809	1
C3-Dibenzothiophenes	52.1		mg/kg	2.94	0.809	1
C4-Dibenzothiophenes	19.6		mg/kg	2.94	0.809	1
Phenanthrene	178		mg/kg	2.94	0.973	1
C1-Phenanthrenes/Anthracenes	238		mg/kg	2.94	0.973	1
C2-Phenanthrenes/Anthr BS	154		mg/kg	2.94	0.973	1
C3-Phenanthrenes/Anthracenes	65.8		mg/kg	2.94	0.973	1
C4-Phenanthrenes/Anthracenes	25.6		mg/kg	2.94	0.973	1
Retene	ND		mg/kg	2.94	0.720	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07 Date Collected: 12/20/22 09:55

Client ID: TG02-MW-10-221220 Date Received: 12/20/22

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	17.7		mg/kg	2.94	0.605	1
Carbazole	3.77		mg/kg	2.94	0.960	1
Fluoranthene	14.3		mg/kg	2.94	0.933	1
Benzo(b)fluorene	2.94		mg/kg	2.94	0.850	1
Pyrene	17.8		mg/kg	2.94	0.772	1
C1-Fluoranthenes/Pyrenes	21.7		mg/kg	2.94	0.772	1
C2-Fluoranthenes/Pyrenes	16.3		mg/kg	2.94	0.772	1
C3-Fluoranthenes/Pyrenes	16.3		mg/kg	2.94	0.772	1
C4-Fluoranthenes/Pyrenes	11.1		mg/kg	2.94	0.772	1
Benz(a)anthracene	6.20		mg/kg	2.94	0.598	1
Chrysene/Triphenylene	8.41		mg/kg	2.94	0.593	1
C1-Chrysenes	12.0		mg/kg	2.94	0.593	1
C2-Chrysenes BS	13.7		mg/kg	2.94	0.593	1
C3-Chrysenes	19.8		mg/kg	2.94	0.593	1
C4-Chrysenes	ND		mg/kg	2.94	0.593	1
Benzo(b)fluoranthene	3.30		mg/kg	2.94	0.763	1
Benzo(j)+(k)fluoranthene	2.97		mg/kg	2.94	0.582	1
Benzo(a)fluoranthene	ND		mg/kg	2.94	0.582	1
Benzo(e)pyrene	3.75		mg/kg	2.94	0.606	1
Benzo(a)pyrene	4.54		mg/kg	2.94	0.838	1
Perylene	0.781	J	mg/kg	2.94	0.566	1
Indeno(1,2,3-cd)pyrene	1.73	J	mg/kg	2.94	0.797	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.94	0.793	1
Benzo(g,h,i)perylene	2.38	J	mg/kg	2.94	0.780	1
Hopane (T19)	5.29		mg/kg	2.94	0.835	1
C23 Tricyclic Terpane (T4)	1.66	J	mg/kg	2.94	0.835	1
C24 Tricyclic Terpane (T5)	1.54	J	mg/kg	2.94	0.835	1
C25 Tricyclic Terpane (T6)	2.24	J	mg/kg	2.94	0.835	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.94	0.835	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.94	0.835	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.94	0.835	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.94	0.835	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.94	0.835	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.94	0.835	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.94	0.835	1
18a-22,29,30-Trisnorneohopane-TS (T11)	1.44	J	mg/kg	2.94	0.835	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.94	0.835	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-07	Date Collected:	12/20/22 09:55
Client ID:	TG02-MW-10-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.94	0.835	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	1.81	J	mg/kg	2.94	0.835	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.94	0.835	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.94	0.835	1
30-Norhopane (T15)	3.06		mg/kg	2.94	0.835	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.94	0.835	1
17a(H)-Diahopane (X)	ND		mg/kg	2.94	0.835	1
30-Normoretane (T17)	ND		mg/kg	2.94	0.835	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.94	0.835	1
Moretane (T20)	ND		mg/kg	2.94	0.835	1
30-Homohopane-22S (T21)	ND		mg/kg	2.94	0.835	1
30-Homohopane-22R (T22)	ND		mg/kg	2.94	0.835	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.94	0.835	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.94	0.835	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.94	0.835	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.94	0.835	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.94	0.835	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.94	0.835	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.94	0.835	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.94	0.835	1
13b(H),17a(H)-20S-Diacholestane (S4)	1.77	J	mg/kg	2.94	0.652	1
13b(H),17a(H)-20R-Diacholestane (S5)	0.926	J	mg/kg	2.94	0.652	1
13b,17a-20S-Methyldiacholestane (S8)	1.56	J	mg/kg	2.94	0.652	1
17a(H)20SC27/C29dia	2.39	J	mg/kg	2.94	0.652	1
17a(H)20RC27/C29dia	3.07		mg/kg	2.94	0.652	1
Unknown Sterane (S18)	ND		mg/kg	2.94	0.652	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.94	0.652	1
14a,17a-20S-Methylcholestane (S20)	1.36	J	mg/kg	2.94	0.652	1
14a,17a-20R-Methylcholestane (S24)	1.34	J	mg/kg	2.94	0.652	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	2.07	J	mg/kg	2.94	0.652	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	1.03	J	mg/kg	2.94	0.652	1
14b(H),17b(H)-20R-Cholestane (S14)	1.64	J	mg/kg	2.94	0.652	1
14b(H),17b(H)-20S-Cholestane (S15)	1.69	J	mg/kg	2.94	0.652	1
14b,17b-20R-Methylcholestane (S22)	1.25	J	mg/kg	2.94	0.652	1
14b,17b-20S-Methylcholestane (S23)	1.57	J	mg/kg	2.94	0.652	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	1.48	J	mg/kg	2.94	0.652	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	1.56	J	mg/kg	2.94	0.652	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07 Date Collected: 12/20/22 09:55

Client ID: TG02-MW-10-221220 Date Received: 12/20/22

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	5.98		mg/kg	2.94	0.652	1
C28,20S TAS	4.48		mg/kg	2.94	0.652	1
C27,20R TAS	3.58		mg/kg	2.94	0.652	1
C28,20R TAS	4.49		mg/kg	2.94	0.652	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	95		50-130
Phenanthrene-d10	95		50-130
Benzo(a)pyrene-d12	110		50-130
5B(H)Cholane-Surr	94		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-08
Client ID: TG02-MW-11-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 23:15
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	44.6		mg/kg	0.923	0.284	1
Tetramethyl Lead	ND		mg/kg	0.923	0.284	1
Trimethyl Ethyl Lead	ND		mg/kg	0.923	0.284	1
Diethyl Dimethyl Lead	0.760	J	mg/kg	0.923	0.284	1
Methyl Triethyl Lead	5.57		mg/kg	0.923	0.284	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 18:24		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3030		mg/kg	2.92	0.839	1
C1-Naphthalenes	3310		mg/kg	2.92	0.839	1
C2-Naphthalenes	1360		mg/kg	2.92	0.839	1
C3-Naphthalenes	478		mg/kg	2.92	0.839	1
C4-Naphthalenes	175		mg/kg	2.92	0.839	1
2-Methylnaphthalene	3370		mg/kg	2.92	0.752	1
1-Methylnaphthalene	1570		mg/kg	2.92	0.919	1
Biphenyl	46.1		mg/kg	2.92	0.902	1
2,6-Dimethylnaphthalene	656		mg/kg	2.92	0.694	1
Dibenzofuran	10.5		mg/kg	2.92	0.919	1
Acenaphthylene	1.64	J	mg/kg	2.92	0.557	1
Acenaphthene	31.4		mg/kg	2.92	0.514	1
2,3,5-Trimethylnaphthalene	47.3		mg/kg	2.92	0.477	1
Fluorene	33.1		mg/kg	2.92	0.778	1
C1-Fluorenes	54.6		mg/kg	2.92	0.778	1
C2-Fluorenes	72.6		mg/kg	2.92	0.778	1
C3-Fluorenes	43.6		mg/kg	2.92	0.778	1
Dibenzothiophene	7.80		mg/kg	2.92	0.805	1
C1-Dibenzothiophenes BS	15.7		mg/kg	2.92	0.805	1
C2-Dibenzothiophenes	22.1		mg/kg	2.92	0.805	1
C3-Dibenzothiophenes	13.7		mg/kg	2.92	0.805	1
C4-Dibenzothiophenes	6.13		mg/kg	2.92	0.805	1
Phenanthrene	53.8		mg/kg	2.92	0.967	1
C1-Phenanthrenes/Anthracenes	74.6		mg/kg	2.92	0.967	1
C2-Phenanthrenes/Anthr BS	43.0		mg/kg	2.92	0.967	1
C3-Phenanthrenes/Anthracenes	19.5		mg/kg	2.92	0.967	1
C4-Phenanthrenes/Anthracenes	6.36		mg/kg	2.92	0.967	1
Retene	ND		mg/kg	2.92	0.716	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	7.18		mg/kg	2.92	0.602	1
Carbazole	ND		mg/kg	2.92	0.955	1
Fluoranthene	8.14		mg/kg	2.92	0.927	1
Benzo(b)fluorene	1.34	J	mg/kg	2.92	0.845	1
Pyrene	9.72		mg/kg	2.92	0.768	1
C1-Fluoranthenes/Pyrenes	10.2		mg/kg	2.92	0.768	1
C2-Fluoranthenes/Pyrenes	4.44		mg/kg	2.92	0.768	1
C3-Fluoranthenes/Pyrenes	ND		mg/kg	2.92	0.768	1
C4-Fluoranthenes/Pyrenes	ND		mg/kg	2.92	0.768	1
Benz(a)anthracene	1.82	J	mg/kg	2.92	0.595	1
Chrysene/Triphenylene	2.80	J	mg/kg	2.92	0.590	1
C1-Chrysenes	1.87	J	mg/kg	2.92	0.590	1
C2-Chrysenes BS	ND		mg/kg	2.92	0.590	1
C3-Chrysenes	ND		mg/kg	2.92	0.590	1
C4-Chrysenes	ND		mg/kg	2.92	0.590	1
Benzo(b)fluoranthene	1.46	J	mg/kg	2.92	0.759	1
Benzo(j)+(k)fluoranthene	0.980	J	mg/kg	2.92	0.579	1
Benzo(a)fluoranthene	ND		mg/kg	2.92	0.579	1
Benzo(e)pyrene	1.00	J	mg/kg	2.92	0.602	1
Benzo(a)pyrene	1.43	J	mg/kg	2.92	0.833	1
Perylene	ND		mg/kg	2.92	0.563	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.92	0.792	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.92	0.788	1
Benzo(g,h,i)perylene	1.20	J	mg/kg	2.92	0.775	1
Hopane (T19)	ND		mg/kg	2.92	0.830	1
C23 Tricyclic Terpane (T4)	ND		mg/kg	2.92	0.830	1
C24 Tricyclic Terpane (T5)	ND		mg/kg	2.92	0.830	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.92	0.830	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.92	0.830	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.92	0.830	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.92	0.830	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.92	0.830	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.92	0.830	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.92	0.830	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.92	0.830	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.92	0.830	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.92	0.830	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.92	0.830	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.92	0.830	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.92	0.830	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.92	0.830	1
30-Norhopane (T15)	ND		mg/kg	2.92	0.830	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.92	0.830	1
17a(H)-Diahopane (X)	ND		mg/kg	2.92	0.830	1
30-Normoretane (T17)	ND		mg/kg	2.92	0.830	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.92	0.830	1
Moretane (T20)	ND		mg/kg	2.92	0.830	1
30-Homohopane-22S (T21)	ND		mg/kg	2.92	0.830	1
30-Homohopane-22R (T22)	ND		mg/kg	2.92	0.830	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.92	0.830	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.92	0.830	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.92	0.830	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.92	0.830	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.92	0.830	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.92	0.830	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.92	0.830	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.92	0.830	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.92	0.648	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.92	0.648	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.92	0.648	1
17a(H)20SC27/C29dia	ND		mg/kg	2.92	0.648	1
17a(H)20RC27/C29dia	ND		mg/kg	2.92	0.648	1
Unknown Sterane (S18)	ND		mg/kg	2.92	0.648	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.92	0.648	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.92	0.648	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.92	0.648	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.92	0.648	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.92	0.648	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.92	0.648	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.92	0.648	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.92	0.648	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-08 Date Collected: 12/19/22 12:00
Client ID: TG02-MW-11-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	ND		mg/kg	2.92	0.648	1
C28,20S TAS	ND		mg/kg	2.92	0.648	1
C27,20R TAS	ND		mg/kg	2.92	0.648	1
C28,20R TAS	ND		mg/kg	2.92	0.648	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	86		50-130
Phenanthrene-d10	101		50-130
Benzo(a)pyrene-d12	106		50-130
5B(H)Cholane-Surr	82		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 00:00		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	48.1		mg/kg	0.972	0.299	1
Tetramethyl Lead	0.621	J	mg/kg	0.972	0.299	1
Trimethyl Ethyl Lead	1.36		mg/kg	0.972	0.299	1
Diethyl Dimethyl Lead	5.66		mg/kg	0.972	0.299	1
Methyl Triethyl Lead	12.8		mg/kg	0.972	0.299	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/13/23 19:49		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3140	E	mg/kg	2.06	0.593	1
C1-Naphthalenes	3870	E	mg/kg	2.06	0.593	1
C2-Naphthalenes	2310		mg/kg	2.06	0.593	1
C3-Naphthalenes	1360		mg/kg	2.06	0.593	1
C4-Naphthalenes	671		mg/kg	2.06	0.593	1
2-Methylnaphthalene	3840	E	mg/kg	2.06	0.532	1
1-Methylnaphthalene	1940		mg/kg	2.06	0.650	1
Biphenyl	115		mg/kg	2.06	0.638	1
2,6-Dimethylnaphthalene	1040		mg/kg	2.06	0.490	1
Dibenzofuran	37.6		mg/kg	2.06	0.650	1
Acenaphthylene	6.20		mg/kg	2.06	0.394	1
Acenaphthene	62.6		mg/kg	2.06	0.364	1
2,3,5-Trimethylnaphthalene	127		mg/kg	2.06	0.337	1
Fluorene	85.4		mg/kg	2.06	0.550	1
C1-Fluorenes	164		mg/kg	2.06	0.550	1
C2-Fluorenes	247		mg/kg	2.06	0.550	1
C3-Fluorenes	170		mg/kg	2.06	0.550	1
Dibenzothiophene	37.7		mg/kg	2.06	0.569	1
C1-Dibenzothiophenes BS	106		mg/kg	2.06	0.569	1
C2-Dibenzothiophenes	128		mg/kg	2.06	0.569	1
C3-Dibenzothiophenes	78.4		mg/kg	2.06	0.569	1
C4-Dibenzothiophenes	33.7		mg/kg	2.06	0.569	1
Phenanthrene	167		mg/kg	2.06	0.684	1
C1-Phenanthrenes/Anthracenes	249		mg/kg	2.06	0.684	1
C2-Phenanthrenes/Anthr BS	187		mg/kg	2.06	0.684	1
C3-Phenanthrenes/Anthracenes	79.0		mg/kg	2.06	0.684	1
C4-Phenanthrenes/Anthracenes	27.4		mg/kg	2.06	0.684	1
Retene	ND		mg/kg	2.06	0.506	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09 Date Collected: 12/20/22 12:35
Client ID: TG02-MW-12-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	25.8		mg/kg	2.06	0.425	1
Carbazole	4.84		mg/kg	2.06	0.675	1
Fluoranthene	22.5		mg/kg	2.06	0.656	1
Benzo(b)fluorene	4.41		mg/kg	2.06	0.598	1
Pyrene	28.2		mg/kg	2.06	0.543	1
C1-Fluoranthenes/Pyrenes	28.0		mg/kg	2.06	0.543	1
C2-Fluoranthenes/Pyrenes	12.3		mg/kg	2.06	0.543	1
C3-Fluoranthenes/Pyrenes	6.96		mg/kg	2.06	0.543	1
C4-Fluoranthenes/Pyrenes	2.86		mg/kg	2.06	0.543	1
Benz(a)anthracene	7.15		mg/kg	2.06	0.421	1
Chrysene/Triphenylene	9.04		mg/kg	2.06	0.417	1
C1-Chrysenes	6.28		mg/kg	2.06	0.417	1
C2-Chrysenes BS	3.36		mg/kg	2.06	0.417	1
C3-Chrysenes	ND		mg/kg	2.06	0.417	1
C4-Chrysenes	ND		mg/kg	2.06	0.417	1
Benzo(b)fluoranthene	4.06		mg/kg	2.06	0.536	1
Benzo(j)+(k)fluoranthene	4.40		mg/kg	2.06	0.409	1
Benzo(a)fluoranthene	0.485	J	mg/kg	2.06	0.409	1
Benzo(e)pyrene	3.61		mg/kg	2.06	0.426	1
Benzo(a)pyrene	5.06		mg/kg	2.06	0.589	1
Perylene	0.951	J	mg/kg	2.06	0.398	1
Indeno(1,2,3-cd)pyrene	1.73	J	mg/kg	2.06	0.560	1
Dibenz(a,h)+(a,c)anthracene	0.586	J	mg/kg	2.06	0.557	1
Benzo(g,h,i)perylene	2.62		mg/kg	2.06	0.548	1
Hopane (T19)	ND		mg/kg	2.06	0.587	1
C23 Tricyclic Terpane (T4)	3.14		mg/kg	2.06	0.587	1
C24 Tricyclic Terpane (T5)	1.30	J	mg/kg	2.06	0.587	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.06	0.587	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.06	0.587	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.06	0.587	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.06	0.587	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.06	0.587	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.06	0.587	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.06	0.587	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.06	0.587	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.06	0.587	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.06	0.587	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09 Date Collected: 12/20/22 12:35
Client ID: TG02-MW-12-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.06	0.587	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.06	0.587	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.06	0.587	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.06	0.587	1
30-Norhopane (T15)	ND		mg/kg	2.06	0.587	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.06	0.587	1
17a(H)-Diahopane (X)	ND		mg/kg	2.06	0.587	1
30-Normoretane (T17)	ND		mg/kg	2.06	0.587	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.06	0.587	1
Moretane (T20)	ND		mg/kg	2.06	0.587	1
30-Homohopane-22S (T21)	ND		mg/kg	2.06	0.587	1
30-Homohopane-22R (T22)	ND		mg/kg	2.06	0.587	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.06	0.587	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.06	0.587	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.06	0.587	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.06	0.587	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.06	0.587	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.06	0.587	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.06	0.587	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.06	0.587	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.06	0.458	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.06	0.458	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.06	0.458	1
17a(H)20SC27/C29dia	ND		mg/kg	2.06	0.458	1
17a(H)20RC27/C29dia	ND		mg/kg	2.06	0.458	1
Unknown Sterane (S18)	ND		mg/kg	2.06	0.458	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.06	0.458	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.06	0.458	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.06	0.458	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.06	0.458	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.06	0.458	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.06	0.458	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.06	0.458	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.06	0.458	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.06	0.458	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.06	0.458	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.06	0.458	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	ND		mg/kg	2.06	0.458	1
C28,20S TAS	ND		mg/kg	2.06	0.458	1
C27,20R TAS	ND		mg/kg	2.06	0.458	1
C28,20R TAS	ND		mg/kg	2.06	0.458	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	96		50-130
Phenanthrene-d10	100		50-130
Benzo(a)pyrene-d12	114		50-130
5B(H)Cholane-Surr	89		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09 D	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8270E-SIM(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/17/23 20:50		
Analyst:	CNC		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3140		mg/kg	8.25	2.37	4
C1-Naphthalenes	3760		mg/kg	8.25	2.37	4
2-Methylnaphthalene	3700		mg/kg	8.25	2.13	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	89		50-130
Phenanthrene-d10	87		50-130
Benzo(a)pyrene-d12	96		50-130

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10
Date Collected: 12/20/22 12:00
Client ID: TG02-MW-15-221220
Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Extraction Method: EPA 3580A
Analytical Method: 1,8270E-SIM(M)
Extraction Date: 01/12/23 10:27
Analytical Date: 01/13/23 00:44
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab						
Tetraethyl Lead	58.3		mg/kg	0.966	0.297	1
Tetramethyl Lead	2.69		mg/kg	0.966	0.297	1
Trimethyl Ethyl Lead	5.89		mg/kg	0.966	0.297	1
Diethyl Dimethyl Lead	21.5		mg/kg	0.966	0.297	1
Methyl Triethyl Lead	36.9		mg/kg	0.966	0.297	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/13/23 21:13
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	3390		mg/kg	2.87	0.825	1
C1-Naphthalenes	4220	E	mg/kg	2.87	0.825	1
C2-Naphthalenes	2240		mg/kg	2.87	0.825	1
C3-Naphthalenes	1250		mg/kg	2.87	0.825	1
C4-Naphthalenes	591		mg/kg	2.87	0.825	1
2-Methylnaphthalene	4220	E	mg/kg	2.87	0.740	1
1-Methylnaphthalene	2080		mg/kg	2.87	0.904	1
Biphenyl	98.8		mg/kg	2.87	0.887	1
2,6-Dimethylnaphthalene	1030		mg/kg	2.87	0.682	1
Dibenzofuran	27.4		mg/kg	2.87	0.904	1
Acenaphthylene	4.83		mg/kg	2.87	0.548	1
Acenaphthene	38.6		mg/kg	2.87	0.506	1
2,3,5-Trimethylnaphthalene	116		mg/kg	2.87	0.469	1
Fluorene	63.5		mg/kg	2.87	0.766	1
C1-Fluorenes	141		mg/kg	2.87	0.766	1
C2-Fluorenes	210		mg/kg	2.87	0.766	1
C3-Fluorenes	140		mg/kg	2.87	0.766	1
Dibenzothiophene	30.9		mg/kg	2.87	0.792	1
C1-Dibenzothiophenes BS	91.9		mg/kg	2.87	0.792	1
C2-Dibenzothiophenes	103		mg/kg	2.87	0.792	1
C3-Dibenzothiophenes	61.1		mg/kg	2.87	0.792	1
C4-Dibenzothiophenes	23.6		mg/kg	2.87	0.792	1
Phenanthrene	115		mg/kg	2.87	0.951	1
C1-Phenanthrenes/Anthracenes	202		mg/kg	2.87	0.951	1
C2-Phenanthrenes/Anthr BS	156		mg/kg	2.87	0.951	1
C3-Phenanthrenes/Anthracenes	64.1		mg/kg	2.87	0.951	1
C4-Phenanthrenes/Anthracenes	22.4		mg/kg	2.87	0.951	1
Retene	ND		mg/kg	2.87	0.704	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	11.2		mg/kg	2.87	0.592	1
Carbazole	2.51	J	mg/kg	2.87	0.939	1
Fluoranthene	5.49		mg/kg	2.87	0.912	1
Benzo(b)fluorene	2.03	J	mg/kg	2.87	0.832	1
Pyrene	11.7		mg/kg	2.87	0.755	1
C1-Fluoranthenes/Pyrenes	16.5		mg/kg	2.87	0.755	1
C2-Fluoranthenes/Pyrenes	9.39		mg/kg	2.87	0.755	1
C3-Fluoranthenes/Pyrenes	5.87		mg/kg	2.87	0.755	1
C4-Fluoranthenes/Pyrenes	3.29		mg/kg	2.87	0.755	1
Benz(a)anthracene	1.69	J	mg/kg	2.87	0.585	1
Chrysene/Triphenylene	2.65	J	mg/kg	2.87	0.580	1
C1-Chrysenes	3.34		mg/kg	2.87	0.580	1
C2-Chrysenes BS	3.51		mg/kg	2.87	0.580	1
C3-Chrysenes	ND		mg/kg	2.87	0.580	1
C4-Chrysenes	ND		mg/kg	2.87	0.580	1
Benzo(b)fluoranthene	0.866	J	mg/kg	2.87	0.747	1
Benzo(j)+(k)fluoranthene	0.720	J	mg/kg	2.87	0.570	1
Benzo(a)fluoranthene	ND		mg/kg	2.87	0.570	1
Benzo(e)pyrene	1.13	J	mg/kg	2.87	0.592	1
Benzo(a)pyrene	0.988	J	mg/kg	2.87	0.820	1
Perylene	ND		mg/kg	2.87	0.554	1
Indeno(1,2,3-cd)pyrene	ND		mg/kg	2.87	0.779	1
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	2.87	0.776	1
Benzo(g,h,i)perylene	1.31	J	mg/kg	2.87	0.763	1
Hopane (T19)	ND		mg/kg	2.87	0.817	1
C23 Tricyclic Terpane (T4)	ND		mg/kg	2.87	0.817	1
C24 Tricyclic Terpane (T5)	1.22	J	mg/kg	2.87	0.817	1
C25 Tricyclic Terpane (T6)	ND		mg/kg	2.87	0.817	1
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	2.87	0.817	1
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	2.87	0.817	1
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	2.87	0.817	1
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	2.87	0.817	1
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	2.87	0.817	1
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	2.87	0.817	1
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	2.87	0.817	1
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	2.87	0.817	1
C30 Tricyclic Terpane-22S	ND		mg/kg	2.87	0.817	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10 Date Collected: 12/20/22 12:00
Client ID: TG02-MW-15-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	ND		mg/kg	2.87	0.817	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	2.87	0.817	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	2.87	0.817	1
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	2.87	0.817	1
30-Norhopane (T15)	ND		mg/kg	2.87	0.817	1
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	2.87	0.817	1
17a(H)-Diahopane (X)	ND		mg/kg	2.87	0.817	1
30-Normoretane (T17)	ND		mg/kg	2.87	0.817	1
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	2.87	0.817	1
Moretane (T20)	ND		mg/kg	2.87	0.817	1
30-Homohopane-22S (T21)	ND		mg/kg	2.87	0.817	1
30-Homohopane-22R (T22)	ND		mg/kg	2.87	0.817	1
30,31-Bishomohopane-22S (T26)	ND		mg/kg	2.87	0.817	1
30,31-Bishomohopane-22R (T27)	ND		mg/kg	2.87	0.817	1
30,31-Trishomohopane-22S (T30)	ND		mg/kg	2.87	0.817	1
30,31-Trishomohopane-22R (T31)	ND		mg/kg	2.87	0.817	1
Tetrakishomohopane-22S (T32)	ND		mg/kg	2.87	0.817	1
Tetrakishomohopane-22R (T33)	ND		mg/kg	2.87	0.817	1
Pentakishomohopane-22S (T34)	ND		mg/kg	2.87	0.817	1
Pentakishomohopane-22R (T35)	ND		mg/kg	2.87	0.817	1
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	2.87	0.638	1
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	2.87	0.638	1
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	2.87	0.638	1
17a(H)20SC27/C29dia	ND		mg/kg	2.87	0.638	1
17a(H)20RC27/C29dia	ND		mg/kg	2.87	0.638	1
Unknown Sterane (S18)	ND		mg/kg	2.87	0.638	1
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	2.87	0.638	1
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	2.87	0.638	1
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	2.87	0.638	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	2.87	0.638	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	2.87	0.638	1
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	2.87	0.638	1
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	2.87	0.638	1
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	2.87	0.638	1
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	2.87	0.638	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	2.87	0.638	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	2.87	0.638	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	ND		mg/kg	2.87	0.638	1
C28,20S TAS	ND		mg/kg	2.87	0.638	1
C27,20R TAS	ND		mg/kg	2.87	0.638	1
C28,20R TAS	ND		mg/kg	2.87	0.638	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	93		50-130
Phenanthrene-d10	102		50-130
Benzo(a)pyrene-d12	108		50-130
5B(H)Cholane-Surr	92		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10 D
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/17/23 22:14
Analyst: CNC
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C1-Naphthalenes	4250		mg/kg	11.5	3.30	4
2-Methylnaphthalene	4220		mg/kg	11.5	2.96	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	92		50-130
Phenanthrene-d10	90		50-130
Benzo(a)pyrene-d12	98		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-11
Client ID: TG02-MW-17-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 15:25
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/18/23 08:06
Analyst: CNC
Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Naphthalene	372.		ng/l	204	40.2	1
C1-Naphthalenes	931.	G	ng/l	204	40.2	1
C2-Naphthalenes	2180		ng/l	204	40.2	1
C3-Naphthalenes	4390		ng/l	204	40.2	1
C4-Naphthalenes	24500		ng/l	204	40.2	1
2-Methylnaphthalene	194.	J	ng/l	204	46.9	1
1-Methylnaphthalene	315.		ng/l	204	39.8	1
Biphenyl	156.	J	ng/l	204	47.6	1
2,6-Dimethylnaphthalene	121.	J	ng/l	204	47.6	1
Dibenzofuran	ND		ng/l	204	37.1	1
Acenaphthylene	214.		ng/l	204	40.8	1
Acenaphthene	ND		ng/l	204	26.1	1
2,3,5-Trimethylnaphthalene	360.		ng/l	204	30.8	1
Fluorene	76.0	J	ng/l	204	36.1	1
C1-Fluorenes	850.		ng/l	204	36.1	1
C2-Fluorenes	4660		ng/l	204	36.1	1
C3-Fluorenes	9050		ng/l	204	36.1	1
Dibenzothiophene	305.		ng/l	204	29.8	1
C1-Dibenzothiophenes BS	1070		ng/l	204	29.8	1
C2-Dibenzothiophenes	5030		ng/l	204	29.8	1
C3-Dibenzothiophenes	13800		ng/l	204	29.8	1
C4-Dibenzothiophenes	12200		ng/l	204	29.8	1
Phenanthrene	116.	J	ng/l	204	24.5	1
C1-Phenanthrenes/Anthracenes	1280		ng/l	204	24.5	1
C2-Phenanthrenes/Anthr BS	5880		ng/l	204	24.5	1
C3-Phenanthrenes/Anthracenes	19000		ng/l	204	24.5	1
C4-Phenanthrenes/Anthracenes	21900		ng/l	204	24.5	1
Retene	4670		ng/l	204	57.1	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
Anthracene	ND		ng/l	204	36.9	1
Carbazole	203.	J	ng/l	204	31.4	1
Fluoranthene	240.		ng/l	204	36.3	1
Benzo(b)fluorene	198.	J	ng/l	204	54.1	1
Pyrene	1680		ng/l	204	37.1	1
C1-Fluoranthenes/Pyrenes	5140		ng/l	204	37.1	1
C2-Fluoranthenes/Pyrenes	9520		ng/l	204	37.1	1
C3-Fluoranthenes/Pyrenes	16900		ng/l	204	37.1	1
C4-Fluoranthenes/Pyrenes	17400		ng/l	204	37.1	1
Benz(a)anthracene	476.		ng/l	204	23.7	1
Chrysene/Triphenylene	3580		ng/l	204	25.7	1
C1-Chrysenes	12100		ng/l	204	25.7	1
C2-Chrysenes BS	21700		ng/l	204	25.7	1
C3-Chrysenes	27600		ng/l	204	25.7	1
C4-Chrysenes	18800		ng/l	204	25.7	1
Benzo(b)fluoranthene	1040		ng/l	204	30.0	1
Benzo(j)+(k)fluoranthene	525.		ng/l	204	30.4	1
Benzo(a)fluoranthene	ND		ng/l	204	30.4	1
Benzo(e)pyrene	1720		ng/l	204	26.7	1
Benzo(a)pyrene	1100		ng/l	204	43.9	1
Perylene	465.		ng/l	204	37.3	1
Indeno(1,2,3-cd)pyrene	685.		ng/l	204	50.2	1
Dibenz(a,h)+(a,c)anthracene	344.		ng/l	204	60.0	1
Benzo(g,h,i)perylene	1010		ng/l	204	54.1	1
Hopane (T19)	29500		ng/l	204	46.3	1
C23 Tricyclic Terpane (T4)	14000		ng/l	204	46.3	1
C24 Tricyclic Terpane (T5)	6570		ng/l	204	46.3	1
C25 Tricyclic Terpane (T6)	7950		ng/l	204	46.3	1
C24 Tetracyclic Terpane (T6a)	2540		ng/l	204	46.3	1
C26 Tricyclic Terpane-22S (T6b)	5190		ng/l	204	46.3	1
C26 Tricyclic Terpane-22R (T6c)	4000		ng/l	204	46.3	1
C28 Tricyclic Terpane-22S (T7)	5730		ng/l	204	46.3	1
C28 Tricyclic Terpane-22R (T8)	7240		ng/l	204	46.3	1
C29 Tricyclic Terpane-22S (T9)	5080		ng/l	204	46.3	1
C29 Tricyclic Terpane-22R (T10)	5900		ng/l	204	46.3	1
18a-22,29,30-Trisnorneohopane-TS (T11)	9160		ng/l	204	46.3	1
C30 Tricyclic Terpane-22S	4780		ng/l	204	46.3	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C30 Tricyclic Terpane-22R	5200		ng/l	204	46.3	1
17a(H)-22,29,30-Trisnorhopane-TM (T12)	7530		ng/l	204	46.3	1
17a/b,21b/a 28,30-Bisnorhopane (T14a)	1520		ng/l	204	46.3	1
17a(H),21b(H)-25-Norhopane (T14b)	3180		ng/l	204	46.3	1
30-Norhopane (T15)	18000		ng/l	204	46.3	1
18a(H)-30-Norneohopane-C29Ts (T16)	5440		ng/l	204	46.3	1
17a(H)-Diahopane (X)	2660		ng/l	204	46.3	1
30-Normoretane (T17)	2900		ng/l	204	46.3	1
18a(H)&18b(H)-Oleananes (T18)	1800		ng/l	204	46.3	1
Moretane (T20)	2970		ng/l	204	46.3	1
30-Homohopane-22S (T21)	8550		ng/l	204	46.3	1
30-Homohopane-22R (T22)	9440		ng/l	204	46.3	1
30,31-Bishomohopane-22S (T26)	5390		ng/l	204	46.3	1
30,31-Bishomohopane-22R (T27)	4340		ng/l	204	46.3	1
30,31-Trishomohopane-22S (T30)	3340		ng/l	204	46.3	1
30,31-Trishomohopane-22R (T31)	1750		ng/l	204	46.3	1
Tetrakishomohopane-22S (T32)	2090		ng/l	204	46.3	1
Tetrakishomohopane-22R (T33)	1560		ng/l	204	46.3	1
Pentakishomohopane-22S (T34)	1750		ng/l	204	46.3	1
Pentakishomohopane-22R (T35)	1400		ng/l	204	46.3	1
13b(H),17a(H)-20S-Diacholestane (S4)	13000		ng/l	306	88.2	1
13b(H),17a(H)-20R-Diacholestane (S5)	9160		ng/l	306	88.2	1
13b,17a-20S-Methyldiacholestane (S8)	5820		ng/l	306	88.2	1
17a(H)20SC27/C29dia	19900		ng/l	306	88.2	1
17a(H)20RC27/C29dia	21100		ng/l	306	88.2	1
Unknown Sterane (S18)	4770		ng/l	306	88.2	1
13a,17b-20S-Ethyldiacholestane (S19)	377.		ng/l	306	88.2	1
14a,17a-20S-Methylcholestane (S20)	9410		ng/l	306	88.2	1
14a,17a-20R-Methylcholestane (S24)	6410		ng/l	306	88.2	1
14a(H),17a(H)-20S-Ethylcholestane (S25)	13800		ng/l	306	88.2	1
14a(H),17a(H)-20R-Ethylcholestane (S28)	8900		ng/l	306	88.2	1
14b(H),17b(H)-20R-Cholestane (S14)	10200		ng/l	306	88.2	1
14b(H),17b(H)-20S-Cholestane (S15)	9040		ng/l	306	88.2	1
14b,17b-20R-Methylcholestane (S22)	6600		ng/l	306	88.2	1
14b,17b-20S-Methylcholestane (S23)	10200		ng/l	306	88.2	1
14b(H),17b(H)-20R-Ethylcholestane (S26)	16100		ng/l	306	88.2	1
14b(H),17b(H)-20S-Ethylcholestane (S27)	8590		ng/l	306	88.2	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
PAHs/Biomarkers - Mansfield Lab						
C26,20R+C27,20S TAS	40900		ng/l	306	88.2	1
C28,20S TAS	49400		ng/l	306	88.2	1
C27,20R TAS	19700		ng/l	306	88.2	1
C28,20R TAS	33400		ng/l	306	88.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	93		50-130
Phenanthrene-d10	81		50-130
Benzo(a)pyrene-d12	109		50-130
5B(H)Cholane-Surr	94		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 23:58
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
Naphthalene	ND		mg/kg	3.00	0.862
C1-Naphthalenes	ND		mg/kg	3.00	0.862
C2-Naphthalenes	ND		mg/kg	3.00	0.862
C3-Naphthalenes	ND		mg/kg	3.00	0.862
C4-Naphthalenes	ND		mg/kg	3.00	0.862
2-Methylnaphthalene	ND		mg/kg	3.00	0.774
1-Methylnaphthalene	ND		mg/kg	3.00	0.945
Biphenyl	ND		mg/kg	3.00	0.927
2,6-Dimethylnaphthalene	ND		mg/kg	3.00	0.713
Dibenzofuran	ND		mg/kg	3.00	0.945
Acenaphthylene	ND		mg/kg	3.00	0.572
Acenaphthene	ND		mg/kg	3.00	0.529
2,3,5-Trimethylnaphthalene	ND		mg/kg	3.00	0.491
Fluorene	ND		mg/kg	3.00	0.800
C1-Fluorenes	ND		mg/kg	3.00	0.800
C2-Fluorenes	ND		mg/kg	3.00	0.800
C3-Fluorenes	ND		mg/kg	3.00	0.800
Dibenzothiophene	ND		mg/kg	3.00	0.827
C1-Dibenzothiophenes BS	ND		mg/kg	3.00	0.827
C2-Dibenzothiophenes	ND		mg/kg	3.00	0.827
C3-Dibenzothiophenes	ND		mg/kg	3.00	0.827
C4-Dibenzothiophenes	ND		mg/kg	3.00	0.827
Phenanthrene	ND		mg/kg	3.00	0.994
C1-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C2-Phenanthrenes/Anthr BS	ND		mg/kg	3.00	0.994
C3-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
C4-Phenanthrenes/Anthracenes	ND		mg/kg	3.00	0.994
Retene	ND		mg/kg	3.00	0.736
Anthracene	ND		mg/kg	3.00	0.618

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 23:58
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
Carbazole	ND		mg/kg	3.00	0.981
Fluoranthene	ND		mg/kg	3.00	0.953
Benzo(b)fluorene	ND		mg/kg	3.00	0.869
Pyrene	ND		mg/kg	3.00	0.789
C1-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C2-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C3-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
C4-Fluoranthenes/Pyrenes	ND		mg/kg	3.00	0.789
Benz(a)anthracene	ND		mg/kg	3.00	0.612
Chrysene/Triphenylene	ND		mg/kg	3.00	0.606
C1-Chrysenes	ND		mg/kg	3.00	0.606
C2-Chrysenes BS	ND		mg/kg	3.00	0.606
C3-Chrysenes	ND		mg/kg	3.00	0.606
C4-Chrysenes	ND		mg/kg	3.00	0.606
Benzo(b)fluoranthene	ND		mg/kg	3.00	0.780
Benzo(j)+(k)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(a)fluoranthene	ND		mg/kg	3.00	0.595
Benzo(e)pyrene	ND		mg/kg	3.00	0.619
Benzo(a)pyrene	ND		mg/kg	3.00	0.856
Perylene	ND		mg/kg	3.00	0.579
Indeno(1,2,3-cd)pyrene	ND		mg/kg	3.00	0.814
Dibenz(a,h)+(a,c)anthracene	ND		mg/kg	3.00	0.810
Benzo(g,h,i)perylene	ND		mg/kg	3.00	0.797
Hopane (T19)	ND		mg/kg	3.00	0.854
C23 Tricyclic Terpane (T4)	ND		mg/kg	3.00	0.854
C24 Tricyclic Terpane (T5)	ND		mg/kg	3.00	0.854
C25 Tricyclic Terpane (T6)	ND		mg/kg	3.00	0.854
C24 Tetracyclic Terpane (T6a)	ND		mg/kg	3.00	0.854
C26 Tricyclic Terpane-22S (T6b)	ND		mg/kg	3.00	0.854

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/12/23 23:58
Analyst: CNC

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
C26 Tricyclic Terpane-22R (T6c)	ND		mg/kg	3.00	0.854
C28 Tricyclic Terpane-22S (T7)	ND		mg/kg	3.00	0.854
C28 Tricyclic Terpane-22R (T8)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22S (T9)	ND		mg/kg	3.00	0.854
C29 Tricyclic Terpane-22R (T10)	ND		mg/kg	3.00	0.854
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22S	ND		mg/kg	3.00	0.854
C30 Tricyclic Terpane-22R	ND		mg/kg	3.00	0.854
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		mg/kg	3.00	0.854
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		mg/kg	3.00	0.854
17a(H),21b(H)-25-Norhopane (T14b)	ND		mg/kg	3.00	0.854
30-Norhopane (T15)	ND		mg/kg	3.00	0.854
18a(H)-30-Norneohopane-C29Ts (T16)	ND		mg/kg	3.00	0.854
17a(H)-Diahopane (X)	ND		mg/kg	3.00	0.854
30-Normoretane (T17)	ND		mg/kg	3.00	0.854
18a(H)&18b(H)-Oleananes (T18)	ND		mg/kg	3.00	0.854
Moretane (T20)	ND		mg/kg	3.00	0.854
30-Homohopane-22S (T21)	ND		mg/kg	3.00	0.854
30-Homohopane-22R (T22)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22S (T26)	ND		mg/kg	3.00	0.854
30,31-Bishomohopane-22R (T27)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22S (T30)	ND		mg/kg	3.00	0.854
30,31-Trishomohopane-22R (T31)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22S (T32)	ND		mg/kg	3.00	0.854
Tetrakishomohopane-22R (T33)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22S (T34)	ND		mg/kg	3.00	0.854
Pentakishomohopane-22R (T35)	ND		mg/kg	3.00	0.854
13b(H),17a(H)-20S-Diacholestane (S4)	ND		mg/kg	3.00	0.666
13b(H),17a(H)-20R-Diacholestane (S5)	ND		mg/kg	3.00	0.666

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM(M)	Extraction Method:	EPA 3580A
Analytical Date:	01/12/23 23:58	Extraction Date:	01/12/23 10:27
Analyst:	CNC		

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
13b,17a-20S-Methyldiacholestane (S8)	ND		mg/kg	3.00	0.666
17a(H)20SC27/C29dia	ND		mg/kg	3.00	0.666
17a(H)20RC27/C29dia	ND		mg/kg	3.00	0.666
Unknown Sterane (S18)	ND		mg/kg	3.00	0.666
13a,17b-20S-Ethyldiacholestane (S19)	ND		mg/kg	3.00	0.666
14a,17a-20S-Methylcholestane (S20)	ND		mg/kg	3.00	0.666
14a,17a-20R-Methylcholestane (S24)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		mg/kg	3.00	0.666
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Cholestane (S14)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Cholestane (S15)	ND		mg/kg	3.00	0.666
14b,17b-20R-Methylcholestane (S22)	ND		mg/kg	3.00	0.666
14b,17b-20S-Methylcholestane (S23)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		mg/kg	3.00	0.666
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		mg/kg	3.00	0.666
C26,20R+C27,20S TAS	ND		mg/kg	3.00	0.666
C28,20S TAS	ND		mg/kg	3.00	0.666
C27,20R TAS	ND		mg/kg	3.00	0.666
C28,20R TAS	ND		mg/kg	3.00	0.666

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	78		50-130
Phenanthrene-d10	106		50-130
Benzo(a)pyrene-d12	105		50-130
5B(H)Cholane-Surr	80		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM(M)	Extraction Method:	EPA 3580A
Analytical Date:	01/12/23 15:49	Extraction Date:	01/12/23 10:27
Analyst:	CNC		

Parameter	Result	Qualifier	Units	RL	MDL
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab for sample(s): 01-06,08-10 Batch: WG1732625-1					
Tetraethyl Lead	ND		mg/kg	1.00	0.307
Tetramethyl Lead	ND		mg/kg	1.00	0.307
Trimethyl Ethyl Lead	ND		mg/kg	1.00	0.307
Diethyl Dimethyl Lead	ND		mg/kg	1.00	0.307
Methyl Triethyl Lead	ND		mg/kg	1.00	0.307

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/18/23 03:52
Analyst: CNC

Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
Naphthalene	ND		ng/l	250	49.2
C1-Naphthalenes	ND		ng/l	250	49.2
C2-Naphthalenes	ND		ng/l	250	49.2
C3-Naphthalenes	ND		ng/l	250	49.2
C4-Naphthalenes	ND		ng/l	250	49.2
2-Methylnaphthalene	ND		ng/l	250	57.5
1-Methylnaphthalene	ND		ng/l	250	48.8
Biphenyl	ND		ng/l	250	58.2
2,6-Dimethylnaphthalene	ND		ng/l	250	58.2
Dibenzofuran	ND		ng/l	250	45.5
Acenaphthylene	ND		ng/l	250	50.0
Acenaphthene	ND		ng/l	250	32.0
2,3,5-Trimethylnaphthalene	ND		ng/l	250	37.8
Fluorene	ND		ng/l	250	44.2
C1-Fluorenes	ND		ng/l	250	44.2
C2-Fluorenes	ND		ng/l	250	44.2
C3-Fluorenes	ND		ng/l	250	44.2
Dibenzothiophene	ND		ng/l	250	36.5
C1-Dibenzothiophenes BS	ND		ng/l	250	36.5
C2-Dibenzothiophenes	ND		ng/l	250	36.5
C3-Dibenzothiophenes	ND		ng/l	250	36.5
C4-Dibenzothiophenes	ND		ng/l	250	36.5
Phenanthrene	ND		ng/l	250	30.0
C1-Phenanthrenes/Anthracenes	ND		ng/l	250	30.0
C2-Phenanthrenes/Anthr BS	ND		ng/l	250	30.0
C3-Phenanthrenes/Anthracenes	ND		ng/l	250	30.0
C4-Phenanthrenes/Anthracenes	ND		ng/l	250	30.0
Retene	ND		ng/l	250	70.0
Anthracene	ND		ng/l	250	45.2

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM(M)
Analytical Date: 01/18/23 03:52
Analyst: CNC

Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
Carbazole	ND		ng/l	250	38.5
Fluoranthene	ND		ng/l	250	44.5
Benzo(b)fluorene	ND		ng/l	250	66.2
Pyrene	ND		ng/l	250	45.5
C1-Fluoranthenes/Pyrenes	ND		ng/l	250	45.5
C2-Fluoranthenes/Pyrenes	ND		ng/l	250	45.5
C3-Fluoranthenes/Pyrenes	ND		ng/l	250	45.5
C4-Fluoranthenes/Pyrenes	ND		ng/l	250	45.5
Benz(a)anthracene	ND		ng/l	250	29.0
Chrysene/Triphenylene	ND		ng/l	250	31.5
C1-Chrysenes	ND		ng/l	250	31.5
C2-Chrysenes BS	ND		ng/l	250	31.5
C3-Chrysenes	ND		ng/l	250	31.5
C4-Chrysenes	ND		ng/l	250	31.5
Benzo(b)fluoranthene	ND		ng/l	250	36.8
Benzo(j)+(k)fluoranthene	ND		ng/l	250	37.2
Benzo(a)fluoranthene	ND		ng/l	250	37.2
Benzo(e)pyrene	ND		ng/l	250	32.8
Benzo(a)pyrene	ND		ng/l	250	53.8
Perylene	ND		ng/l	250	45.8
Indeno(1,2,3-cd)pyrene	ND		ng/l	250	61.5
Dibenz(a,h)+(a,c)anthracene	ND		ng/l	250	73.5
Benzo(g,h,i)perylene	ND		ng/l	250	66.2
Hopane (T19)	ND		ng/l	250	56.8
C23 Tricyclic Terpane (T4)	ND		ng/l	250	56.8
C24 Tricyclic Terpane (T5)	ND		ng/l	250	56.8
C25 Tricyclic Terpane (T6)	ND		ng/l	250	56.8
C24 Tetracyclic Terpane (T6a)	ND		ng/l	250	56.8
C26 Tricyclic Terpane-22S (T6b)	ND		ng/l	250	56.8

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM(M)	Extraction Method:	EPA 3510C
Analytical Date:	01/18/23 03:52	Extraction Date:	01/13/23 13:53
Analyst:	CNC		

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
C26 Tricyclic Terpane-22R (T6c)	ND		ng/l	250	56.8
C28 Tricyclic Terpane-22S (T7)	ND		ng/l	250	56.8
C28 Tricyclic Terpane-22R (T8)	ND		ng/l	250	56.8
C29 Tricyclic Terpane-22S (T9)	ND		ng/l	250	56.8
C29 Tricyclic Terpane-22R (T10)	ND		ng/l	250	56.8
18a-22,29,30-Trisnorneohopane-TS (T11)	ND		ng/l	250	56.8
C30 Tricyclic Terpane-22S	ND		ng/l	250	56.8
C30 Tricyclic Terpane-22R	ND		ng/l	250	56.8
17a(H)-22,29,30-Trisnorhopane-TM (T12)	ND		ng/l	250	56.8
17a/b,21b/a 28,30-Bisnorhopane (T14a)	ND		ng/l	250	56.8
17a(H),21b(H)-25-Norhopane (T14b)	ND		ng/l	250	56.8
30-Norhopane (T15)	ND		ng/l	250	56.8
18a(H)-30-Norneohopane-C29Ts (T16)	ND		ng/l	250	56.8
17a(H)-Diahopane (X)	ND		ng/l	250	56.8
30-Normoretane (T17)	ND		ng/l	250	56.8
18a(H)&18b(H)-Oleananes (T18)	ND		ng/l	250	56.8
Moretane (T20)	ND		ng/l	250	56.8
30-Homohopane-22S (T21)	ND		ng/l	250	56.8
30-Homohopane-22R (T22)	ND		ng/l	250	56.8
30,31-Bishomohopane-22S (T26)	ND		ng/l	250	56.8
30,31-Bishomohopane-22R (T27)	ND		ng/l	250	56.8
30,31-Trishomohopane-22S (T30)	ND		ng/l	250	56.8
30,31-Trishomohopane-22R (T31)	ND		ng/l	250	56.8
Tetrakishomohopane-22S (T32)	ND		ng/l	250	56.8
Tetrakishomohopane-22R (T33)	ND		ng/l	250	56.8
Pentakishomohopane-22S (T34)	ND		ng/l	250	56.8
Pentakishomohopane-22R (T35)	ND		ng/l	250	56.8
13b(H),17a(H)-20S-Diacholestane (S4)	ND		ng/l	375	108.
13b(H),17a(H)-20R-Diacholestane (S5)	ND		ng/l	375	108.

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM(M)	Extraction Method:	EPA 3510C
Analytical Date:	01/18/23 03:52	Extraction Date:	01/13/23 13:53
Analyst:	CNC		

Parameter	Result	Qualifier	Units	RL	MDL
PAHs/Biomarkers - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
13b,17a-20S-Methyldiacholestane (S8)	ND		ng/l	375	108.
17a(H)20SC27/C29dia	ND		ng/l	375	108.
17a(H)20RC27/C29dia	ND		ng/l	375	108.
Unknown Sterane (S18)	ND		ng/l	375	108.
13a,17b-20S-Ethyldiacholestane (S19)	ND		ng/l	375	108.
14a,17a-20S-Methylcholestane (S20)	ND		ng/l	375	108.
14a,17a-20R-Methylcholestane (S24)	ND		ng/l	375	108.
14a(H),17a(H)-20S-Ethylcholestane (S25)	ND		ng/l	375	108.
14a(H),17a(H)-20R-Ethylcholestane (S28)	ND		ng/l	375	108.
14b(H),17b(H)-20R-Cholestane (S14)	ND		ng/l	375	108.
14b(H),17b(H)-20S-Cholestane (S15)	ND		ng/l	375	108.
14b,17b-20R-Methylcholestane (S22)	ND		ng/l	375	108.
14b,17b-20S-Methylcholestane (S23)	ND		ng/l	375	108.
14b(H),17b(H)-20R-Ethylcholestane (S26)	ND		ng/l	375	108.
14b(H),17b(H)-20S-Ethylcholestane (S27)	ND		ng/l	375	108.
C26,20R+C27,20S TAS	ND		ng/l	375	108.
C28,20S TAS	ND		ng/l	375	108.
C27,20R TAS	ND		ng/l	375	108.
C28,20R TAS	ND		ng/l	375	108.

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Naphthalene-d8	80		50-130
Phenanthrene-d10	96		50-130
Benzo(a)pyrene-d12	114		50-130
5B(H)Cholane-Surr	92		50-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01-10 Batch: WG1732624-2 WG1732624-3								
Naphthalene	82		86		50-130	5		30
2-Methylnaphthalene	79		83		50-130	5		30
Acenaphthylene	78		80		50-130	3		30
Acenaphthene	86		87		50-130	1		30
Fluorene	87		88		50-130	1		30
Phenanthrene	85		88		50-130	3		30
Anthracene	90		96		50-130	6		30
Fluoranthene	80		83		50-130	4		30
Pyrene	82		86		50-130	5		30
Benz(a)anthracene	76		77		50-130	1		30
Chrysene/Triphenylene	79		82		50-130	4		30
Benzo(b)fluoranthene	78		82		50-130	5		30
Benzo(j)+(k)fluoranthene	96		97		50-130	1		30
Benzo(a)pyrene	84		87		50-130	4		30
Indeno(1,2,3-cd)pyrene	86		89		50-130	3		30
Dibenz(a,h)+(a,c)anthracene	95		97		50-130	2		30
Benzo(g,h,i)perylene	89		90		50-130	1		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 01-10 Batch: WG1732624-2 WG1732624-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Naphthalene-d8	81		83		50-130
Phenanthrene-d10	100		102		50-130
Benzo(a)pyrene-d12	105		105		50-130
5B(H)Cholane-Surr	92		92		50-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Organic Lead Analysis by GC/MS-SIM - Mansfield Lab Associated sample(s): 01-06,08-10 Batch: WG1732625-2 WG1732625-3								
Tetraethyl Lead	67		67		50-130	0		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 11 Batch: WG1733207-2 WG1733207-3								
Naphthalene	93		99		50-130	6		30
2-Methylnaphthalene	88		93		50-130	6		30
Acenaphthylene	84		87		50-130	4		30
Acenaphthene	90		94		50-130	4		30
Fluorene	94		97		50-130	3		30
Phenanthrene	90		95		50-130	5		30
Anthracene	94		98		50-130	4		30
Fluoranthene	72		74		50-130	3		30
Pyrene	75		78		50-130	4		30
Benz(a)anthracene	84		88		50-130	5		30
Chrysene/Triphenylene	86		90		50-130	5		30
Benzo(b)fluoranthene	100		106		50-130	6		30
Benzo(j)+(k)fluoranthene	94		101		50-130	7		30
Benzo(a)pyrene	97		102		50-130	5		30
Indeno(1,2,3-cd)pyrene	112		115		50-130	3		30
Dibenz(a,h)+(a,c)anthracene	116		122		50-130	5		30
Benzo(g,h,i)perylene	111		117		50-130	5		30

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
PAHs/Biomarkers - Mansfield Lab Associated sample(s): 11 Batch: WG1733207-2 WG1733207-3								

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Naphthalene-d8	87		92		50-130
Phenanthrene-d10	97		100		50-130
Benzo(a)pyrene-d12	114		119		50-130
5B(H)Cholane-Surr	90		91		50-130

PETROLEUM HYDROCARBONS

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8015D(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/20/23 03:51		
Analyst:	WR		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	5650		mg/kg	179	53.0	1
n-Decane (C10)	4360		mg/kg	179	57.0	1
n-Undecane (C11)	4650		mg/kg	179	53.4	1
n-Dodecane (C12)	4940		mg/kg	179	38.9	1
n-Tridecane (C13)	3200		mg/kg	179	49.0	1
2,6,10-Trimethyldodecane (1380)	2520		mg/kg	179	26.9	1
n-Tetradecane (C14)	1640		mg/kg	179	26.9	1
2,6,10-Trimethyltridecane (1470)	2730		mg/kg	179	21.3	1
n-Pentadecane (C15)	1410		mg/kg	179	21.3	1
n-Hexadecane (C16)	643		mg/kg	179	26.9	1
Norpristane (1650)	1200		mg/kg	179	59.0	1
n-Heptadecane (C17)	272		mg/kg	179	59.0	1
Pristane	2070		mg/kg	179	38.2	1
n-Octadecane (C18)	289		mg/kg	179	35.9	1
Phytane	886		mg/kg	179	22.4	1
n-Nonadecane (C19)	316		mg/kg	179	45.9	1
n-Eicosane (C20)	220		mg/kg	179	25.3	1
n-Heneicosane (C21)	145	J	mg/kg	179	21.4	1
n-Docosane (C22)	84.2	J	mg/kg	179	18.6	1
n-Tricosane (C23)	45.9	J	mg/kg	179	22.7	1
n-Tetracosane (C24)	ND		mg/kg	179	29.9	1
n-Pentacosane (C25)	114	JC	mg/kg	179	94.6	1
n-Hexacosane (C26)	ND		mg/kg	179	26.2	1
n-Heptacosane (C27)	ND		mg/kg	179	21.5	1
n-Octacosane (C28)	ND		mg/kg	179	38.3	1
n-Nonacosane (C29)	ND		mg/kg	179	119.	1
n-Triacontane (C30)	ND		mg/kg	179	20.5	1
n-Hentriacontane (C31)	ND		mg/kg	179	25.3	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	179	22.5	1
n-Tritriacontane (C33)	ND		mg/kg	179	25.1	1
n-Tetratriacontane (C34)	ND		mg/kg	179	28.4	1
n-Pentatriacontane (C35)	ND		mg/kg	179	31.2	1
n-Hexatriacontane (C36)	ND		mg/kg	179	35.5	1
n-Heptatriacontane (C37)	ND		mg/kg	179	39.7	1
n-Octatriacontane (C38)	ND		mg/kg	179	41.7	1
n-Nonatriacontane (C39)	ND		mg/kg	179	58.0	1
n-Tetracontane (C40)	ND		mg/kg	179	58.0	1
Total Petroleum Hydrocarbons (C9-C44)	593000		mg/kg	5900	1300	1
Total Saturated Hydrocarbons	37400	J	mg/kg	179	18.6	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	104		50-130
d50-Tetracosane	96		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8015D(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/20/23 05:20		
Analyst:	WR		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	8730		mg/kg	194	57.7	1
n-Decane (C10)	10100		mg/kg	194	62.1	1
n-Undecane (C11)	6340		mg/kg	194	58.1	1
n-Dodecane (C12)	4530		mg/kg	194	42.4	1
n-Tridecane (C13)	3500		mg/kg	194	53.4	1
2,6,10-Trimethyldodecane (1380)	1150		mg/kg	194	29.3	1
n-Tetradecane (C14)	2690		mg/kg	194	29.3	1
2,6,10-Trimethyltridecane (1470)	1700		mg/kg	194	23.2	1
n-Pentadecane (C15)	3310		mg/kg	194	23.2	1
n-Hexadecane (C16)	2440		mg/kg	194	29.3	1
Norpristane (1650)	1210		mg/kg	194	64.2	1
n-Heptadecane (C17)	1260		mg/kg	194	64.2	1
Pristane	2000		mg/kg	194	41.6	1
n-Octadecane (C18)	954		mg/kg	194	39.0	1
Phytane	848		mg/kg	194	24.4	1
n-Nonadecane (C19)	858		mg/kg	194	50.0	1
n-Eicosane (C20)	476		mg/kg	194	27.5	1
n-Heneicosane (C21)	220		mg/kg	194	23.3	1
n-Docosane (C22)	109	J	mg/kg	194	20.3	1
n-Tricosane (C23)	127	J	mg/kg	194	24.7	1
n-Tetracosane (C24)	55.0	J	mg/kg	194	32.5	1
n-Pentacosane (C25)	156	JC	mg/kg	194	103.	1
n-Hexacosane (C26)	ND		mg/kg	194	28.6	1
n-Heptacosane (C27)	27.4	J	mg/kg	194	23.4	1
n-Octacosane (C28)	ND		mg/kg	194	41.7	1
n-Nonacosane (C29)	ND		mg/kg	194	130.	1
n-Triacontane (C30)	28.2	J	mg/kg	194	22.3	1
n-Hentriacontane (C31)	ND		mg/kg	194	27.6	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	194	24.5	1
n-Tritriacontane (C33)	28.8	J	mg/kg	194	27.4	1
n-Tetratriacontane (C34)	ND		mg/kg	194	31.0	1
n-Pentatriacontane (C35)	ND		mg/kg	194	33.9	1
n-Hexatriacontane (C36)	ND		mg/kg	194	38.7	1
n-Heptatriacontane (C37)	ND		mg/kg	194	43.2	1
n-Octatriacontane (C38)	ND		mg/kg	194	45.4	1
n-Nonatriacontane (C39)	ND		mg/kg	194	63.2	1
n-Tetracontane (C40)	ND		mg/kg	194	63.2	1
Total Petroleum Hydrocarbons (C9-C44)	500000		mg/kg	6420	1410	1
Total Saturated Hydrocarbons	52800	J	mg/kg	194	20.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	102		50-130
d50-Tetracosane	94		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-03
Client ID: TG02-MW-05-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 13:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 06:50
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	540		mg/kg	168	49.9	1
n-Decane (C10)	ND		mg/kg	168	53.6	1
n-Undecane (C11)	1100		mg/kg	168	50.2	1
n-Dodecane (C12)	369		mg/kg	168	36.6	1
n-Tridecane (C13)	490		mg/kg	168	46.1	1
2,6,10-Trimethyldodecane (1380)	2060		mg/kg	168	25.3	1
n-Tetradecane (C14)	438		mg/kg	168	25.3	1
2,6,10-Trimethyltridecane (1470)	2380		mg/kg	168	20.0	1
n-Pentadecane (C15)	ND		mg/kg	168	20.0	1
n-Hexadecane (C16)	344		mg/kg	168	25.3	1
Norpristane (1650)	1760		mg/kg	168	55.5	1
n-Heptadecane (C17)	ND		mg/kg	168	55.5	1
Pristane	3330		mg/kg	168	35.9	1
n-Octadecane (C18)	63.4	J	mg/kg	168	33.7	1
Phytane	1790		mg/kg	168	21.1	1
n-Nonadecane (C19)	ND		mg/kg	168	43.2	1
n-Eicosane (C20)	ND		mg/kg	168	23.8	1
n-Heneicosane (C21)	ND		mg/kg	168	20.1	1
n-Docosane (C22)	ND		mg/kg	168	17.5	1
n-Tricosane (C23)	ND		mg/kg	168	21.4	1
n-Tetracosane (C24)	ND		mg/kg	168	28.1	1
n-Pentacosane (C25)	108	JC	mg/kg	168	89.0	1
n-Hexacosane (C26)	ND		mg/kg	168	24.7	1
n-Heptacosane (C27)	ND		mg/kg	168	20.2	1
n-Octacosane (C28)	ND		mg/kg	168	36.0	1
n-Nonacosane (C29)	ND		mg/kg	168	112.	1
n-Triacontane (C30)	ND		mg/kg	168	19.3	1
n-Hentriacontane (C31)	ND		mg/kg	168	23.8	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-03	Date Collected:	12/20/22 13:30
Client ID:	TG02-MW-05-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	168	21.2	1
n-Tritriacontane (C33)	ND		mg/kg	168	23.6	1
n-Tetratriacontane (C34)	ND		mg/kg	168	26.7	1
n-Pentatriacontane (C35)	ND		mg/kg	168	29.3	1
n-Hexatriacontane (C36)	ND		mg/kg	168	33.4	1
n-Heptatriacontane (C37)	ND		mg/kg	168	37.3	1
n-Octatriacontane (C38)	ND		mg/kg	168	39.2	1
n-Nonatriacontane (C39)	ND		mg/kg	168	54.6	1
n-Tetracontane (C40)	ND		mg/kg	168	54.6	1
Total Petroleum Hydrocarbons (C9-C44)	450000		mg/kg	5550	1220	1
Total Saturated Hydrocarbons	14800	J	mg/kg	168	17.5	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	109		50-130
d50-Tetracosane	94		50-130

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04
Client ID: TG02-MW-06-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 09:05
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 08:20
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	5320		mg/kg	196	58.0	1
n-Decane (C10)	5140		mg/kg	196	62.4	1
n-Undecane (C11)	5530		mg/kg	196	58.4	1
n-Dodecane (C12)	5570		mg/kg	196	42.6	1
n-Tridecane (C13)	4490		mg/kg	196	53.6	1
2,6,10-Trimethyldodecane (1380)	2880		mg/kg	196	29.4	1
n-Tetradecane (C14)	3210		mg/kg	196	29.4	1
2,6,10-Trimethyltridecane (1470)	3620		mg/kg	196	23.3	1
n-Pentadecane (C15)	2820		mg/kg	196	23.3	1
n-Hexadecane (C16)	1630		mg/kg	196	29.4	1
Norpristane (1650)	2000		mg/kg	196	64.5	1
n-Heptadecane (C17)	897		mg/kg	196	64.5	1
Pristane	3100		mg/kg	196	41.8	1
n-Octadecane (C18)	642		mg/kg	196	39.2	1
Phytane	1430		mg/kg	196	24.6	1
n-Nonadecane (C19)	576		mg/kg	196	50.2	1
n-Eicosane (C20)	359		mg/kg	196	27.7	1
n-Heneicosane (C21)	179	J	mg/kg	196	23.4	1
n-Docosane (C22)	91.9	J	mg/kg	196	20.4	1
n-Tricosane (C23)	38.1	J	mg/kg	196	24.9	1
n-Tetracosane (C24)	ND		mg/kg	196	32.7	1
n-Pentacosane (C25)	136	JC	mg/kg	196	103.	1
n-Hexacosane (C26)	ND		mg/kg	196	28.7	1
n-Heptacosane (C27)	ND		mg/kg	196	23.5	1
n-Octacosane (C28)	ND		mg/kg	196	41.9	1
n-Nonacosane (C29)	ND		mg/kg	196	130.	1
n-Triacontane (C30)	ND		mg/kg	196	22.4	1
n-Hentriacontane (C31)	ND		mg/kg	196	27.7	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04
Client ID: TG02-MW-06-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 09:05
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	196	24.6	1
n-Tritriacontane (C33)	ND		mg/kg	196	27.5	1
n-Tetratriacontane (C34)	ND		mg/kg	196	31.1	1
n-Pentatriacontane (C35)	ND		mg/kg	196	34.1	1
n-Hexatriacontane (C36)	ND		mg/kg	196	38.9	1
n-Heptatriacontane (C37)	ND		mg/kg	196	43.4	1
n-Octatriacontane (C38)	ND		mg/kg	196	45.6	1
n-Nonatriacontane (C39)	ND		mg/kg	196	63.5	1
n-Tetracontane (C40)	ND		mg/kg	196	63.5	1
Total Petroleum Hydrocarbons (C9-C44)	557000		mg/kg	6450	1420	1
Total Saturated Hydrocarbons	49700	J	mg/kg	196	20.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	106		50-130
d50-Tetracosane	95		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 09:50
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	5500		mg/kg	174	51.6	1
n-Decane (C10)	7670		mg/kg	174	55.5	1
n-Undecane (C11)	10400		mg/kg	174	52.0	1
n-Dodecane (C12)	11700		mg/kg	174	37.9	1
n-Tridecane (C13)	10300		mg/kg	174	47.8	1
2,6,10-Trimethyldodecane (1380)	3150		mg/kg	174	26.2	1
n-Tetradecane (C14)	7220		mg/kg	174	26.2	1
2,6,10-Trimethyltridecane (1470)	3720		mg/kg	174	20.8	1
n-Pentadecane (C15)	5000		mg/kg	174	20.8	1
n-Hexadecane (C16)	2510		mg/kg	174	26.2	1
Norpristane (1650)	1540		mg/kg	174	57.4	1
n-Heptadecane (C17)	1220		mg/kg	174	57.4	1
Pristane	2760		mg/kg	174	37.2	1
n-Octadecane (C18)	763		mg/kg	174	34.9	1
Phytane	973		mg/kg	174	21.9	1
n-Nonadecane (C19)	552		mg/kg	174	44.7	1
n-Eicosane (C20)	316		mg/kg	174	24.6	1
n-Heneicosane (C21)	184		mg/kg	174	20.8	1
n-Docosane (C22)	103	J	mg/kg	174	18.2	1
n-Tricosane (C23)	51.0	J	mg/kg	174	22.1	1
n-Tetracosane (C24)	ND		mg/kg	174	29.1	1
n-Pentacosane (C25)	115	JC	mg/kg	174	92.1	1
n-Hexacosane (C26)	ND		mg/kg	174	25.6	1
n-Heptacosane (C27)	ND		mg/kg	174	21.0	1
n-Octacosane (C28)	ND		mg/kg	174	37.3	1
n-Nonacosane (C29)	ND		mg/kg	174	116.	1
n-Triacontane (C30)	ND		mg/kg	174	20.0	1
n-Hentriacontane (C31)	ND		mg/kg	174	24.7	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-05	Date Collected:	12/20/22 10:30
Client ID:	TG02-MW-08-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	174	21.9	1
n-Tritriacontane (C33)	ND		mg/kg	174	24.5	1
n-Tetratriacontane (C34)	ND		mg/kg	174	27.7	1
n-Pentatriacontane (C35)	ND		mg/kg	174	30.4	1
n-Hexatriacontane (C36)	ND		mg/kg	174	34.6	1
n-Heptatriacontane (C37)	ND		mg/kg	174	38.6	1
n-Octatriacontane (C38)	ND		mg/kg	174	40.6	1
n-Nonatriacontane (C39)	ND		mg/kg	174	56.5	1
n-Tetracontane (C40)	ND		mg/kg	174	56.5	1
Total Petroleum Hydrocarbons (C9-C44)	609000		mg/kg	5740	1260	1
Total Saturated Hydrocarbons	75700	J	mg/kg	174	18.2	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	102		50-130
d50-Tetracosane	94		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06
Client ID: TG02-MW-09-221219
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/19/22 11:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 11:20
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	6130		mg/kg	138	41.0	1
n-Decane (C10)	2490		mg/kg	138	44.1	1
n-Undecane (C11)	2390		mg/kg	138	41.2	1
n-Dodecane (C12)	2730		mg/kg	138	30.1	1
n-Tridecane (C13)	1810		mg/kg	138	37.9	1
2,6,10-Trimethyldodecane (1380)	453		mg/kg	138	20.8	1
n-Tetradecane (C14)	986		mg/kg	138	20.8	1
2,6,10-Trimethyltridecane (1470)	579		mg/kg	138	16.5	1
n-Pentadecane (C15)	958		mg/kg	138	16.5	1
n-Hexadecane (C16)	647		mg/kg	138	20.8	1
Norpristane (1650)	369		mg/kg	138	45.6	1
n-Heptadecane (C17)	424		mg/kg	138	45.6	1
Pristane	702		mg/kg	138	29.5	1
n-Octadecane (C18)	332		mg/kg	138	27.7	1
Phytane	347		mg/kg	138	17.3	1
n-Nonadecane (C19)	254		mg/kg	138	35.5	1
n-Eicosane (C20)	153		mg/kg	138	19.5	1
n-Heneicosane (C21)	93.8	J	mg/kg	138	16.5	1
n-Docosane (C22)	53.6	J	mg/kg	138	14.4	1
n-Tricosane (C23)	27.3	J	mg/kg	138	17.6	1
n-Tetracosane (C24)	ND		mg/kg	138	23.1	1
n-Pentacosane (C25)	85.8	JC	mg/kg	138	73.1	1
n-Hexacosane (C26)	ND		mg/kg	138	20.3	1
n-Heptacosane (C27)	ND		mg/kg	138	16.6	1
n-Octacosane (C28)	ND		mg/kg	138	29.6	1
n-Nonacosane (C29)	ND		mg/kg	138	92.0	1
n-Triacontane (C30)	ND		mg/kg	138	15.8	1
n-Hentriacontane (C31)	ND		mg/kg	138	19.6	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-06	Date Collected:	12/19/22 11:30
Client ID:	TG02-MW-09-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	138	17.4	1
n-Tritriacontane (C33)	ND		mg/kg	138	19.4	1
n-Tetratriacontane (C34)	ND		mg/kg	138	22.0	1
n-Pentatriacontane (C35)	ND		mg/kg	138	24.1	1
n-Hexatriacontane (C36)	ND		mg/kg	138	27.5	1
n-Heptatriacontane (C37)	ND		mg/kg	138	30.7	1
n-Octatriacontane (C38)	ND		mg/kg	138	32.2	1
n-Nonatriacontane (C39)	ND		mg/kg	138	44.8	1
n-Tetracontane (C40)	ND		mg/kg	138	44.8	1
Total Petroleum Hydrocarbons (C9-C44)	346000		mg/kg	4560	1000	1
Total Saturated Hydrocarbons	22000	J	mg/kg	138	14.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	101		50-130
d50-Tetracosane	96		50-130

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-07
Client ID: TG02-MW-10-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 09:55
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 12:50
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	2640		mg/kg	196	58.1	1
n-Decane (C10)	2300		mg/kg	196	62.4	1
n-Undecane (C11)	1900		mg/kg	196	58.4	1
n-Dodecane (C12)	1880		mg/kg	196	42.6	1
n-Tridecane (C13)	1330		mg/kg	196	53.7	1
2,6,10-Trimethyldodecane (1380)	1540		mg/kg	196	29.4	1
n-Tetradecane (C14)	936		mg/kg	196	29.4	1
2,6,10-Trimethyltridecane (1470)	1910		mg/kg	196	23.3	1
n-Pentadecane (C15)	1210		mg/kg	196	23.3	1
n-Hexadecane (C16)	821		mg/kg	196	29.5	1
Norpristane (1650)	2080		mg/kg	196	64.6	1
n-Heptadecane (C17)	432		mg/kg	196	64.6	1
Pristane	3580		mg/kg	196	41.8	1
n-Octadecane (C18)	294		mg/kg	196	39.3	1
Phytane	1430		mg/kg	196	24.6	1
n-Nonadecane (C19)	236		mg/kg	196	50.3	1
n-Eicosane (C20)	136	J	mg/kg	196	27.7	1
n-Heneicosane (C21)	57.5	J	mg/kg	196	23.4	1
n-Docosane (C22)	39.7	J	mg/kg	196	20.4	1
n-Tricosane (C23)	ND		mg/kg	196	24.9	1
n-Tetracosane (C24)	ND		mg/kg	196	32.7	1
n-Pentacosane (C25)	130	JC	mg/kg	196	104.	1
n-Hexacosane (C26)	ND		mg/kg	196	28.7	1
n-Heptacosane (C27)	ND		mg/kg	196	23.6	1
n-Octacosane (C28)	ND		mg/kg	196	42.0	1
n-Nonacosane (C29)	ND		mg/kg	196	130.	1
n-Triacontane (C30)	37.2	J	mg/kg	196	22.4	1
n-Hentriacontane (C31)	ND		mg/kg	196	27.7	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-07	Date Collected:	12/20/22 09:55
Client ID:	TG02-MW-10-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	32.9	J	mg/kg	196	24.6	1
n-Tritriacontane (C33)	ND		mg/kg	196	27.5	1
n-Tetratriacontane (C34)	ND		mg/kg	196	31.1	1
n-Pentatriacontane (C35)	ND		mg/kg	196	34.1	1
n-Hexatriacontane (C36)	ND		mg/kg	196	38.9	1
n-Heptatriacontane (C37)	ND		mg/kg	196	43.5	1
n-Octatriacontane (C38)	ND		mg/kg	196	45.6	1
n-Nonatriacontane (C39)	ND		mg/kg	196	63.5	1
n-Tetracontane (C40)	ND		mg/kg	196	63.5	1
Total Petroleum Hydrocarbons (C9-C44)	418000		mg/kg	6460	1420	1
Total Saturated Hydrocarbons	25000	J	mg/kg	196	20.4	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	102		50-130
d50-Tetracosane	95		50-130

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-08	Date Collected:	12/19/22 12:00
Client ID:	TG02-MW-11-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8015D(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/20/23 14:20		
Analyst:	WR		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	5960		mg/kg	194	57.7	1
n-Decane (C10)	2710		mg/kg	194	62.1	1
n-Undecane (C11)	1860		mg/kg	194	58.1	1
n-Dodecane (C12)	2340		mg/kg	194	42.4	1
n-Tridecane (C13)	1280		mg/kg	194	53.4	1
2,6,10-Trimethyldodecane (1380)	258		mg/kg	194	29.3	1
n-Tetradecane (C14)	553		mg/kg	194	29.3	1
2,6,10-Trimethyltridecane (1470)	343		mg/kg	194	23.2	1
n-Pentadecane (C15)	503		mg/kg	194	23.2	1
n-Hexadecane (C16)	267		mg/kg	194	29.3	1
Norpristane (1650)	176	J	mg/kg	194	64.2	1
n-Heptadecane (C17)	149	J	mg/kg	194	64.2	1
Pristane	347		mg/kg	194	41.6	1
n-Octadecane (C18)	143	J	mg/kg	194	39.0	1
Phytane	172	J	mg/kg	194	24.4	1
n-Nonadecane (C19)	91.0	J	mg/kg	194	50.0	1
n-Eicosane (C20)	54.5	J	mg/kg	194	27.5	1
n-Heneicosane (C21)	31.5	J	mg/kg	194	23.3	1
n-Docosane (C22)	ND		mg/kg	194	20.3	1
n-Tricosane (C23)	ND		mg/kg	194	24.7	1
n-Tetracosane (C24)	ND		mg/kg	194	32.5	1
n-Pentacosane (C25)	121	JC	mg/kg	194	103.	1
n-Hexacosane (C26)	ND		mg/kg	194	28.6	1
n-Heptacosane (C27)	ND		mg/kg	194	23.4	1
n-Octacosane (C28)	ND		mg/kg	194	41.7	1
n-Nonacosane (C29)	ND		mg/kg	194	130.	1
n-Triacontane (C30)	ND		mg/kg	194	22.3	1
n-Hentriacontane (C31)	ND		mg/kg	194	27.6	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-08 Date Collected: 12/19/22 12:00
Client ID: TG02-MW-11-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	194	24.5	1
n-Tritriacontane (C33)	ND		mg/kg	194	27.4	1
n-Tetratriacontane (C34)	ND		mg/kg	194	31.0	1
n-Pentatriacontane (C35)	ND		mg/kg	194	33.9	1
n-Hexatriacontane (C36)	ND		mg/kg	194	38.7	1
n-Heptatriacontane (C37)	ND		mg/kg	194	43.2	1
n-Octatriacontane (C38)	ND		mg/kg	194	45.4	1
n-Nonatriacontane (C39)	ND		mg/kg	194	63.2	1
n-Tetracontane (C40)	ND		mg/kg	194	63.2	1
Total Petroleum Hydrocarbons (C9-C44)	296000		mg/kg	6420	1410	1
Total Saturated Hydrocarbons	17400	J	mg/kg	194	20.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	99		50-130
d50-Tetracosane	97		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-09	Date Collected:	12/20/22 12:35
Client ID:	TG02-MW-12-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Oil	Extraction Method:	EPA 3580A
Analytical Method:	1,8015D(M)	Extraction Date:	01/12/23 10:27
Analytical Date:	01/20/23 15:50		
Analyst:	WR		
Percent Solids:	Results reported on an 'AS RECEIVED' basis.		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	5090		mg/kg	138	40.8	1
n-Decane (C10)	2760		mg/kg	138	43.9	1
n-Undecane (C11)	3060		mg/kg	138	41.1	1
n-Dodecane (C12)	3860		mg/kg	138	30.0	1
n-Tridecane (C13)	3020		mg/kg	138	37.7	1
2,6,10-Trimethyldodecane (1380)	1070		mg/kg	138	20.7	1
n-Tetradecane (C14)	2290		mg/kg	138	20.7	1
2,6,10-Trimethyltridecane (1470)	1490		mg/kg	138	16.4	1
n-Pentadecane (C15)	2340		mg/kg	138	16.4	1
n-Hexadecane (C16)	1610		mg/kg	138	20.7	1
Norpristane (1650)	904		mg/kg	138	45.4	1
n-Heptadecane (C17)	993		mg/kg	138	45.4	1
Pristane	1670		mg/kg	138	29.4	1
n-Octadecane (C18)	759		mg/kg	138	27.6	1
Phytane	916		mg/kg	138	17.3	1
n-Nonadecane (C19)	587		mg/kg	138	35.4	1
n-Eicosane (C20)	382		mg/kg	138	19.5	1
n-Heneicosane (C21)	240		mg/kg	138	16.5	1
n-Docosane (C22)	131	J	mg/kg	138	14.3	1
n-Tricosane (C23)	68.0	J	mg/kg	138	17.5	1
n-Tetracosane (C24)	32.7	J	mg/kg	138	23.0	1
n-Pentacosane (C25)	104	JC	mg/kg	138	72.8	1
n-Hexacosane (C26)	ND		mg/kg	138	20.2	1
n-Heptacosane (C27)	ND		mg/kg	138	16.6	1
n-Octacosane (C28)	ND		mg/kg	138	29.5	1
n-Nonacosane (C29)	ND		mg/kg	138	91.6	1
n-Triacontane (C30)	ND		mg/kg	138	15.8	1
n-Hentriacontane (C31)	ND		mg/kg	138	19.5	1

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09 Date Collected: 12/20/22 12:35
Client ID: TG02-MW-12-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	138	17.3	1
n-Tritriacontane (C33)	ND		mg/kg	138	19.4	1
n-Tetratriacontane (C34)	ND		mg/kg	138	21.9	1
n-Pentatriacontane (C35)	ND		mg/kg	138	24.0	1
n-Hexatriacontane (C36)	ND		mg/kg	138	27.4	1
n-Heptatriacontane (C37)	ND		mg/kg	138	30.6	1
n-Octatriacontane (C38)	ND		mg/kg	138	32.1	1
n-Nonatriacontane (C39)	ND		mg/kg	138	44.7	1
n-Tetracontane (C40)	ND		mg/kg	138	44.7	1
Total Petroleum Hydrocarbons (C9-C44)	401000		mg/kg	4540	999.	1
Total Saturated Hydrocarbons	33400	J	mg/kg	138	14.3	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	104		50-130
d50-Tetracosane	96		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-10
Client ID: TG02-MW-15-221220
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 12/20/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Analytical Method: 1,8015D(M)
Analytical Date: 01/20/23 17:20
Analyst: WR
Percent Solids: Results reported on an 'AS RECEIVED' basis.
Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	6810		mg/kg	191	56.8	1
n-Decane (C10)	3590		mg/kg	191	61.0	1
n-Undecane (C11)	3310		mg/kg	191	57.1	1
n-Dodecane (C12)	4060		mg/kg	191	41.7	1
n-Tridecane (C13)	3010		mg/kg	191	52.5	1
2,6,10-Trimethyldodecane (1380)	1040		mg/kg	191	28.8	1
n-Tetradecane (C14)	2060		mg/kg	191	28.8	1
2,6,10-Trimethyltridecane (1470)	1450		mg/kg	191	22.8	1
n-Pentadecane (C15)	2060		mg/kg	191	22.8	1
n-Hexadecane (C16)	1430		mg/kg	191	28.8	1
Norpristane (1650)	862		mg/kg	191	63.2	1
n-Heptadecane (C17)	904		mg/kg	191	63.2	1
Pristane	1570		mg/kg	191	40.9	1
n-Octadecane (C18)	709		mg/kg	191	38.4	1
Phytane	772		mg/kg	191	24.0	1
n-Nonadecane (C19)	571		mg/kg	191	49.2	1
n-Eicosane (C20)	345		mg/kg	191	27.1	1
n-Heneicosane (C21)	206		mg/kg	191	22.9	1
n-Docosane (C22)	119	J	mg/kg	191	20.0	1
n-Tricosane (C23)	60.1	J	mg/kg	191	24.3	1
n-Tetracosane (C24)	ND		mg/kg	191	32.0	1
n-Pentacosane (C25)	151	JC	mg/kg	191	101.	1
n-Hexacosane (C26)	ND		mg/kg	191	28.1	1
n-Heptacosane (C27)	ND		mg/kg	191	23.0	1
n-Octacosane (C28)	ND		mg/kg	191	41.0	1
n-Nonacosane (C29)	ND		mg/kg	191	128.	1
n-Triacontane (C30)	ND		mg/kg	191	22.0	1
n-Hentriacontane (C31)	ND		mg/kg	191	27.1	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/kg	191	24.1	1
n-Tritriacontane (C33)	ND		mg/kg	191	26.9	1
n-Tetratriacontane (C34)	ND		mg/kg	191	30.4	1
n-Pentatriacontane (C35)	ND		mg/kg	191	33.4	1
n-Hexatriacontane (C36)	ND		mg/kg	191	38.1	1
n-Heptatriacontane (C37)	ND		mg/kg	191	42.5	1
n-Octatriacontane (C38)	ND		mg/kg	191	44.6	1
n-Nonatriacontane (C39)	ND		mg/kg	191	62.1	1
n-Tetracontane (C40)	ND		mg/kg	191	62.1	1
Total Petroleum Hydrocarbons (C9-C44)	441000		mg/kg	6320	1390	1
Total Saturated Hydrocarbons	35100	J	mg/kg	191	20.0	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	102		50-130
d50-Tetracosane	97		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-11
Client ID: TG02-MW-17-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 15:25
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8015D(M)
Analytical Date: 01/18/23 03:45
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Nonane (C9)	0.009	J	mg/l	0.020	0.007	1
n-Decane (C10)	0.023		mg/l	0.020	0.002	1
n-Undecane (C11)	0.021		mg/l	0.020	0.002	1
n-Dodecane (C12)	0.030		mg/l	0.020	0.003	1
n-Tridecane (C13)	0.027	J	mg/l	0.102	0.018	1
2,6,10-Trimethyldodecane (1380)	0.265		mg/l	0.020	0.002	1
n-Tetradecane (C14)	0.059		mg/l	0.020	0.002	1
2,6,10-Trimethyltridecane (1470)	0.321		mg/l	0.020	0.003	1
n-Pentadecane (C15)	0.067		mg/l	0.020	0.003	1
n-Hexadecane (C16)	0.024		mg/l	0.020	0.003	1
Norpristane (1650)	0.210		mg/l	0.020	0.003	1
n-Heptadecane (C17)	ND		mg/l	0.020	0.003	1
Pristane	0.354		mg/l	0.020	0.004	1
n-Octadecane (C18)	ND		mg/l	0.020	0.002	1
Phytane	0.137		mg/l	0.020	0.002	1
n-Nonadecane (C19)	0.017	J	mg/l	0.020	0.003	1
n-Eicosane (C20)	ND		mg/l	0.020	0.001	1
n-Heneicosane (C21)	0.005	J	mg/l	0.020	0.002	1
n-Docosane (C22)	0.007	J	mg/l	0.020	0.001	1
n-Tricosane (C23)	ND		mg/l	0.020	0.002	1
n-Tetracosane (C24)	ND		mg/l	0.020	0.002	1
n-Pentacosane (C25)	ND		mg/l	0.102	0.012	1
n-Hexacosane (C26)	ND		mg/l	0.020	0.002	1
n-Heptacosane (C27)	ND		mg/l	0.020	0.002	1
n-Octacosane (C28)	ND		mg/l	0.020	0.004	1
n-Nonacosane (C29)	0.089	C	mg/l	0.020	0.002	1
n-Triacontane (C30)	ND		mg/l	0.020	0.003	1
n-Hentriacontane (C31)	0.028		mg/l	0.020	0.003	1

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-11	Date Collected:	12/19/22 15:25
Client ID:	TG02-MW-17-221219	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Saturated Hydrocarbons by GC-FID - Mansfield Lab						
n-Dotriacontane (C32)	ND		mg/l	0.020	0.003	1
n-Tritriacontane (C33)	ND		mg/l	0.020	0.003	1
n-Tetratriacontane (C34)	0.052		mg/l	0.020	0.003	1
n-Pentatriacontane (C35)	ND		mg/l	0.020	0.003	1
n-Hexatriacontane (C36)	ND		mg/l	0.020	0.003	1
n-Heptatriacontane (C37)	ND		mg/l	0.020	0.004	1
n-Octatriacontane (C38)	ND		mg/l	0.020	0.004	1
n-Nonatriacontane (C39)	ND		mg/l	0.020	0.004	1
n-Tetracontane (C40)	ND		mg/l	0.020	0.004	1
Total Petroleum Hydrocarbons (C9-C44)	83.4		mg/l	0.673	0.113	1
Total Saturated Hydrocarbons	1.74	J	mg/l	0.020	0.001	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	95		50-130
d50-Tetracosane	92		50-130

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D(M)
Analytical Date: 01/19/23 17:22
Analyst: WR

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
n-Nonane (C9)	ND		mg/kg	200	59.3
n-Decane (C10)	ND		mg/kg	200	63.8
n-Undecane (C11)	ND		mg/kg	200	59.7
n-Dodecane (C12)	ND		mg/kg	200	43.6
n-Tridecane (C13)	ND		mg/kg	200	54.9
2,6,10-Trimethyldodecane (1380)	ND		mg/kg	200	30.1
n-Tetradecane (C14)	ND		mg/kg	200	30.1
2,6,10-Trimethyltridecane (1470)	ND		mg/kg	200	23.9
n-Pentadecane (C15)	ND		mg/kg	200	23.9
n-Hexadecane (C16)	ND		mg/kg	200	30.1
Norpristane (1650)	ND		mg/kg	200	66.0
n-Heptadecane (C17)	ND		mg/kg	200	66.0
Pristane	ND		mg/kg	200	42.7
n-Octadecane (C18)	44.6	J	mg/kg	200	40.1
Phytane	ND		mg/kg	200	25.1
n-Nonadecane (C19)	ND		mg/kg	200	51.4
n-Eicosane (C20)	ND		mg/kg	200	28.3
n-Heneicosane (C21)	ND		mg/kg	200	23.9
n-Docosane (C22)	ND		mg/kg	200	20.9
n-Tricosane (C23)	ND		mg/kg	200	25.4
n-Tetracosane (C24)	ND		mg/kg	200	33.5
n-Pentacosane (C25)	127	JC	mg/kg	200	106.
n-Hexacosane (C26)	ND		mg/kg	200	29.4
n-Heptacosane (C27)	ND		mg/kg	200	24.1
n-Octacosane (C28)	ND		mg/kg	200	42.9
n-Nonacosane (C29)	ND		mg/kg	200	133.
n-Triacontane (C30)	43.0	J	mg/kg	200	22.9
n-Hentriacontane (C31)	85.8	J	mg/kg	200	28.3
n-Dotriacontane (C32)	50.4	J	mg/kg	200	25.2

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D(M)
Analytical Date: 01/19/23 17:22
Analyst: WR

Extraction Method: EPA 3580A
Extraction Date: 01/12/23 10:27

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 01-10 Batch: WG1732624-1					
n-Tritriacontane (C33)	ND		mg/kg	200	28.1
n-Tetratriacontane (C34)	ND		mg/kg	200	31.8
n-Pentatriacontane (C35)	ND		mg/kg	200	34.9
n-Hexatriacontane (C36)	43.2	J	mg/kg	200	39.8
n-Heptatriacontane (C37)	ND		mg/kg	200	44.4
n-Octatriacontane (C38)	ND		mg/kg	200	46.6
n-Nonatriacontane (C39)	ND		mg/kg	200	64.9
n-Tetracontane (C40)	ND		mg/kg	200	64.9
Total Petroleum Hydrocarbons (C9-C44)	7630		mg/kg	6600	1450
Total Saturated Hydrocarbons	394	J	mg/kg	200	20.9

Surrogate	%Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	97		50-130
d50-Tetracosane	94		50-130

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002
Lab Number: L2271579
Report Date: 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D(M)
Analytical Date: 01/17/23 17:42
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
n-Nonane (C9)	ND		mg/l	0.025	0.008
n-Decane (C10)	ND		mg/l	0.025	0.003
n-Undecane (C11)	ND		mg/l	0.025	0.002
n-Dodecane (C12)	ND		mg/l	0.025	0.003
n-Tridecane (C13)	ND		mg/l	0.125	0.022
2,6,10-Trimethyldodecane (1380)	ND		mg/l	0.025	0.002
n-Tetradecane (C14)	ND		mg/l	0.025	0.002
2,6,10-Trimethyltridecane (1470)	ND		mg/l	0.025	0.004
n-Pentadecane (C15)	ND		mg/l	0.025	0.004
n-Hexadecane (C16)	ND		mg/l	0.025	0.004
Norpristane (1650)	ND		mg/l	0.025	0.003
n-Heptadecane (C17)	ND		mg/l	0.025	0.003
Pristane	ND		mg/l	0.025	0.004
n-Octadecane (C18)	ND		mg/l	0.025	0.002
Phytane	ND		mg/l	0.025	0.002
n-Nonadecane (C19)	ND		mg/l	0.025	0.004
n-Eicosane (C20)	ND		mg/l	0.025	0.001
n-Heneicosane (C21)	ND		mg/l	0.025	0.002
n-Docosane (C22)	ND		mg/l	0.025	0.001
n-Tricosane (C23)	ND		mg/l	0.025	0.002
n-Tetracosane (C24)	ND		mg/l	0.025	0.002
n-Pentacosane (C25)	ND		mg/l	0.125	0.015
n-Hexacosane (C26)	ND		mg/l	0.025	0.003
n-Heptacosane (C27)	ND		mg/l	0.025	0.003
n-Octacosane (C28)	ND		mg/l	0.025	0.005
n-Nonacosane (C29)	0.022	JC	mg/l	0.025	0.003
n-Triacontane (C30)	ND		mg/l	0.025	0.003
n-Hentriacontane (C31)	ND		mg/l	0.025	0.003
n-Dotriacontane (C32)	ND		mg/l	0.025	0.003

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8015D(M)
Analytical Date: 01/17/23 17:42
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/13/23 13:53

Parameter	Result	Qualifier	Units	RL	MDL
Saturated Hydrocarbons by GC-FID - Mansfield Lab for sample(s): 11 Batch: WG1733207-1					
n-Tritriacontane (C33)	ND		mg/l	0.025	0.003
n-Tetratriacontane (C34)	ND		mg/l	0.025	0.004
n-Pentatriacontane (C35)	ND		mg/l	0.025	0.004
n-Hexatriacontane (C36)	ND		mg/l	0.025	0.003
n-Heptatriacontane (C37)	ND		mg/l	0.025	0.005
n-Octatriacontane (C38)	ND		mg/l	0.025	0.005
n-Nonatriacontane (C39)	ND		mg/l	0.025	0.004
n-Tetracontane (C40)	ND		mg/l	0.025	0.004
Total Petroleum Hydrocarbons (C9-C44)	ND		mg/l	0.825	0.139
Total Saturated Hydrocarbons	0.022	J	mg/l	0.025	0.001

Surrogate	%Recovery	Qualifier	Acceptance Criteria
ortho-terphenyl	96		50-130
d50-Tetracosane	94		50-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Saturated Hydrocarbons by GC-FID - Mansfield Lab Associated sample(s): 01-10 Batch: WG1732624-2 WG1732624-3								
Nonane (C9)	81		87		50-130	7		30
n-Decane (C10)	85		95		50-130	11		30
n-Dodecane (C12)	93		100		50-130	7		30
n-Tetradecane (C14)	91		100		50-130	9		30
n-Hexadecane (C16)	99		109		50-130	10		30
n-Octadecane (C18)	95		105		50-130	10		30
n-Nonadecane (C19)	93		102		50-130	9		30
n-Eicosane (C20)	92		102		50-130	10		30
n-Docosane (C22)	93		102		50-130	9		30
n-Tetracosane (C24)	96		105		50-130	9		30
n-Hexacosane (C26)	93		102		50-130	9		30
n-Octacosane (C28)	91		101		50-130	10		30
n-Triacontane (C30)	91		99		50-130	8		30
n-Hexatriacontane (C36)	88		88		50-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
ortho-terphenyl	98		99		50-130
d50-Tetracosane	95		96		50-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002
Lab Number: L2271579
Report Date: 01/26/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Saturated Hydrocarbons by GC-FID - Mansfield Lab Associated sample(s): 11 Batch: WG1733207-2 WG1733207-3								
Nonane (C9)	77		79		50-130	3		30
n-Decane (C10)	83		79		50-130	5		30
n-Dodecane (C12)	87		88		50-130	1		30
n-Tetradecane (C14)	92		88		50-130	4		30
n-Hexadecane (C16)	104		109		50-130	5		30
n-Octadecane (C18)	102		108		50-130	6		30
n-Nonadecane (C19)	96		102		50-130	6		30
n-Eicosane (C20)	96		102		50-130	6		30
n-Docosane (C22)	98		104		50-130	6		30
n-Tetracosane (C24)	100		108		50-130	8		30
n-Hexacosane (C26)	98		106		50-130	8		30
n-Octacosane (C28)	98		105		50-130	7		30
n-Triacontane (C30)	98		105		50-130	7		30
n-Hexatriacontane (C36)	87		93		50-130	7		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
ortho-terphenyl	97		101		50-130
d50-Tetracosane	95		101		50-130

INORGANICS
&
MISCELLANEOUS

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-01	Date Collected:	12/20/22 09:10
Client ID:	TG02-MW-03-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.821		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-02	Date Collected:	12/20/22 13:15
Client ID:	TG02-MW-04-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.792		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-03 Date Collected: 12/20/22 13:30
Client ID: TG02-MW-05-221220 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.776		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-04
Date Collected: 12/19/22 09:05
Client ID: TG02-MW-06-221219
Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.791		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-05
Client ID: TG02-MW-08-221220
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/20/22 10:30
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.808		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-06 Date Collected: 12/19/22 11:30
Client ID: TG02-MW-09-221219 Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.774		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-08
Client ID: TG02-MW-11-221219
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 12/19/22 12:00
Date Received: 12/20/22
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.766		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF.
Lab Number: L2271579
Project Number: P044.001.002
Report Date: 01/26/23

SAMPLE RESULTS

Lab ID: L2271579-09
Date Collected: 12/20/22 12:35
Client ID: TG02-MW-12-221220
Date Received: 12/20/22
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.787		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name:	FORMER PHILADELPHIA REF.	**Lab Number:**	L2271579
Project Number:	P044.001.002	**Report Date:**	01/26/23

SAMPLE RESULTS

Lab ID:	L2271579-10	Date Collected:	12/20/22 12:00
Client ID:	TG02-MW-15-221220	Date Received:	12/20/22
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Oil
Percent Solids: Results reported on an 'AS RECEIVED' basis.

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab										
Density	0.800		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579

Project Number: P044.001.002 **Report Date:** 01/26/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Mansfield Lab for sample(s): 01-06,08-10 Batch: WG1732840-1										
Density	1.02		g/ml	0.001	NA	1	-	01/12/23 00:00	121,2520C	ALL

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Mansfield Lab Associated sample(s): 01-06,08-10 QC Batch ID: WG1732840-2 QC Sample: L2271579-01 Client ID: TG02-MW-03-221220						
Density	0.821	0.816	g/ml	1		10

Project Name: FORMER PHILADELPHIA REF.
Project Number: P044.001.002

Lab Number: L2271579
Report Date: 01/26/23

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2271579-01A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-01B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-01C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-01X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-01Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-02A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-02B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-02C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-02X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-02Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-03A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-03B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-03C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-03X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-03Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-04A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-04B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-04C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-04X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-04Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-05A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2271579-05B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-05C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-05X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-05Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-06A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-06B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-06C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-06X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-06Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-07A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365),A2-SHC(365),A2-ALKPAH/BIOMARKER(365)
L2271579-07X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-07Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-08A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-08B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-08C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-08X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-08Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-09A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-09B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-09C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-09X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-09Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-10A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(365)
L2271579-10B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ORGLEAD(365),A2-DENSITY-2520C(365),A2-ALKPAH/BIOMARKER(365)
L2271579-10C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-10X	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2271579-10Y	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(365)
L2271579-11A	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-SHC(7)
L2271579-11B	Glass 60mL/2oz unpreserved	A	NA		6.0	Y	Absent		A2-ALKPAH/BIOMARKER(7)
L2271579-11C	Vial unpreserved	A	NA		6.0	Y	Absent		A2-PIANO8260(14)
L2271579-11X	Vial HCl preserved	NA	NA			Y	Absent		A2-PIANO8260(14)
L2271579-11Y	Vial HCl preserved	NA	NA			Y	Absent		A2-PIANO8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Project Name: FORMER PHILADELPHIA REF. **Lab Number:** L2271579
Project Number: P044.001.002 **Report Date:** 01/26/23

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb**,** As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 12/21/22

ALPHA Job #: L2271579

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 1100 E. Hector Street Suite 400
Phone: 570 447 -0558
Fax:
Email: ~~nscala~~ nick.scala@terraphase.com EDD@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Ref.
Project Location: 3144 W Passyunk Ave
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL Equis
☐ ADEx ☐ Add'l Deliverables EDD

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
1. Where not enough volume, please prioritize PIANO VOCs.
2. After, complete Org. Lead/PAHs/Sat Hydro.
3. Density is least important.

ANALYSIS: Piano VOCs - 8260D; Organic lead - 8270ESIM Mod; Alkylated PAHs + biomarkers; Saturated Hydrocarbons 8015D (M); Density

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Piano VOCs	Organic lead	Alkylated PAHs	Sat. Hydrocarbons	Density	Sample Specific Comments	Total # Bottles
1579-01	TG02-MW-03-221220	12/20/22	0910	NAPL	AJB	X	X	X	X	X	Low Volume	2
-02	TG02-MW-04-221220	12/20/22	1315	NAPL	AJB	X	X	X	X	X		3
-03	TG02-MW-05-221220	12/20/22	1330	NAPL	AJB	X	X	X	X	X		3
-04	TG02-MW-06-221219	12/19/22	0905	NAPL	AJB	X	X	X	X	X		3
-05	TG02-MW-08-221220	12/20/22	1030	NAPL	AJB	X	X	X	X	X		3
-06	TG02-MW-09-221219	12/19/22	1130	NAPL	AJB	X	X	X	X	X		3
-07	TG02-MW-10-221220	12/20/22	0955	NAPL	AJS	X	X	X	X	X	Low volume	1
-08	TG02-MW-11-221219	12/19/22	1200	NAPL	KJO	X	X	X	X	X		3
-09	TG02-MW-12-221220	12/20/22	1235	NAPL	AJB	X	X	X	X	X		3
-10	TG02-MW-15-221220	12/20/22	1200	NAPL	AJB	X	X	X	X	X		3

Container Type
Preservative

SAMPLE HANDLING
Filtration ______
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12/20/22 14:45	[signature]	12/20/22 14:45
[signature]	12/20/22 1830	[signature] AAL	12/20/22 1830
[signature]	12/20/22 2100	[signature]	12-20-22 2100

12-20-22

12/21/22 0038

12/21/22 0010

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Date Rec'd in Lab: 12/21/22

ALPHA Job #: L2271579

Client Information

Client: Terraphase Engineering

Address: 1100 E. Hector Street Suite 400

Phone: 570-447-0558

Fax:

Email: nick.scala@terraphase.com EDD@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila

Project Location: 3144 W. Passyunk Ave

Project #: P044.001.002

Project Manager: Nick Scala

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL Excel's

☐ ADEx ☐ Add'l Deliverables EDD

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

1. When not enough sample volume, please prioritize PIANO VOCs
2. After, complete org. Lead / PAH's / saturated Hydro.
3. Density is least important

ANALYSIS: Piano VOCs - 8260D; Organic lead - 8270E Sim Mod; Alkylated PAH + Biomarkers; Saturated Hydrocarbons - 8015D (m); Density

SAMPLE HANDLING

Filtration ________
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Piano VOCs - 8260D	Organic lead - 8270E Sim Mod	Alkylated PAH + Biomarkers	Saturated Hydrocarbons - 8015D (m)	Density	Sample Specific Comments	TOTAL # BOTTLES
	TG02-MW-17-221219	12/19/22	1525	NAPL/S	ATB	X	X	X	X	X	Sampled Rag included 3 Sample if necessary.	

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12/20/22 14:45	[signature] AAL	12/20/22 1445
[signature] AAL	12/20/22 1800	[signature] AAL	12/20/22 1800
[signature] AAL	12/20/22 2100		12-20-22 2100

EMAIL 12/21/22 0330

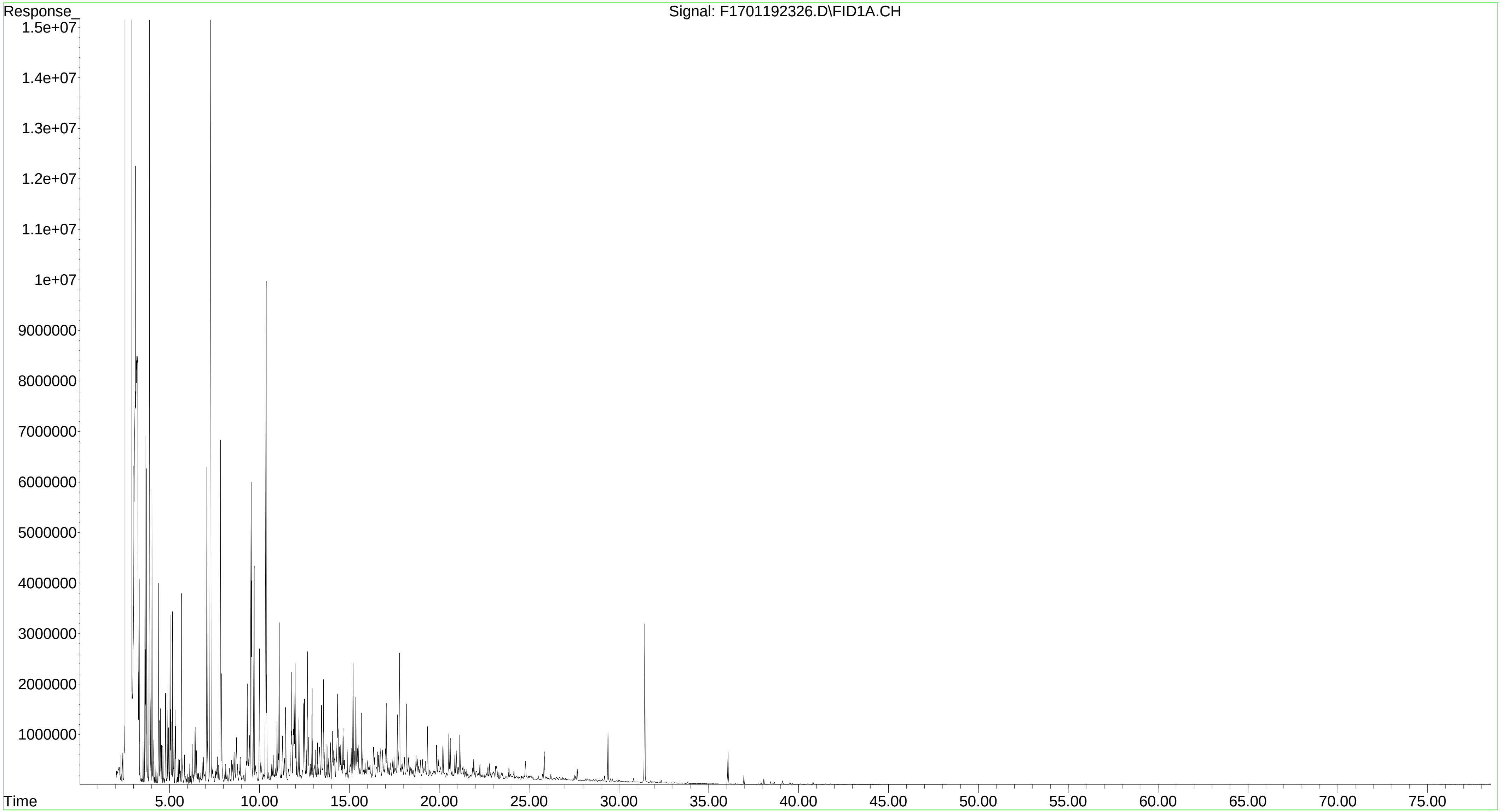
Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

12/21/22 0010 [signature] 12/21/22 0133

GC-FID Chromatogram

File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192326.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   3:51 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-01,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 13



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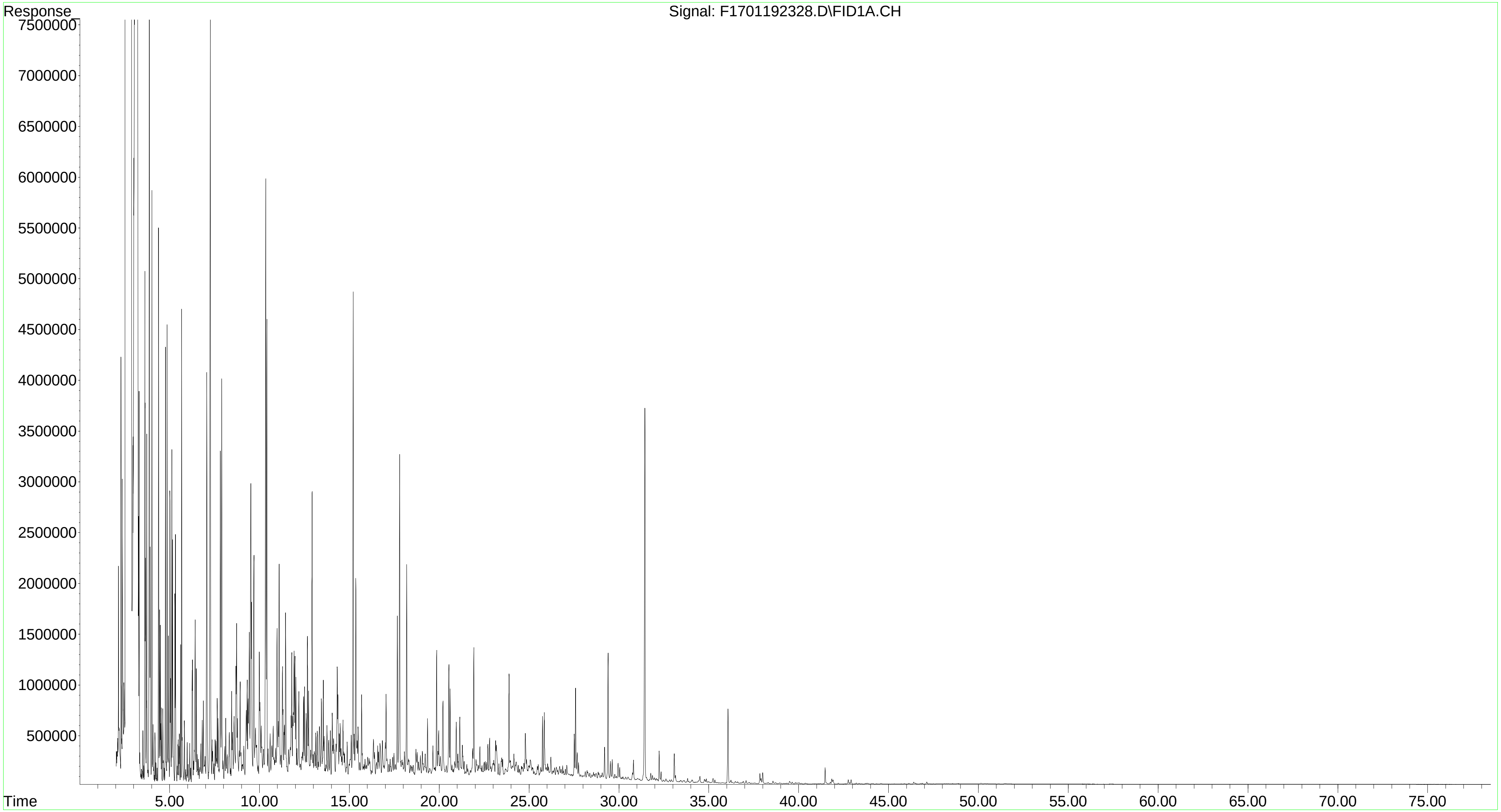
Acquired   : 20 Jan 2023   5:20 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-02,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 14



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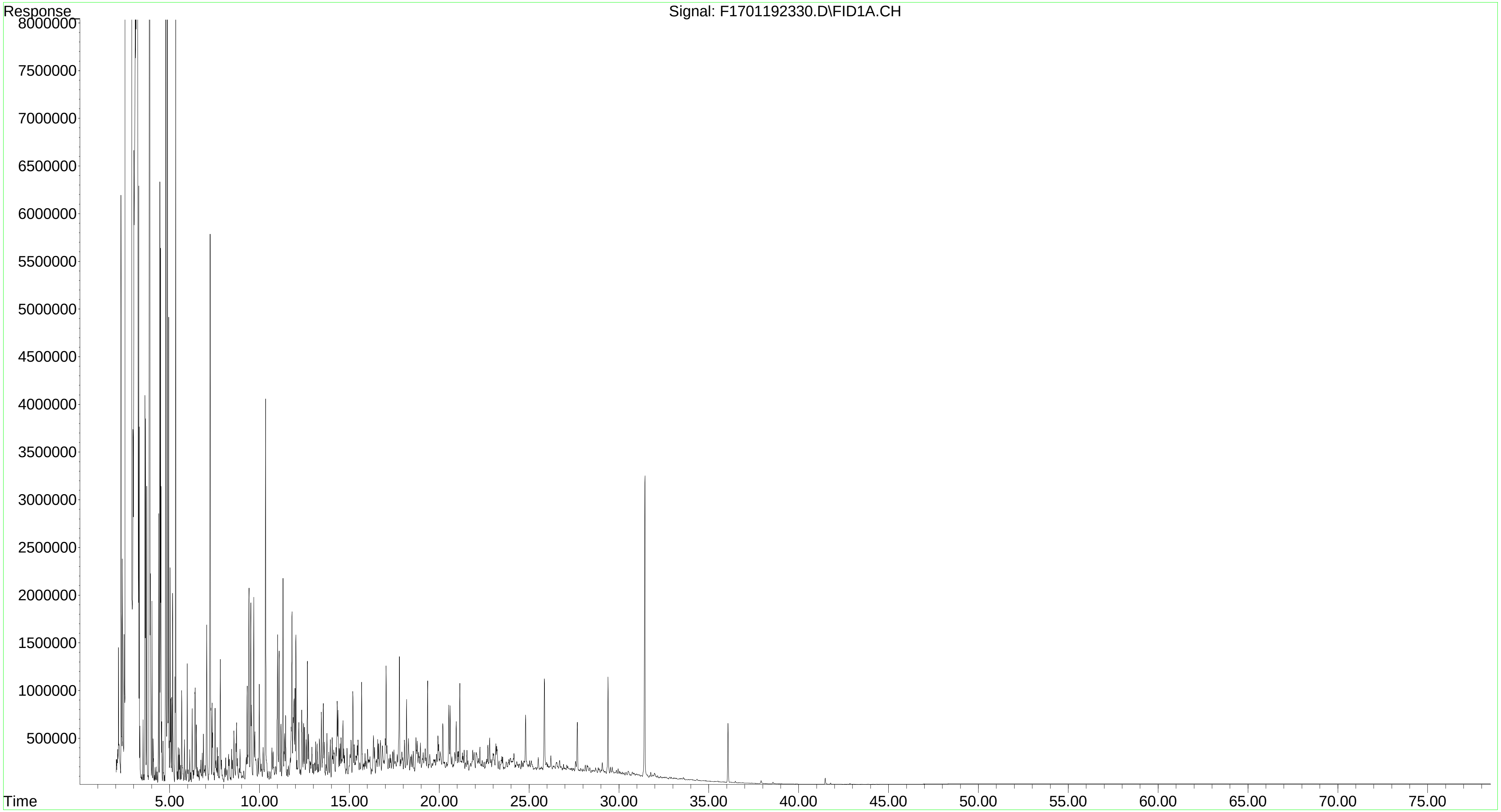
File       :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192330.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   6:50 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-03,42,,
Misc Info  : WG1732857,WG1732624,ICAL19667
Vial Number: 15
```



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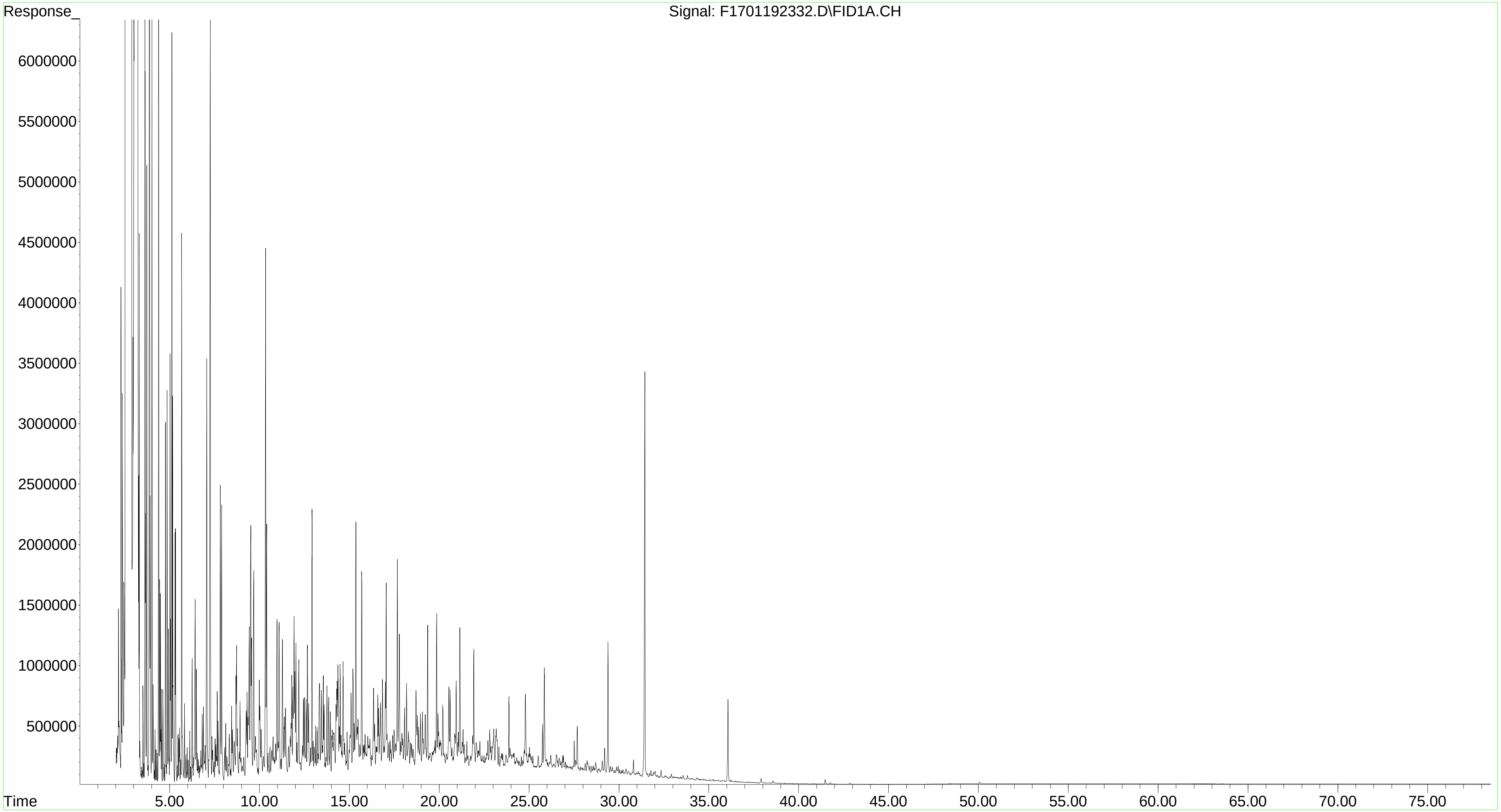
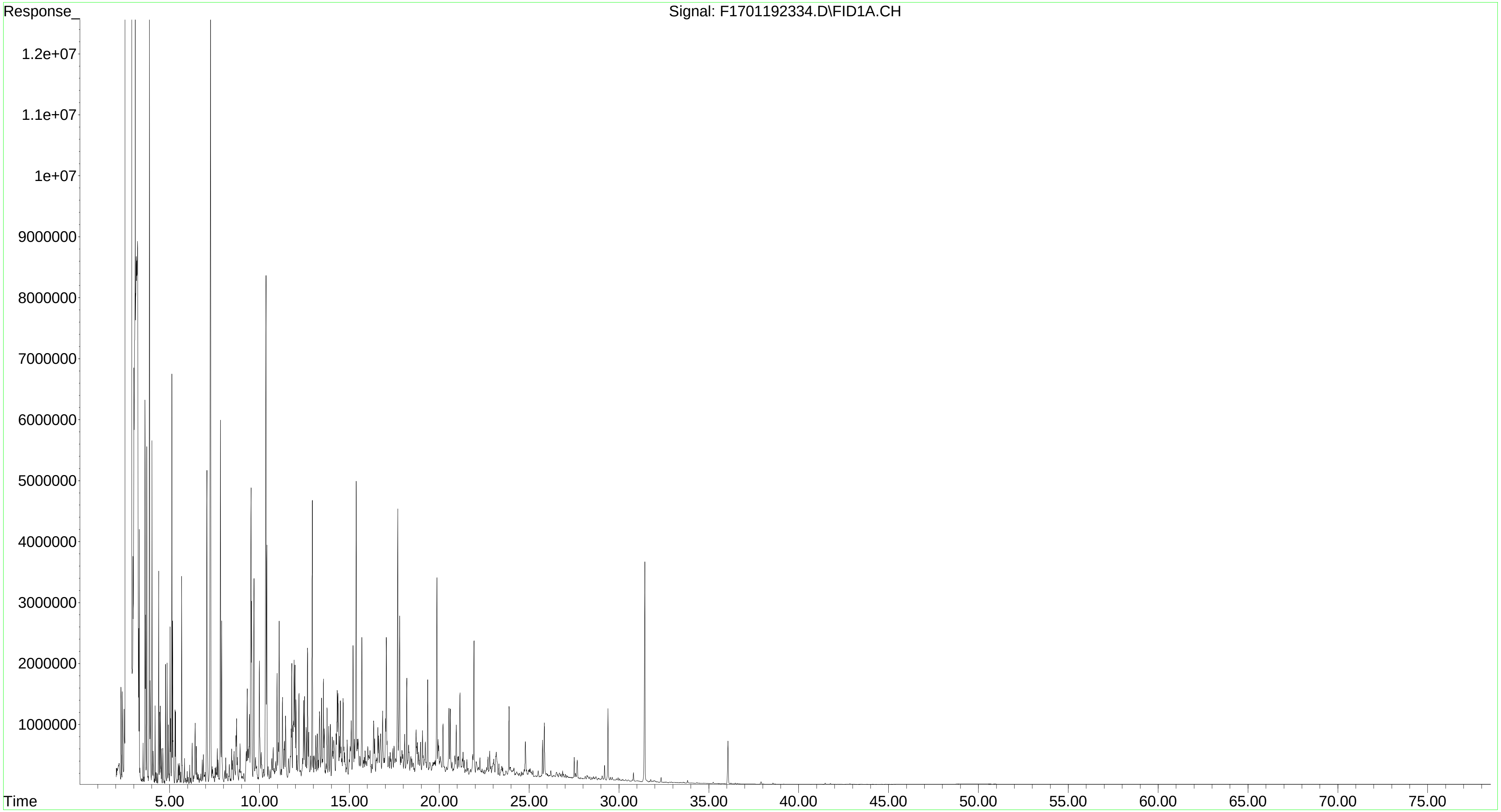
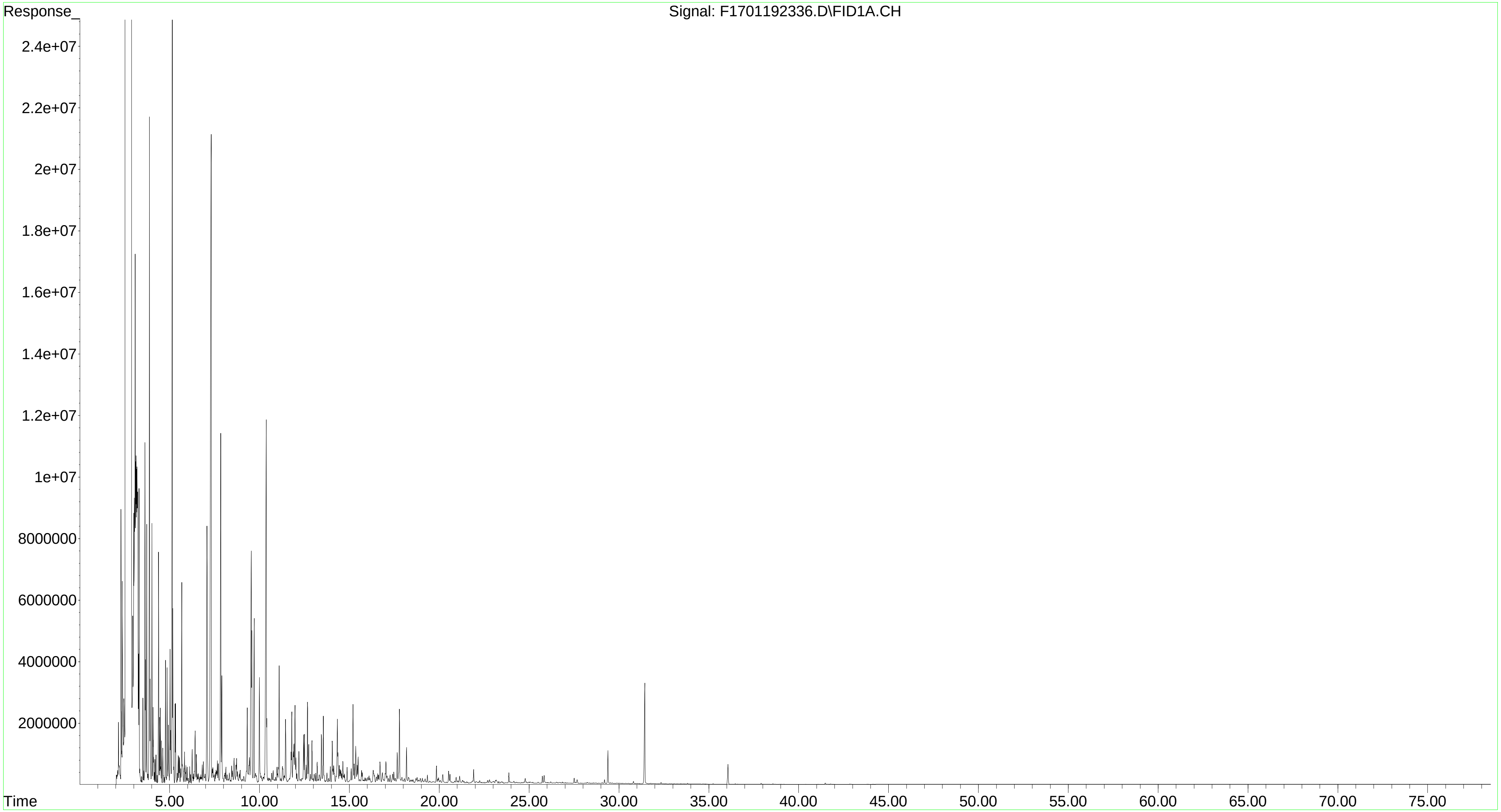
Acquired   : 20 Jan 2023   8:20 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-04,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 16



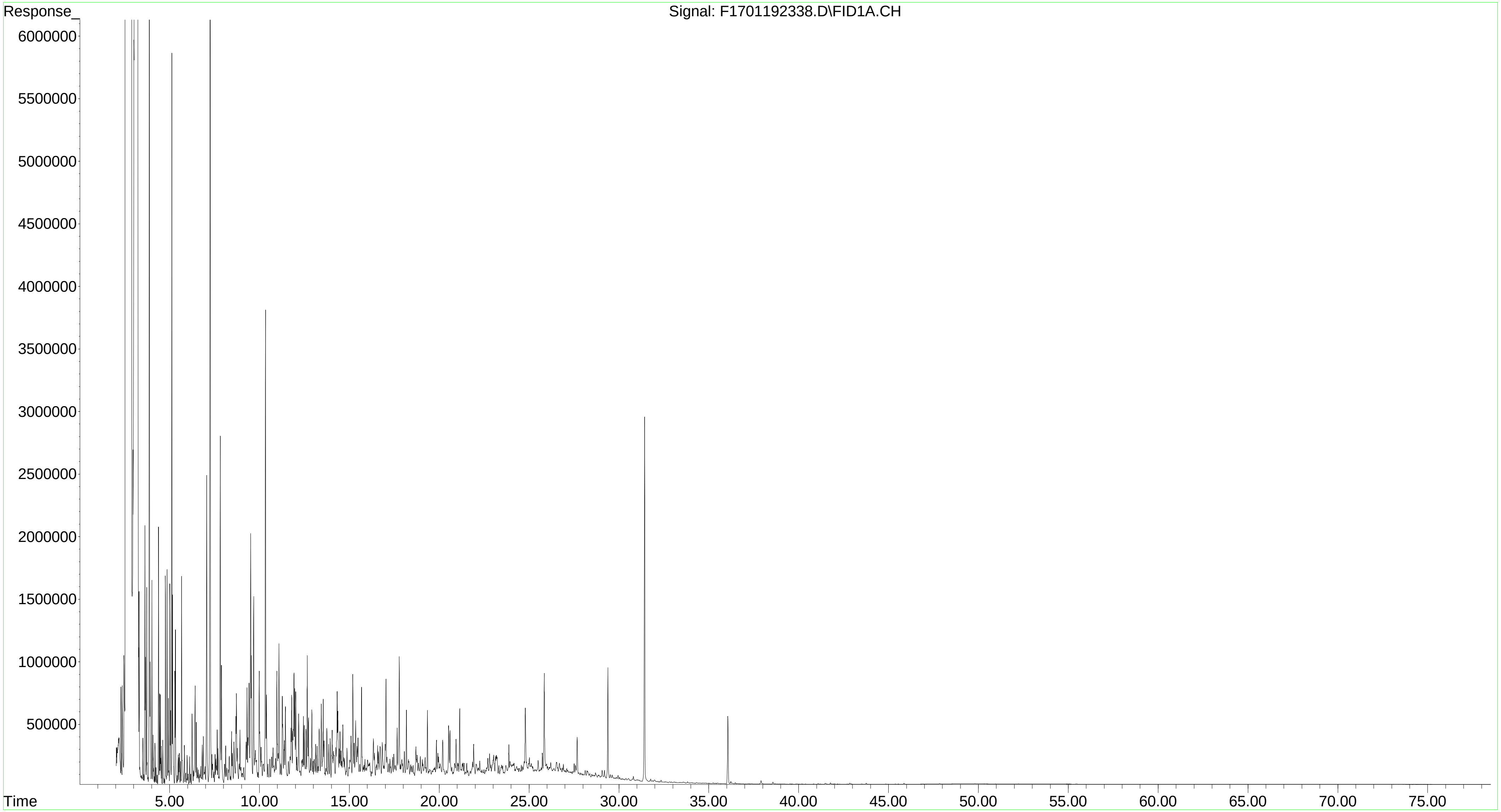
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192334.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   9:50 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-05,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 17



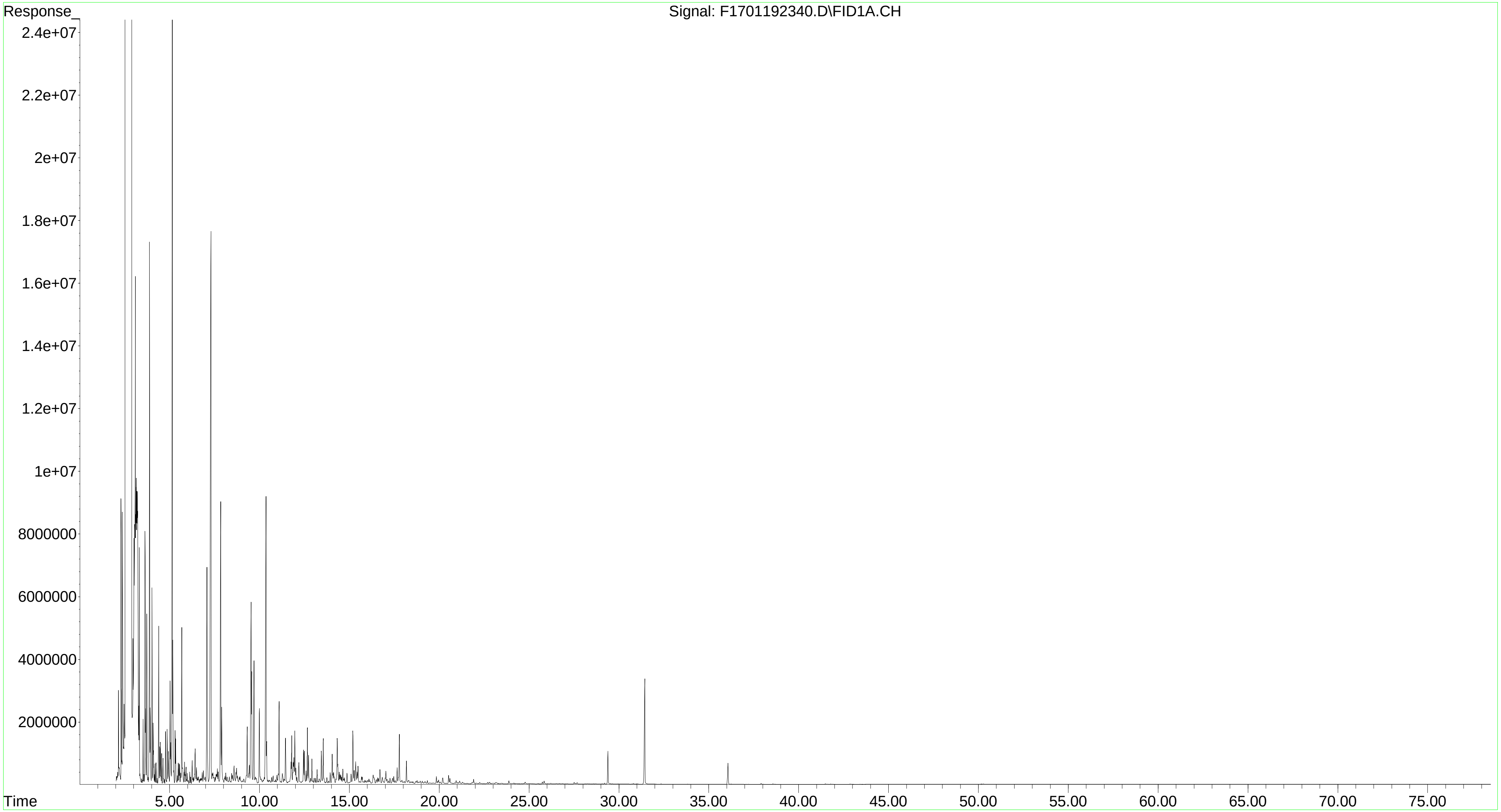
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192336.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023 11:20 am using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-06,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 18



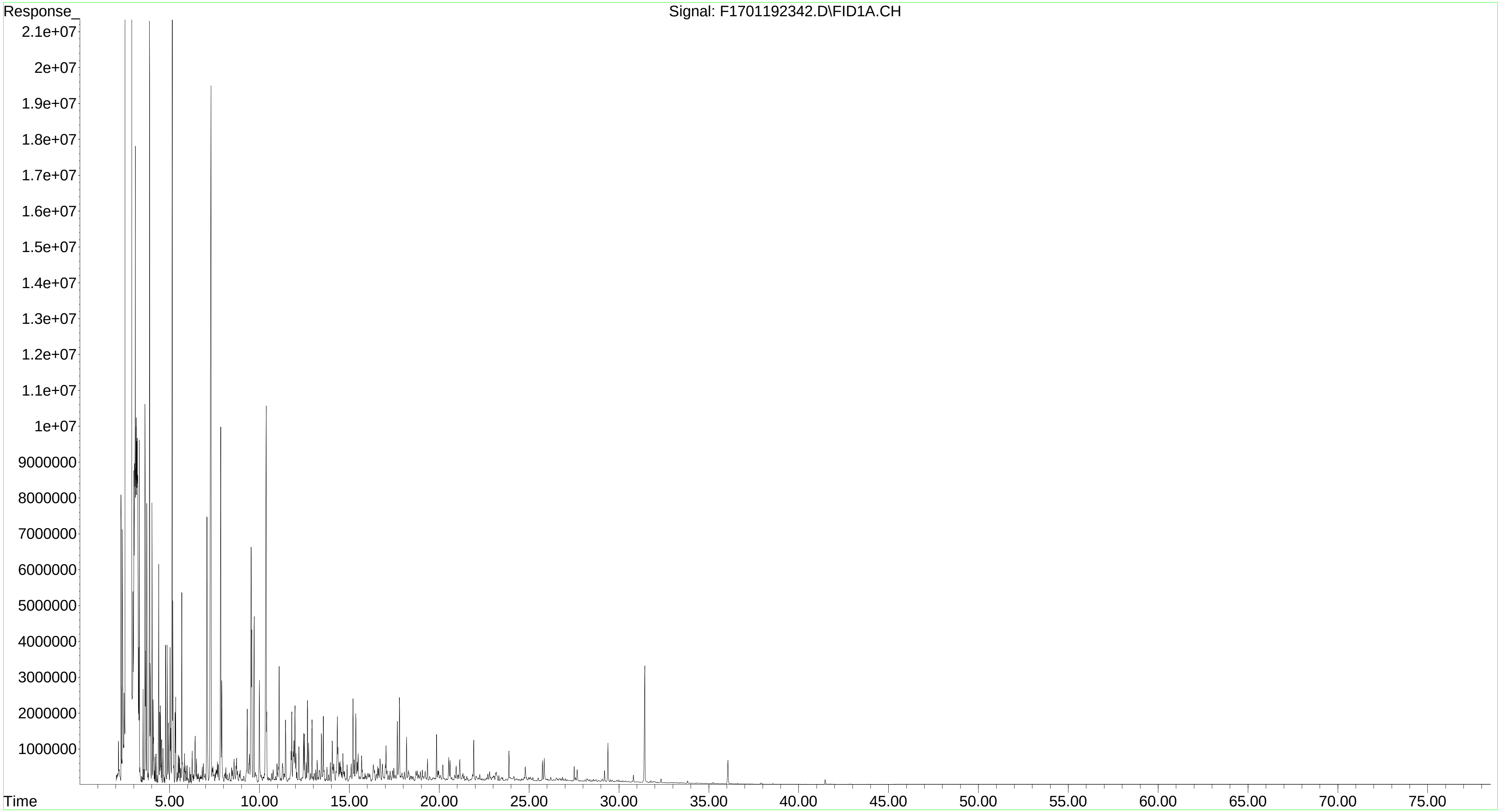
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192338.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023 12:50 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-07,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 19



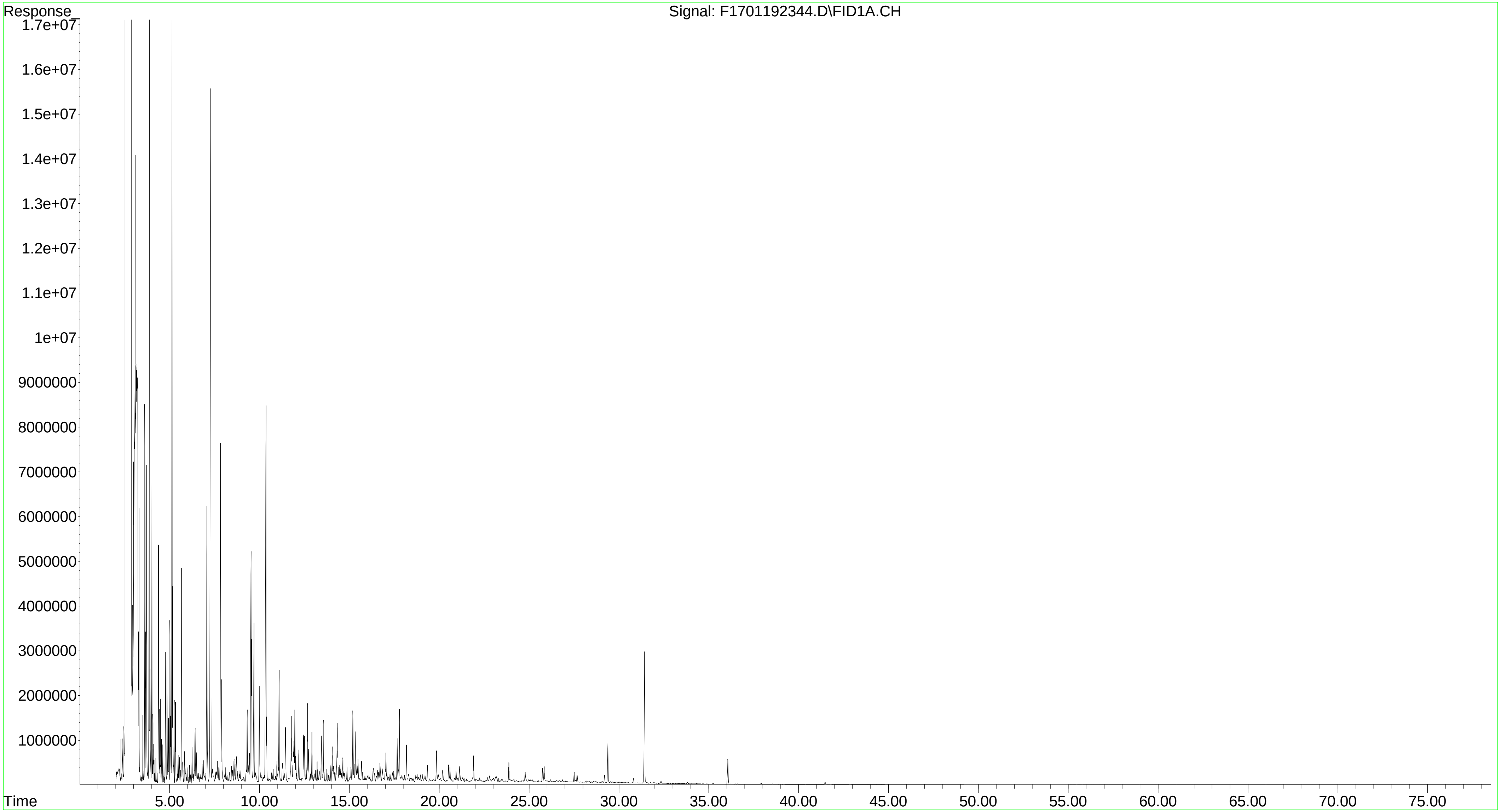
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192340.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   2:20 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-08,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 20



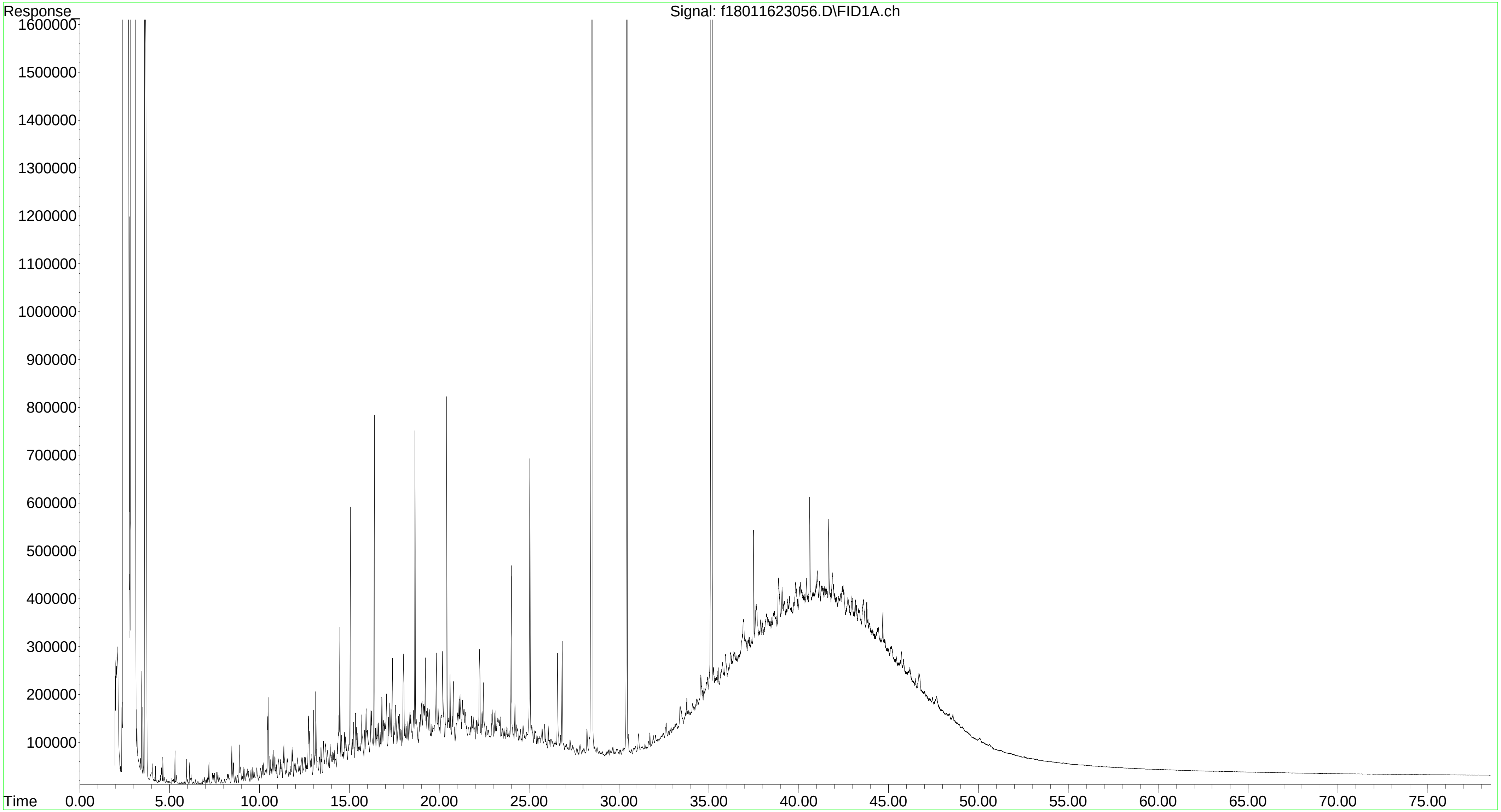
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192342.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   3:50 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-09,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 21



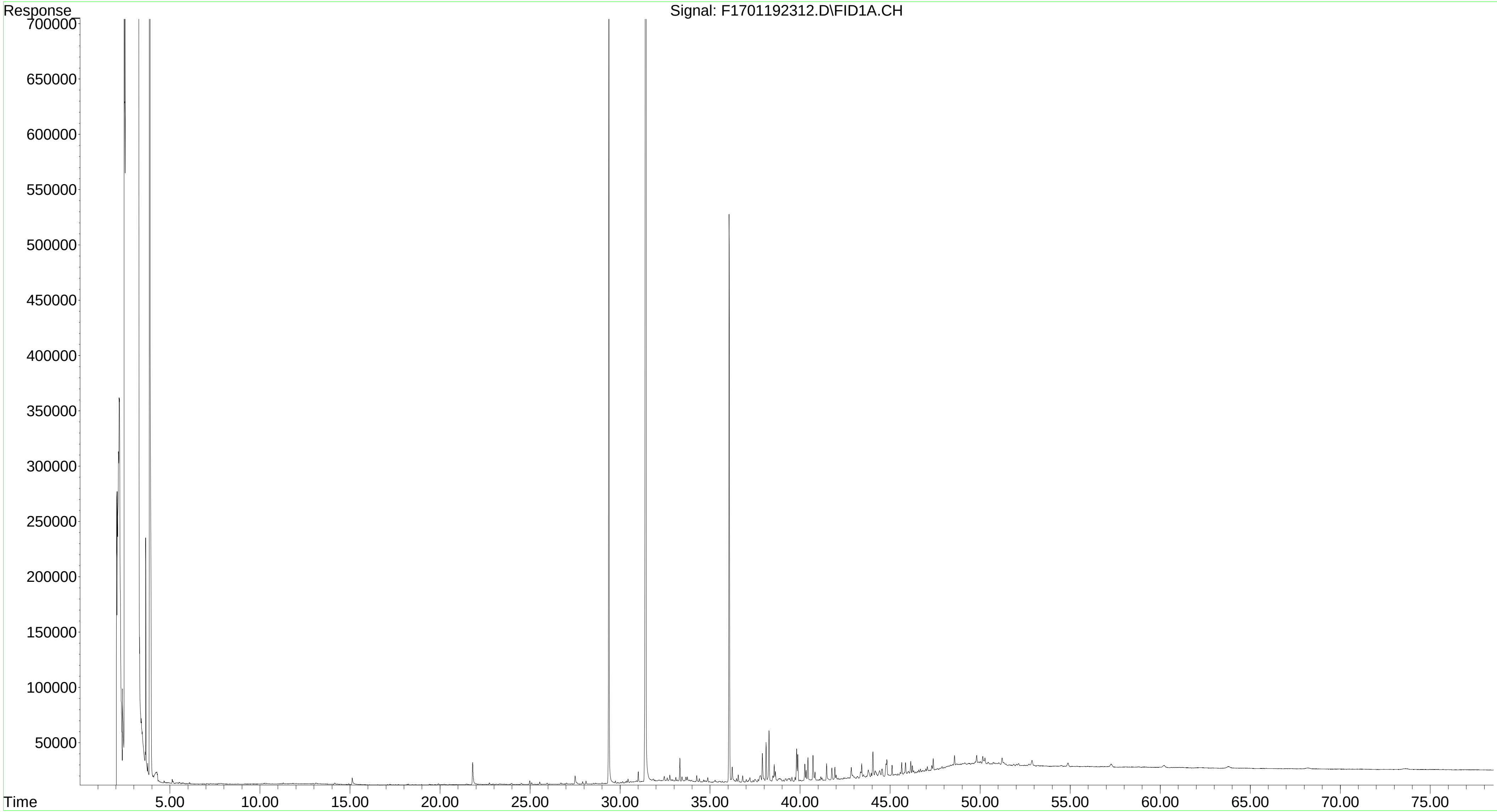
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192344.D
Operator   : FID17:WR
Acquired   : 20 Jan 2023   5:20 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: l2271579-10,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 22



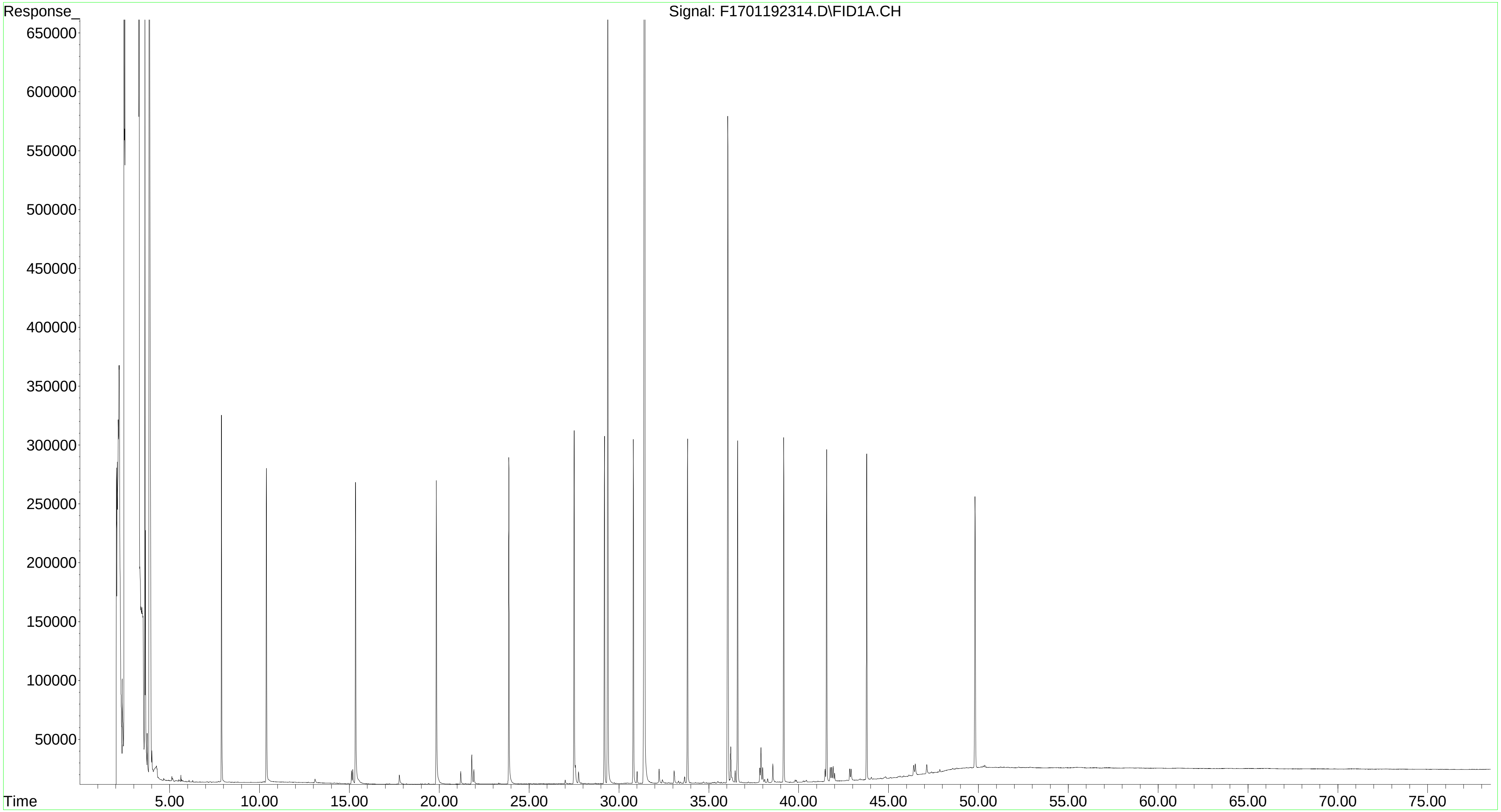
File   :O:\Forensics\Data\FID18\2023\JAN\JAN16\f18011623056.D
Operator   : FID18:WR
Acquired   : 18 Jan 2023 03:45 am using AcqMethod FID18.M
Instrument :   FID 18
Sample Name: l2271579-11,42,,
Misc Info : WG1733947,WG1733207,ICAL19428
Vial Number: 28



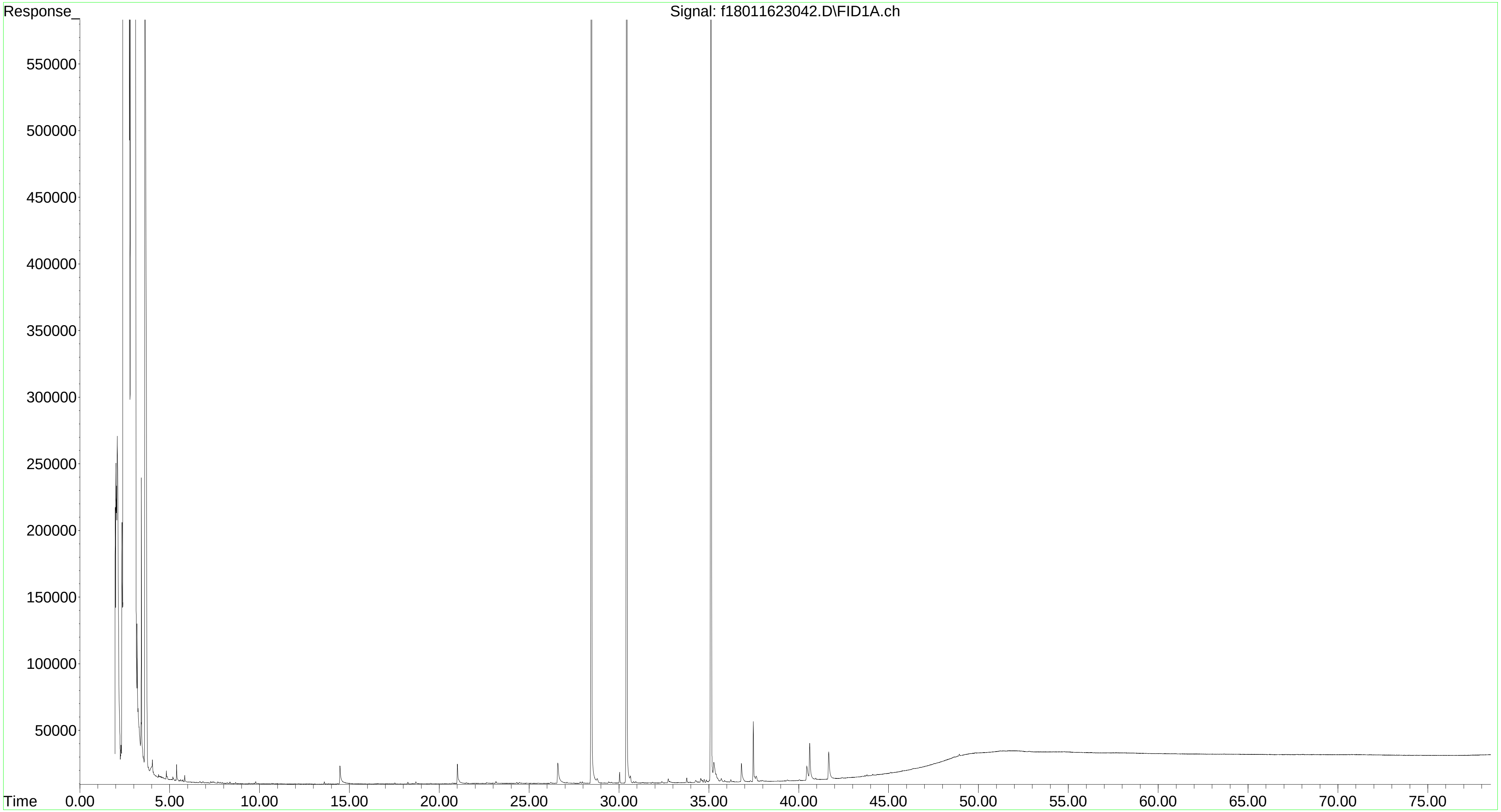
```
File       :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192312.D
Operator   : FID17:WR
Acquired   : 19 Jan 2023   5:22 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: WG1732624-1,42,,
Misc Info  : WG1732857,WG1732624,ICAL19667
Vial Number: 6
```



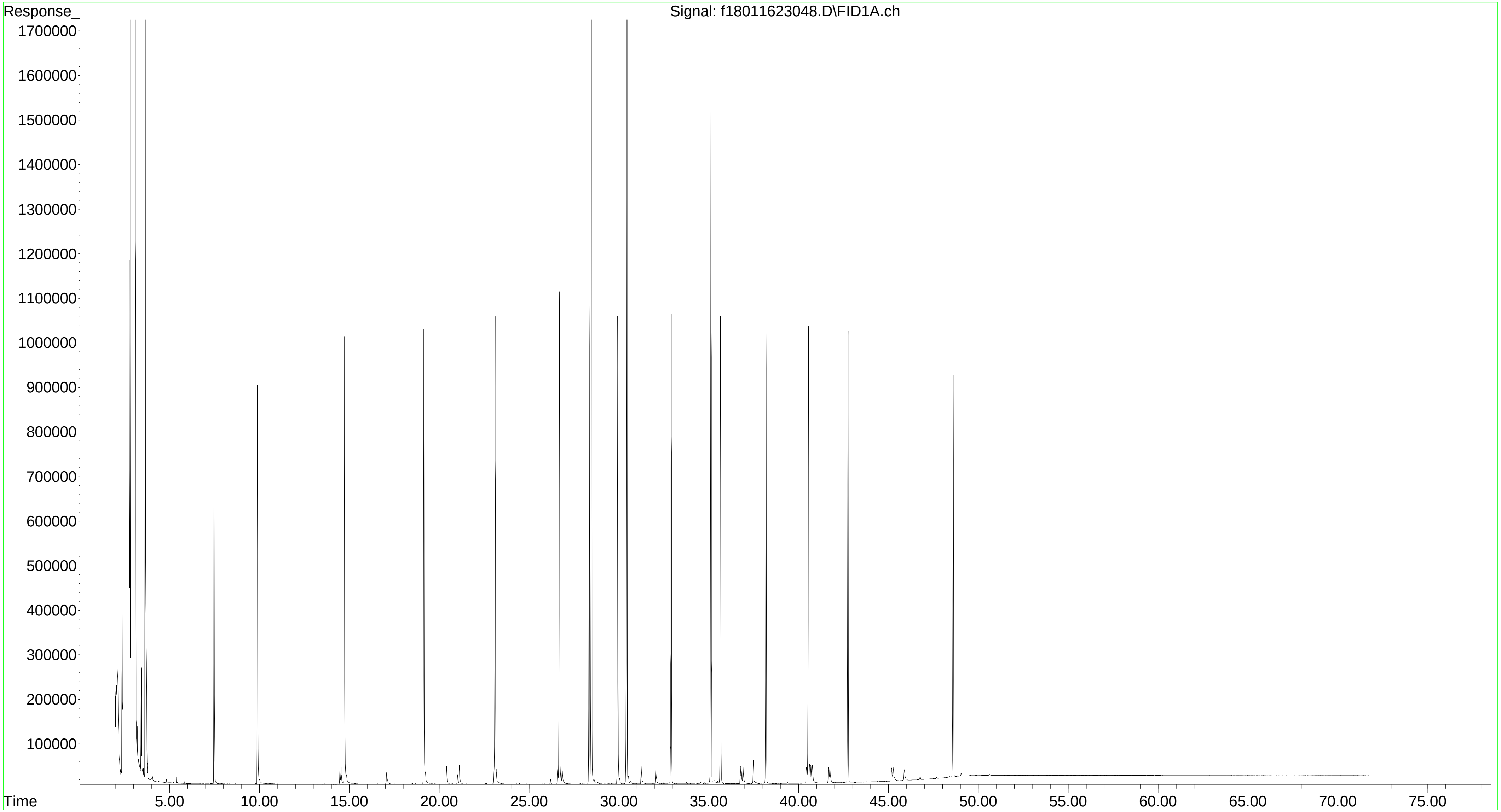
File   :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192314.D
Operator   : FID17:WR
Acquired   : 19 Jan 2023   6:52 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: wg1732624-2,42,,
Misc Info : WG1732857,WG1732624,ICAL19667
Vial Number: 7



File   :O:\Forensics\Data\FID18\2023\JAN\JAN16\f18011623042.D
Operator   : FID18:WR
Acquired   : 17 Jan 2023 05:42 pm using AcqMethod FID18.M
Instrument :   FID 18
Sample Name: WG1733207-1,42,,
Misc Info : WG1733947,WG1733207,ICAL19428
Vial Number: 21

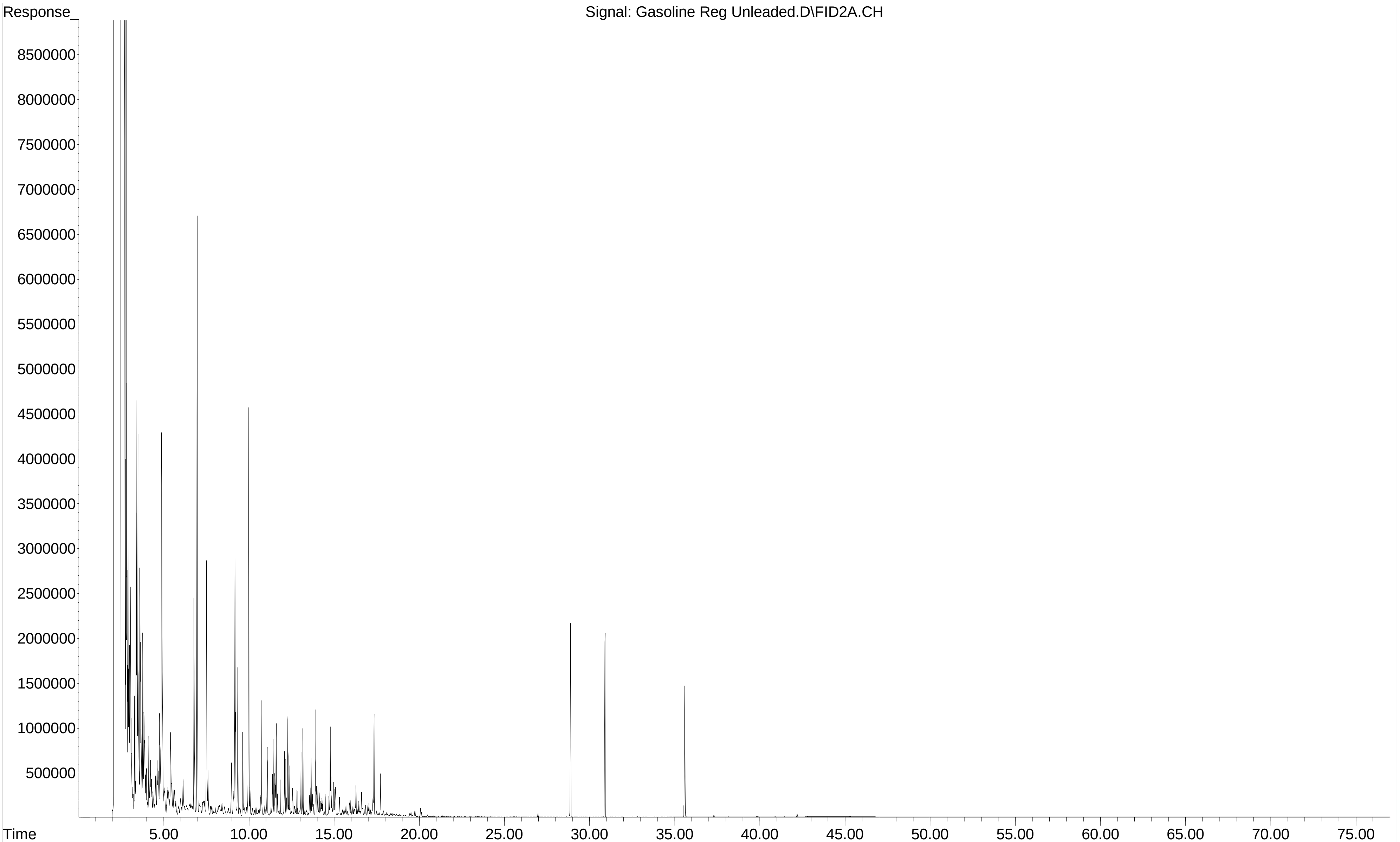


File   :O:\Forensics\Data\FID18\2023\JAN\JAN16\f18011623048.D
Operator   : FID18:WR
Acquired   : 17 Jan 2023 10:00 pm using AcqMethod FID18.M
Instrument :   FID 18
Sample Name: WG1733207-2,42,,
Misc Info : WG1733947,WG1733207,ICAL19428
Vial Number: 24

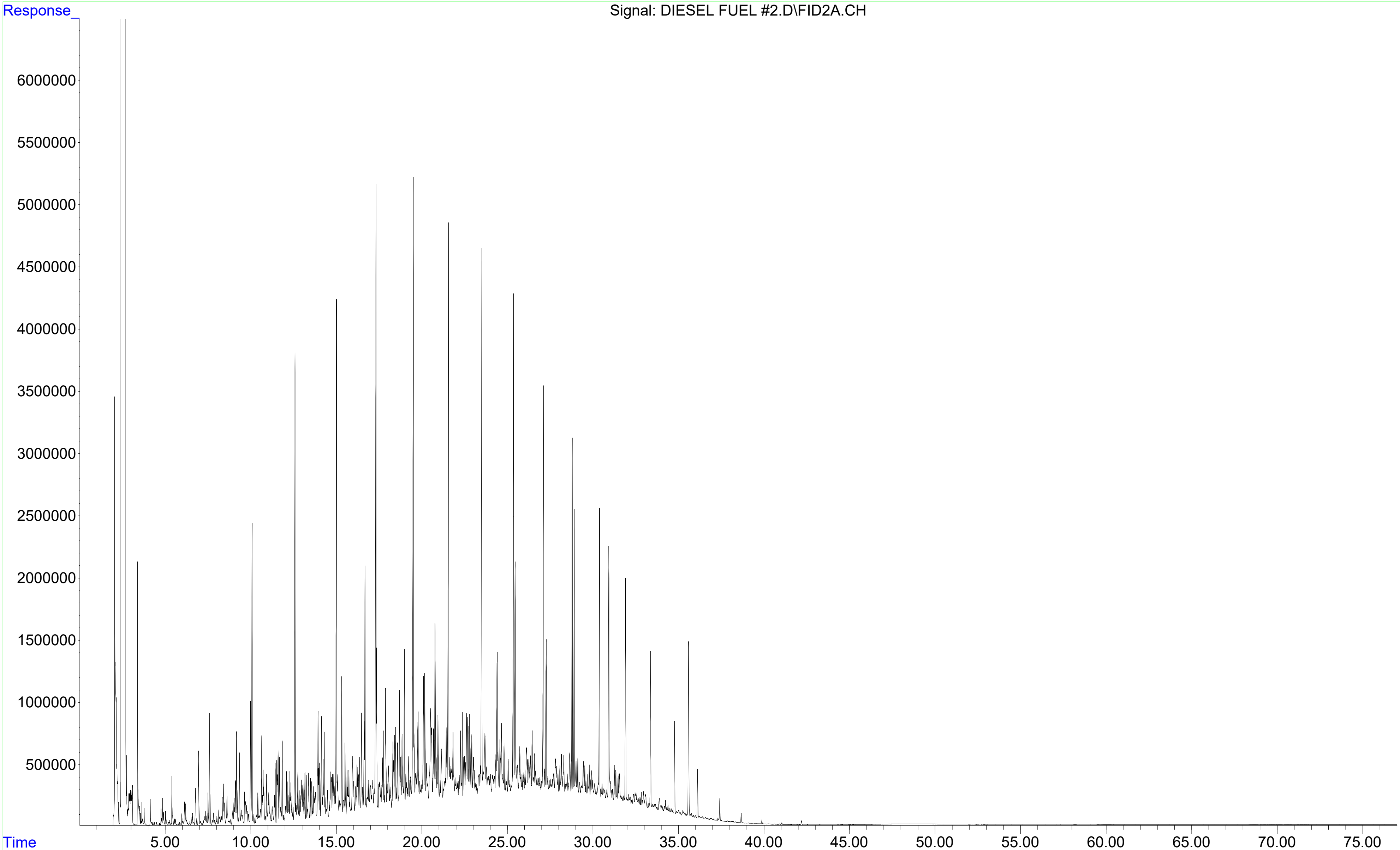


Petroleum Reference Standards

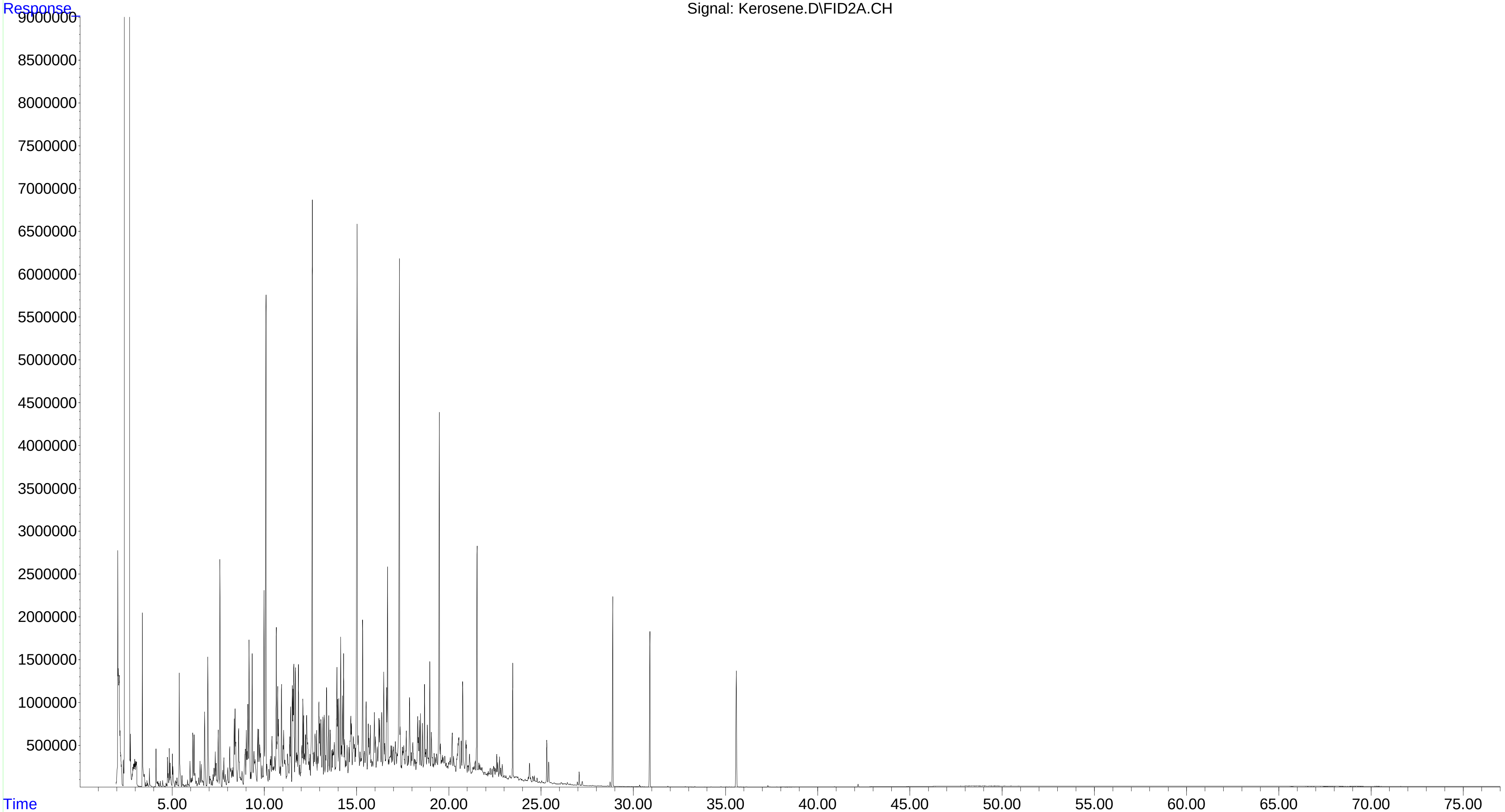
```
File       :O:\Forensics\Data\LIBRARY\Hydrocarbon Reference Standards\Ga
...         soline Reg Unleaded.D
Operator   : PAH2:AC
Instrument :   PAH 2
Acquired   : 19 Nov 2011   8:47 am using AcqMethod FRNC2AF.M
Sample Name: Gasoline Regular Unleaded
Misc Info  : F050410I
```



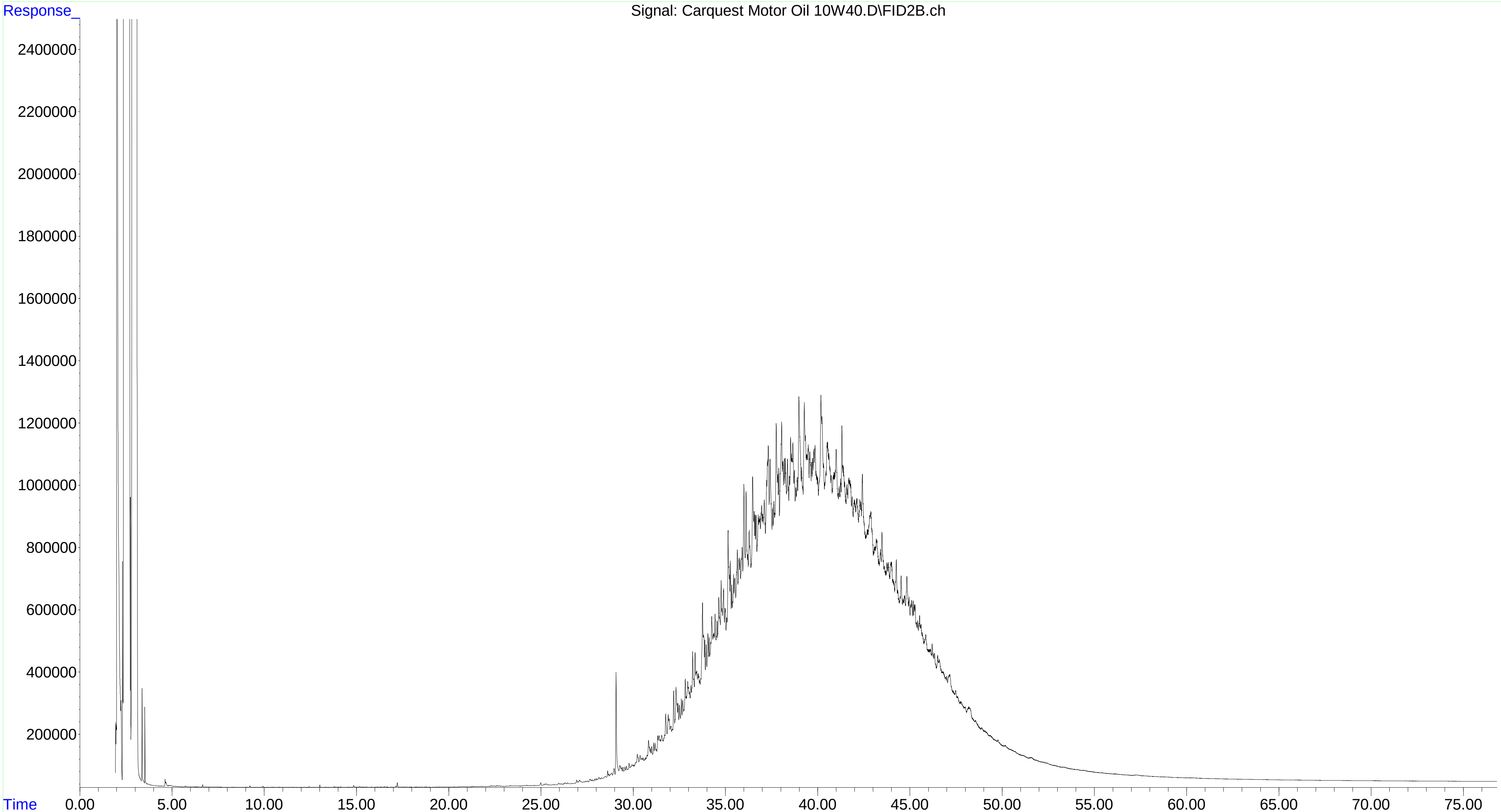
```
File       :O:\FORENSICS\LIBRARY\HYDROCARBON REFERENCE STANDARDS\DIESEL
...         FUEL #2.D
Operator  : PAH2:AC
Instrument :   PAH 2
Acquired  : 18 Nov 2011   8:19 pm using AcqMethod FRNC2AF.M
Sample    : #2 DIESEL FUEL
Misc Info : F050410A
```



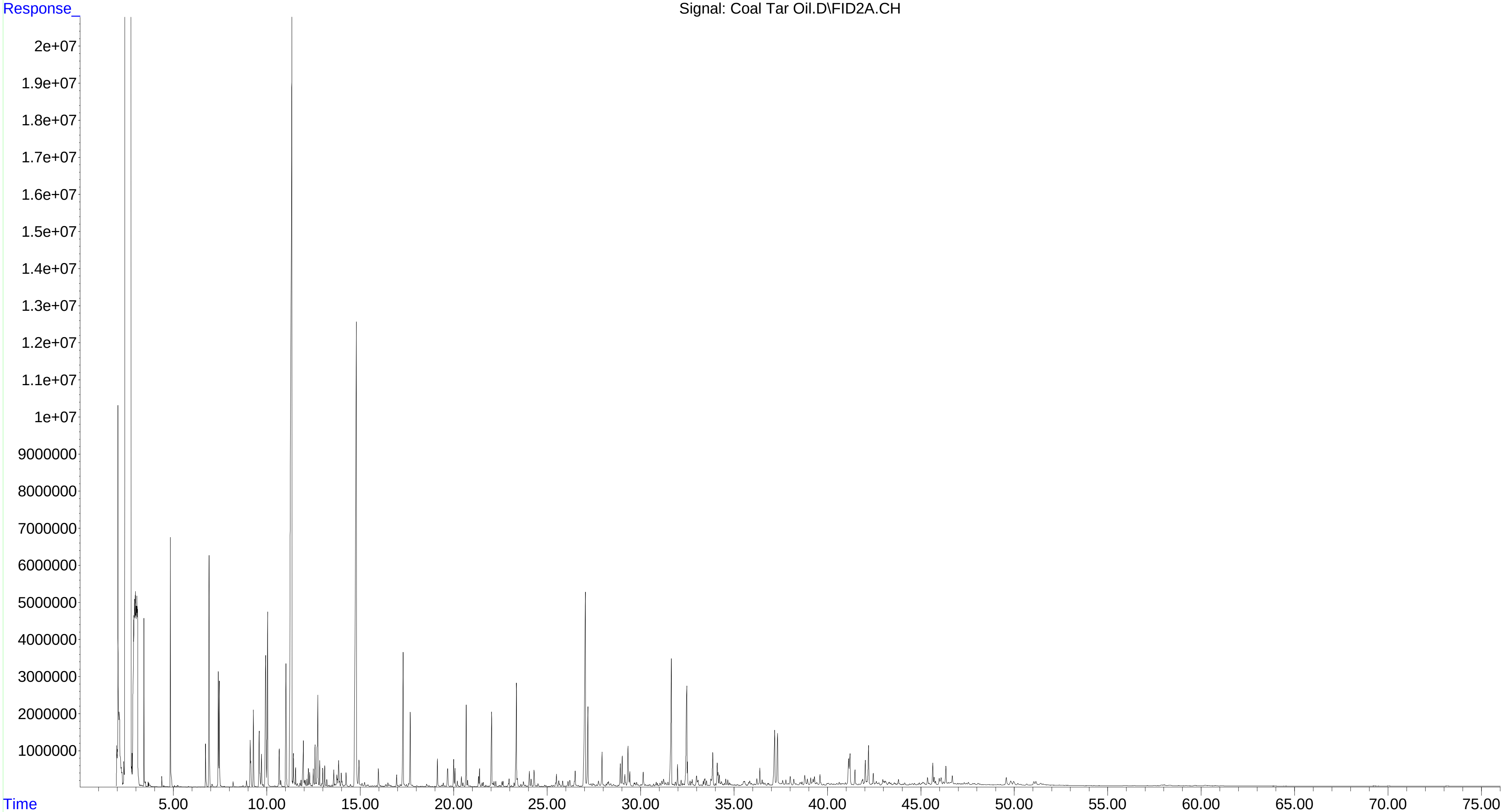
```
File       :O:\Forensics\LIBRARY\Hydrocarbon Reference Standards\Kerosen
...         e.D
Operator  : PAH2:AC
Instrument :   PAH 2
Acquired  : 21 Nov 2011   9:22 pm using AcqMethod FRNC2AF.M
Sample    : KEROSENE
Misc Info : 1X F042710G
```



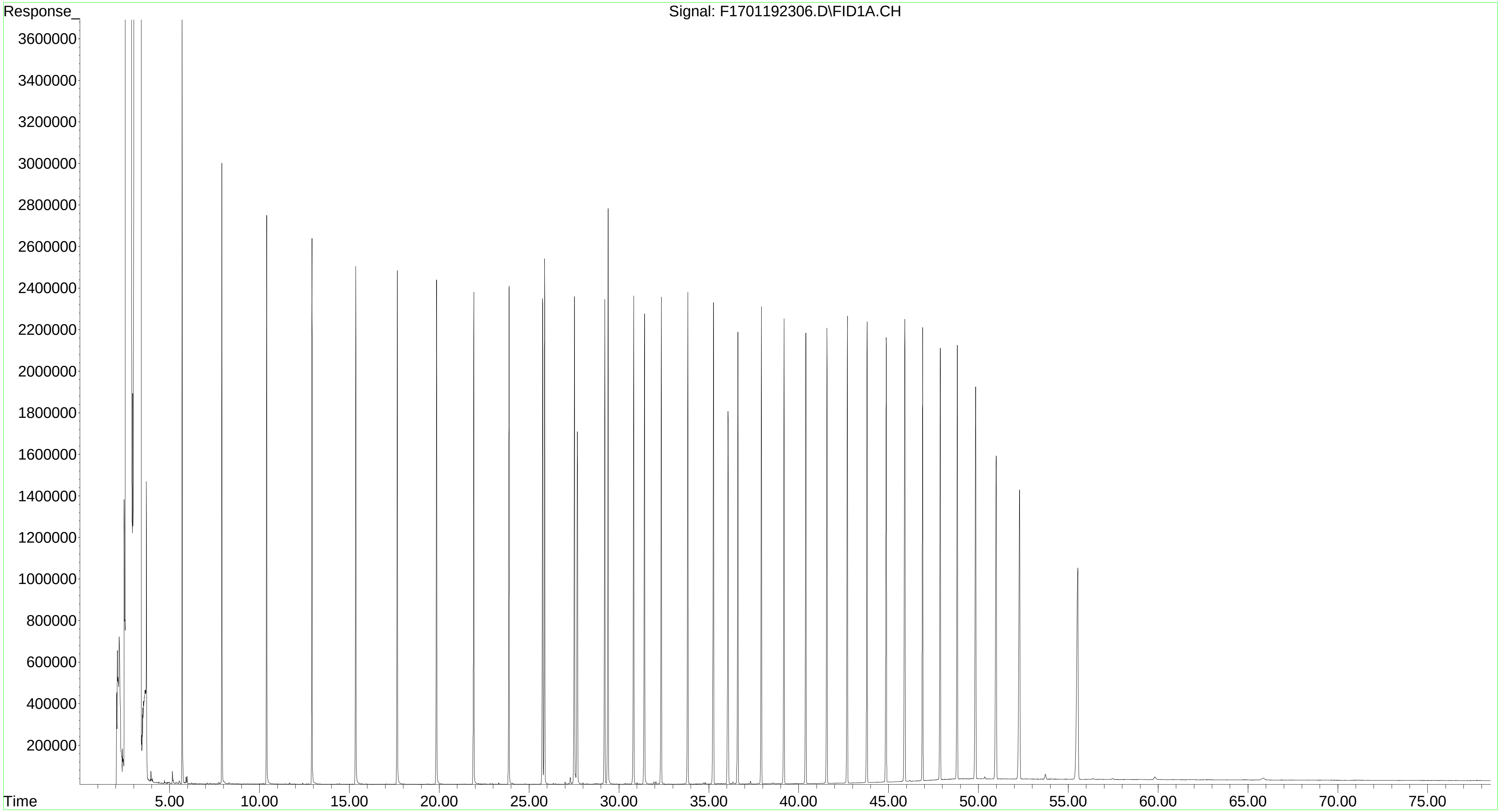
```
File       :O:\Forensics\LIBRARY\Hydrocarbon Reference Standards\Carques
...         t Motor Oil 10W40.D
Operator  : JT
Instrument :   FID 7
Acquired  :  7 Feb 2013   1:06 am using AcqMethod FID7.M
Sample    : Motor Oil 10W40
Misc Info : 1X
```



File   :O:\Forensics\Data\LIBRARY\Hydrocarbon Reference Standards\Co
...   al Tar Oil.D
Operator : DMP
Instrument :   PAH2
Acquired : 08 Aug 2013   6:49 pm using AcqMethod FRNC2A.M
Sample   : Coal Tar Oil
Misc Info : Chem Service Pz-123 (F031908K)



```
File       :O:\Forensics\Data\FID17\2023\JAN\JAN19\F1701192306.D
Operator   : FID17:WR
Acquired   : 19 Jan 2023  12:53 pm using AcqMethod FID17A.M
Instrument :   FID17
Sample Name: WG1732857-1
Misc Info  : WG1732857,FRBF60,ICAL19667
Vial Number: 3
```



ANALYTICAL REPORT

Lab Number:	L2272201
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHILADELPHIA REFINERY
Project Number:	P044.001.002
Report Date:	12/30/22

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2272201-01	TG02-MW-01-221220	WATER	3144 W PASSYUNK AVE.	12/20/22 10:25	12/22/22
L2272201-02	TB-221220-2	WATER	3144 W PASSYUNK AVE.	12/20/22 00:00	12/22/22
L2272201-03	FB-221220	WATER	3144 W PASSYUNK AVE.	12/20/22 11:00	12/22/22
L2272201-04	TG02-MW-02-221220D	WATER	3144 W PASSYUNK AVE.	12/20/22 13:10	12/22/22
L2272201-05	TG02-MW-02-221220	WATER	3144 W PASSYUNK AVE.	12/20/22 13:10	12/22/22
L2272201-06	TG02-MW-07-221220	WATER	3144 W PASSYUNK AVE.	12/20/22 16:15	12/22/22
L2272201-07	TG02-MW-14-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 10:50	12/22/22
L2272201-08	TG02-MW-13-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 11:05	12/22/22
L2272201-09	TG02-MW-18-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 14:30	12/22/22
L2272201-10	TG02-MW-16-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 15:10	12/22/22
L2272201-11	S-77P-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 17:35	12/22/22
L2272201-12	S-200-221221	WATER	3144 W PASSYUNK AVE.	12/21/22 17:25	12/22/22
L2272201-13	S-206-221222	WATER	3144 W PASSYUNK AVE.	12/22/22 10:20	12/22/22
L2272201-14	S-207-221222	WATER	3144 W PASSYUNK AVE.	12/22/22 10:50	12/22/22
L2272201-15	S-271-221222	WATER	3144 W PASSYUNK AVE.	12/22/22 13:20	12/22/22

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

Case Narrative (continued)

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

The analyses performed were specified by the client.

Volatile Organics

L2272201-03: The Field Blank has a result for Benzene present above the reporting limit. The sample was re-analyzed and did not confirm the original results. The results of both analyses are reported.

L2272201-15D2: The analysis was performed utilizing a compromised vial.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 12/30/22

ORGANICS

VOLATILES

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-01	Date Collected:	12/20/22 10:25
Client ID:	TG02-MW-01-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 14:14		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-01 D
Client ID: TG02-MW-01-221220
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 10:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 12:25
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	1600		ug/l	100	17.	100
Benzene	12000		ug/l	50	16.	100
1,2-Dichloroethane	ND		ug/l	50	13.	100
Toluene	200		ug/l	75	20.	100
1,2-Dibromoethane	ND		ug/l	200	19.	100
Ethylbenzene	520		ug/l	50	17.	100
p/m-Xylene	1400		ug/l	100	33.	100
o-Xylene	260		ug/l	100	39.	100
Xylenes, Total	1700		ug/l	100	33.	100
Isopropylbenzene	84		ug/l	50	19.	100
1,3,5-Trimethylbenzene	99	J	ug/l	250	22.	100
1,2,4-Trimethylbenzene	370		ug/l	250	19.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	98		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-02
Client ID: TB-221220-2
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/20/22 00:00
Date Received: 12/22/22
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 14:23
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-02	Date Collected:	12/20/22 00:00
Client ID:	TB-221220-2	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 08:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	116		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	119		70-130
Dibromofluoromethane	108		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-03	Date Collected:	12/20/22 11:00
Client ID:	FB-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 14:32		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-03 Date Collected: 12/20/22 11:00
Client ID: FB-221220 Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 09:05
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	0.51		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	108		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-03 R
Client ID: FB-221220
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 11:00
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 00:53
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	0.19	J	ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	100		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-04
Client ID: TG02-MW-02-221220D
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/20/22 13:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 14:41
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-04 D
Client ID: TG02-MW-02-221220D
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 13:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 13:26
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	65		ug/l	20	3.3	20
Benzene	2100		ug/l	10	3.2	20
1,2-Dichloroethane	ND		ug/l	10	2.6	20
Toluene	240		ug/l	15	4.1	20
1,2-Dibromoethane	ND		ug/l	40	3.9	20
Ethylbenzene	240		ug/l	10	3.3	20
p/m-Xylene	3600		ug/l	20	6.6	20
o-Xylene	1200		ug/l	20	7.8	20
Xylenes, Total	4800		ug/l	20	6.6	20
Isopropylbenzene	44		ug/l	10	3.7	20
1,3,5-Trimethylbenzene	270		ug/l	50	4.3	20
1,2,4-Trimethylbenzene	1000		ug/l	50	3.8	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	97		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-05	Date Collected:	12/20/22 13:10
Client ID:	TG02-MW-02-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 14:49		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-05 D
Client ID: TG02-MW-02-221220
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 13:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 13:49
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	64		ug/l	20	3.3	20
Benzene	2000		ug/l	10	3.2	20
1,2-Dichloroethane	ND		ug/l	10	2.6	20
Toluene	230		ug/l	15	4.1	20
1,2-Dibromoethane	ND		ug/l	40	3.9	20
Ethylbenzene	230		ug/l	10	3.3	20
p/m-Xylene	3400		ug/l	20	6.6	20
o-Xylene	1200		ug/l	20	7.8	20
Xylenes, Total	4600		ug/l	20	6.6	20
Isopropylbenzene	40		ug/l	10	3.7	20
1,3,5-Trimethylbenzene	250		ug/l	50	4.3	20
1,2,4-Trimethylbenzene	960		ug/l	50	3.8	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	96		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-06
Client ID: TG02-MW-07-221220
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/20/22 16:15
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 14:58
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-06	Date Collected:	12/20/22 16:15
Client ID:	TG02-MW-07-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 10:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	210	E	ug/l	1.0	0.17	1
Benzene	100		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	62		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	22		ug/l	0.50	0.17	1
p/m-Xylene	63		ug/l	1.0	0.33	1
o-Xylene	27		ug/l	1.0	0.39	1
Xylenes, Total	90		ug/l	1.0	0.33	1
Isopropylbenzene	46		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	8.6		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	35		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	111		70-130
4-Bromofluorobenzene	107		70-130
Dibromofluoromethane	77		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-06 D	Date Collected:	12/20/22 16:15
Client ID:	TG02-MW-07-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 01:19
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	210		ug/l	5.0	0.83	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	94		70-130

Project Name: FORMER PHILADELPHIA REFINERY

Lab Number: L2272201

Project Number: P044.001.002

Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-07
Client ID: TG02-MW-14-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 10:50
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 15:06
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-07 D2	Date Collected:	12/21/22 10:50
Client ID:	TG02-MW-14-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 13:24
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	880		ug/l	20	3.3	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	110		70-130
Dibromofluoromethane	101		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-07 D
Client ID: TG02-MW-14-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 10:50
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 06:45
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	820	E	ug/l	2.0	0.33	2
Benzene	250		ug/l	1.0	0.32	2
1,2-Dichloroethane	ND		ug/l	1.0	0.26	2
Toluene	6.3		ug/l	1.5	0.41	2
1,2-Dibromoethane	ND		ug/l	4.0	0.39	2
Ethylbenzene	2.6		ug/l	1.0	0.33	2
p/m-Xylene	13		ug/l	2.0	0.66	2
o-Xylene	2.9		ug/l	2.0	0.78	2
Xylenes, Total	16		ug/l	2.0	0.66	2
Isopropylbenzene	70		ug/l	1.0	0.37	2
1,3,5-Trimethylbenzene	12		ug/l	5.0	0.43	2
1,2,4-Trimethylbenzene	24		ug/l	5.0	0.38	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	84		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-08	Date Collected:	12/21/22 11:05
Client ID:	TG02-MW-13-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 15:15		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-08	Date Collected:	12/21/22 11:05
Client ID:	TG02-MW-13-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 11:25
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	31		ug/l	1.0	0.17	1
Benzene	21		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	3.5		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	2.5		ug/l	0.50	0.17	1
p/m-Xylene	7.8		ug/l	1.0	0.33	1
o-Xylene	3.4		ug/l	1.0	0.39	1
Xylenes, Total	11		ug/l	1.0	0.33	1
Isopropylbenzene	35		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	1.9	J	ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	8.7		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	113		70-130
4-Bromofluorobenzene	106		70-130
Dibromofluoromethane	80		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-09
Client ID: TG02-MW-18-221221
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/21/22 14:30
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 15:23
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-09 Date Collected: 12/21/22 14:30
Client ID: TG02-MW-18-221221 Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 11:05
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	1.2		ug/l	1.0	0.17	1
Benzene	22		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	1.5		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	100		ug/l	0.50	0.17	1
p/m-Xylene	150		ug/l	1.0	0.33	1
o-Xylene	20		ug/l	1.0	0.39	1
Xylenes, Total	170		ug/l	1.0	0.33	1
Isopropylbenzene	150		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	7.8		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	38		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-10
Client ID: TG02-MW-16-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 15:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 15:32
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-10 D2
Client ID: TG02-MW-16-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 15:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 08:04
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	6000		ug/l	100	17.	100
Toluene	4800		ug/l	75	20.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	96		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-10 D
Client ID: TG02-MW-16-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 15:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 14:08
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	6300	E	ug/l	20	3.3	20
Benzene	1900		ug/l	10	3.2	20
1,2-Dichloroethane	ND		ug/l	10	2.6	20
Toluene	5200	E	ug/l	15	4.1	20
1,2-Dibromoethane	ND		ug/l	40	3.9	20
Ethylbenzene	1300		ug/l	10	3.3	20
p/m-Xylene	5300		ug/l	20	6.6	20
o-Xylene	2200		ug/l	20	7.8	20
Xylenes, Total	7500		ug/l	20	6.6	20
Isopropylbenzene	98		ug/l	10	3.7	20
1,3,5-Trimethylbenzene	210		ug/l	50	4.3	20
1,2,4-Trimethylbenzene	710		ug/l	50	3.8	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	89		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-11	Date Collected:	12/21/22 17:35
Client ID:	S-77P-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 15:40		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-11 D	Date Collected:	12/21/22 17:35
Client ID:	S-77P-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 14:28
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	520		ug/l	4.0	0.66	4
Benzene	270		ug/l	2.0	0.64	4
1,2-Dichloroethane	ND		ug/l	2.0	0.53	4
Toluene	24		ug/l	3.0	0.81	4
1,2-Dibromoethane	ND		ug/l	8.0	0.77	4
Ethylbenzene	7.4		ug/l	2.0	0.67	4
p/m-Xylene	53		ug/l	4.0	1.3	4
o-Xylene	3.9	J	ug/l	4.0	1.6	4
Xylenes, Total	57	J	ug/l	4.0	1.3	4
Isopropylbenzene	120		ug/l	2.0	0.75	4
1,3,5-Trimethylbenzene	1.6	J	ug/l	10	0.87	4
1,2,4-Trimethylbenzene	2.0	J	ug/l	10	0.76	4

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	110		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	88		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-12
Client ID: S-200-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 17:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 15:49
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-12 D
Client ID: S-200-221221
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/21/22 17:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 13:06
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	140		ug/l	50	8.3	50
Benzene	5200		ug/l	25	8.0	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
Toluene	60		ug/l	38	10.	50
1,2-Dibromoethane	ND		ug/l	100	9.6	50
Ethylbenzene	400		ug/l	25	8.4	50
p/m-Xylene	440		ug/l	50	17.	50
o-Xylene	130		ug/l	50	20.	50
Xylenes, Total	570		ug/l	50	17.	50
Isopropylbenzene	40		ug/l	25	9.4	50
1,3,5-Trimethylbenzene	300		ug/l	120	11.	50
1,2,4-Trimethylbenzene	590		ug/l	120	9.6	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	108		70-130
Dibromofluoromethane	99		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-13	Date Collected:	12/22/22 10:20
Client ID:	S-206-221222	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 15:58		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-13
Client ID: S-206-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 10:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 11:45
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	3.9		ug/l	1.0	0.17	1
Benzene	1.1		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	0.33	J	ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	1.1		ug/l	1.0	0.33	1
o-Xylene	1.1		ug/l	1.0	0.39	1
Xylenes, Total	2.2		ug/l	1.0	0.33	1
Isopropylbenzene	18		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	109		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-14
Client ID: S-207-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 10:50
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 12/23/22 16:07
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-14	Date Collected:	12/22/22 10:50
Client ID:	S-207-221222	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 12:05
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	0.97	J	ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	0.37	J	ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	0.37	J	ug/l	1.0	0.33	1
Isopropylbenzene	22		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	115		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	81		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-15	Date Collected:	12/22/22 13:20
Client ID:	S-271-221222	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	12/23/22 11:45
Analytical Date:	12/23/22 16:15		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-15 D2
Client ID: S-271-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 13:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/28/22 20:01
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	10000		ug/l	250	42.	250

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	107		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-15 D
Client ID: S-271-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 13:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 12/27/22 12:46
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	12000	E	ug/l	50	8.3	50
Benzene	140		ug/l	25	8.0	50
1,2-Dichloroethane	ND		ug/l	25	6.6	50
Toluene	59		ug/l	38	10.	50
1,2-Dibromoethane	ND		ug/l	100	9.6	50
Ethylbenzene	8.6	J	ug/l	25	8.4	50
p/m-Xylene	39	J	ug/l	50	17.	50
o-Xylene	ND		ug/l	50	20.	50
Xylenes, Total	39	J	ug/l	50	17.	50
Isopropylbenzene	100		ug/l	25	9.4	50
1,3,5-Trimethylbenzene	ND		ug/l	120	11.	50
1,2,4-Trimethylbenzene	ND		ug/l	120	9.6	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	112		70-130
Dibromofluoromethane	102		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 12/23/22 12:59
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 12/23/22 11:45

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-15 Batch: WG1727072-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/27/22 20:09
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 03,06 Batch: WG1728071-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	113		70-130
Dibromofluoromethane	100		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/28/22 06:25
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 07,10 Batch: WG1728159-12					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	103		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	107		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/27/22 08:05
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-06,08-15 Batch: WG1728159-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	121		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	117		70-130
Dibromofluoromethane	109		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 12/28/22 18:41
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 15 Batch: WG1728721-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	108		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-15 Batch: WG1727072-2									
1,2-Dibromoethane	97		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 03,06 Batch: WG1728071-3 WG1728071-4								
Methyl tert butyl ether	96		95		63-130	1		20
Benzene	98		94		70-130	4		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	100		98		70-130	2		20
1,2-Dibromoethane	97		96		70-130	1		20
Ethylbenzene	98		96		70-130	2		20
p/m-Xylene	100		95		70-130	5		20
o-Xylene	90		90		70-130	0		20
Isopropylbenzene	100		99		70-130	1		20
1,3,5-Trimethylbenzene	98		97		64-130	1		20
1,2,4-Trimethylbenzene	100		96		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	100		97		70-130
Toluene-d8	100		102		70-130
4-Bromofluorobenzene	106		106		70-130
Dibromofluoromethane	102		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 07,10 Batch: WG1728159-10 WG1728159-11								
Methyl tert butyl ether	85		87		63-130	2		20
Benzene	93		96		70-130	3		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	92		94		70-130	2		20
1,2-Dibromoethane	82		84		70-130	2		20
Ethylbenzene	95		97		70-130	2		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	96		100		70-130	4		20
1,3,5-Trimethylbenzene	87		91		64-130	4		20
1,2,4-Trimethylbenzene	85		90		70-130	6		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	108		108		70-130
Toluene-d8	104		104		70-130
4-Bromofluorobenzene	108		108		70-130
Dibromofluoromethane	103		101		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-06,08-15 Batch: WG1728159-3 WG1728159-4								
Methyl tert butyl ether	95		89		63-130	7		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	110		100		70-130	10		20
Toluene	100		98		70-130	2		20
1,2-Dibromoethane	87		84		70-130	4		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	105		100		70-130	5		20
o-Xylene	105		100		70-130	5		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	99		96		64-130	3		20
1,2,4-Trimethylbenzene	97		94		70-130	3		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	111		110		70-130
Toluene-d8	104		103		70-130
4-Bromofluorobenzene	111		112		70-130
Dibromofluoromethane	102		104		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 15 Batch: WG1728721-3 WG1728721-4								
Methyl tert butyl ether	92		92		63-130	0		20
Benzene	100		100		70-130	0		20
1,2-Dichloroethane	94		92		70-130	2		20
Toluene	99		98		70-130	1		20
1,2-Dibromoethane	95		95		70-130	0		20
Ethylbenzene	96		96		70-130	0		20
p/m-Xylene	95		95		70-130	0		20
o-Xylene	95		95		70-130	0		20
Isopropylbenzene	94		94		70-130	0		20
1,3,5-Trimethylbenzene	96		96		64-130	0		20
1,2,4-Trimethylbenzene	97		96		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	93		94		70-130
Toluene-d8	102		103		70-130
4-Bromofluorobenzene	105		104		70-130
Dibromofluoromethane	99		99		70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2272201
Report Date: 12/30/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1727072-3 WG1727072-4 QC Sample: L2272201-08 Client ID: TG02-MW-13-221221													
1,2-Dibromoethane	ND	0.25	0.260	104		0.226	90		80-120	14		20	A

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2272201
Report Date: 12/30/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-15 QC Batch ID: WG1728159-6 WG1728159-7 QC Sample: L2272201-08 Client ID: TG02-MW-13-221221												
Methyl tert butyl ether	31	10	41	100		44	130		63-130	7		20
Benzene	21	10	31	100		32	110		70-130	3		20
1,2-Dichloroethane	ND	10	9.3	93		9.6	96		70-130	3		20
Toluene	3.5	10	14	105		14	105		70-130	0		20
1,2-Dibromoethane	ND	10	9.5	95		10	100		70-130	5		20
Ethylbenzene	2.5	10	13	105		13	105		70-130	0		20
p/m-Xylene	7.8	20	28	101		29	106		70-130	4		20
o-Xylene	3.4	20	24	103		24	103		70-130	0		20
Isopropylbenzene	35	10	45	100		46	110		70-130	2		20
1,3,5-Trimethylbenzene	1.9J	10	12	120		13	130		64-130	8		20
1,2,4-Trimethylbenzene	8.7	10	20	113		20	113		70-130	0		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		97		70-130
4-Bromofluorobenzene	108		108		70-130
Dibromofluoromethane	84		85		70-130
Toluene-d8	111		111		70-130

SEMIVOLATILES

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-01
Client ID: TG02-MW-01-221220
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/20/22 10:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 15:51
Analyst: WR
Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	110	E	ug/l	0.10	0.05	1
Fluorene	1.2		ug/l	0.10	0.01	1
Phenanthrene	1.2		ug/l	0.05	0.02	1
Anthracene	0.13		ug/l	0.10	0.01	1
Pyrene	0.05	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	59		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-01 D
Client ID: TG02-MW-01-221220
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 10:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/30/22 10:42
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	140		ug/l	0.50	0.24	5

Project Name: FORMER PHILADELPHIA REFINERY

Lab Number: L2272201

Project Number: P044.001.002

Report Date: 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-03	Date Collected:	12/20/22 11:00
Client ID:	FB-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 16:40		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.08	J	ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	66		15-120
4-Terphenyl-d14	68		41-149

Project Name: FORMER PHILADELPHIA REFINERY　　**Lab Number:** L2272201

Project Number: P044.001.002　　**Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-04
Client ID: TG02-MW-02-221220D
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 13:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 17:12
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	140	E	ug/l	0.10	0.05	1
Fluorene	1.7		ug/l	0.10	0.01	1
Phenanthrene	1.6		ug/l	0.05	0.02	1
Anthracene	0.11		ug/l	0.10	0.01	1
Pyrene	0.04	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.05	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	109		23-120
2-Fluorobiphenyl	73		15-120
4-Terphenyl-d14	69		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-04 D	Date Collected:	12/20/22 13:10
Client ID:	TG02-MW-02-221220D	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/30/22 10:58		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	180		ug/l	0.50	0.24	5

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-05
Client ID: TG02-MW-02-221220
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/20/22 13:10
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 17:29
Analyst: WR
Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	110	E	ug/l	0.10	0.05	1
Fluorene	1.2		ug/l	0.10	0.01	1
Phenanthrene	1.2		ug/l	0.05	0.02	1
Anthracene	0.08	J	ug/l	0.10	0.01	1
Pyrene	0.03	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.03	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	85		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	54		41-149

Project Name: FORMER PHILADELPHIA REFINERY

Lab Number: L2272201

Project Number: P044.001.002

Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-05 D

Client ID: TG02-MW-02-221220

Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/20/22 13:10

Date Received: 12/22/22

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Analytical Method: 1,8270E-SIM

Analytical Date: 12/30/22 11:14

Analyst: WR

Extraction Method: EPA 3510C

Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	150		ug/l	0.50	0.24	5

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-06	Date Collected:	12/20/22 16:15
Client ID:	TG02-MW-07-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 17:45		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	9.6		ug/l	0.10	0.05	1
Fluorene	2.8		ug/l	0.10	0.01	1
Phenanthrene	0.93		ug/l	0.05	0.02	1
Anthracene	0.09	J	ug/l	0.10	0.01	1
Pyrene	0.04	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	98		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	72		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-07
Date Collected: 12/21/22 10:50
Client ID: TG02-MW-14-221221
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Extraction Method: EPA 3510C
Analytical Method: 1,8270E-SIM
Extraction Date: 12/23/22 15:08
Analytical Date: 12/27/22 18:02
Analyst: WR

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	8.2		ug/l	0.10	0.05	1
Fluorene	4.6		ug/l	0.10	0.01	1
Phenanthrene	2.2		ug/l	0.05	0.02	1
Anthracene	0.10		ug/l	0.10	0.01	1
Pyrene	0.04	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.15		ug/l	0.05	0.02	1
Chrysene	0.09	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.09		ug/l	0.05	0.01	1
Benzo(a)pyrene	0.06	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.11		ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.11		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	76		15-120
4-Terphenyl-d14	92		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-08	Date Collected:	12/21/22 11:05
Client ID:	TG02-MW-13-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 15:34		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.88		ug/l	0.10	0.05	1
Fluorene	3.3		ug/l	0.10	0.01	1
Phenanthrene	0.81		ug/l	0.05	0.02	1
Anthracene	0.18		ug/l	0.10	0.01	1
Pyrene	0.08	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	119		23-120
2-Fluorobiphenyl	93		15-120
4-Terphenyl-d14	104		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-09	Date Collected:	12/21/22 14:30
Client ID:	TG02-MW-18-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 18:18		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	9.3		ug/l	0.10	0.05	1
Fluorene	0.47		ug/l	0.10	0.01	1
Phenanthrene	0.39		ug/l	0.05	0.02	1
Anthracene	0.06	J	ug/l	0.10	0.01	1
Pyrene	0.07	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**128**	Q	23-120
2-Fluorobiphenyl	99		15-120
4-Terphenyl-d14	109		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-10	Date Collected:	12/21/22 15:10
Client ID:	TG02-MW-16-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 18:34		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	66		ug/l	0.10	0.05	1
Fluorene	2.1		ug/l	0.10	0.01	1
Phenanthrene	2.0		ug/l	0.05	0.02	1
Anthracene	0.16		ug/l	0.10	0.01	1
Pyrene	0.07	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**125**	Q	23-120
2-Fluorobiphenyl	92		15-120
4-Terphenyl-d14	97		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-11	Date Collected:	12/21/22 17:35
Client ID:	S-77P-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 18:51		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	6.2		ug/l	0.10	0.05	1
Fluorene	16		ug/l	0.10	0.01	1
Phenanthrene	11		ug/l	0.05	0.02	1
Anthracene	1.7		ug/l	0.10	0.01	1
Pyrene	0.49		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.07		ug/l	0.05	0.02	1
Chrysene	0.05	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.03	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**129**	Q	23-120
2-Fluorobiphenyl	87		15-120
4-Terphenyl-d14	97		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-12	Date Collected:	12/21/22 17:25
Client ID:	S-200-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 15:08
Analytical Date:	12/27/22 19:07		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1100	E	ug/l	0.10	0.05	1
Fluorene	40		ug/l	0.10	0.01	1
Phenanthrene	46		ug/l	0.05	0.02	1
Anthracene	9.0		ug/l	0.10	0.01	1
Pyrene	6.5		ug/l	0.10	0.02	1
Benzo(a)anthracene	1.4		ug/l	0.05	0.02	1
Chrysene	1.3		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	1.1		ug/l	0.05	0.01	1
Benzo(a)pyrene	0.86		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.41		ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.42		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**144**	Q	23-120
2-Fluorobiphenyl	114		15-120
4-Terphenyl-d14	99		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-12 D
Client ID: S-200-221221
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/21/22 17:25
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/30/22 11:31
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1400		ug/l	5.0	2.4	50

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-13
Client ID: S-206-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 10:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 19:24
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 17:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.23		ug/l	0.10	0.05	1
Fluorene	1.6		ug/l	0.10	0.01	1
Phenanthrene	1.1		ug/l	0.05	0.02	1
Anthracene	0.07	J	ug/l	0.10	0.01	1
Pyrene	0.05	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.02	J	ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	76		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-14	Date Collected:	12/22/22 10:50
Client ID:	S-207-221222	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	12/23/22 17:34
Analytical Date:	12/27/22 19:40		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.36		ug/l	0.10	0.05	1
Fluorene	1.4		ug/l	0.10	0.01	1
Phenanthrene	0.72		ug/l	0.05	0.02	1
Anthracene	0.19		ug/l	0.10	0.01	1
Pyrene	0.06	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	88		15-120
4-Terphenyl-d14	98		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201

Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-15
Client ID: S-271-221222
Sample Location: 3144 W PASSYUNK AVE.

Date Collected: 12/22/22 13:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 19:56
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 17:34

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.70		ug/l	0.10	0.05	1
Fluorene	15		ug/l	0.10	0.01	1
Phenanthrene	11		ug/l	0.05	0.02	1
Anthracene	1.9		ug/l	0.10	0.01	1
Pyrene	0.75		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.08		ug/l	0.05	0.02	1
Chrysene	0.06	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**124**	Q	23-120
2-Fluorobiphenyl	93		15-120
4-Terphenyl-d14	103		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 12/27/22 14:45
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 12/23/22 15:08

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01,03-15 Batch: WG1727217-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	74		23-120
2-Fluorobiphenyl	56		15-120
4-Terphenyl-d14	58		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01,03-15 Batch: WG1727217-2 WG1727217-3								
Naphthalene	46		54		40-140	16		40
Fluorene	48		53		40-140	10		40
Phenanthrene	45		51		40-140	13		40
Anthracene	49		56		40-140	13		40
Pyrene	46		52		26-127	12		40
Benzo(a)anthracene	51		56		40-140	9		40
Chrysene	45		51		40-140	13		40
Benzo(b)fluoranthene	52		54		40-140	4		40
Benzo(a)pyrene	53		59		40-140	11		40
Indeno(1,2,3-cd)pyrene	60		68		40-140	13		40
Benzo(ghi)perylene	53		58		40-140	9		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	71		78		23-120
2-Fluorobiphenyl	53		58		15-120
4-Terphenyl-d14	54		62		41-149

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01,03-15 QC Batch ID: WG1727217-4 WG1727217-5 QC Sample: L2272201-08 Client ID: TG02-MW-13-221221												
Naphthalene	0.88	3.64	3.4	69		3.9	83		40-140	14		40
Fluorene	3.3	3.64	4.3	**28**	Q	4.4	**30**	Q	40-140	2		40
Phenanthrene	0.81	3.64	2.5	46		2.6	49		40-140	4		40
Anthracene	0.18	3.64	2.2	56		2.3	58		40-140	4		40
Pyrene	0.08J	3.64	2.1	58		2.2	61		26-127	5		40
Benzo(a)anthracene	0.02J	3.64	2.2	61		2.2	61		40-140	0		40
Chrysene	ND	3.64	1.9	52		2.0	55		40-140	5		40
Benzo(b)fluoranthene	ND	3.64	1.9	52		1.8	50		40-140	5		40
Benzo(a)pyrene	ND	3.64	1.9	52		1.9	52		40-140	0		40
Indeno(1,2,3-cd)pyrene	ND	3.64	0.99	**27**	Q	0.82	**23**	Q	40-140	19		40
Benzo(ghi)perylene	ND	3.64	0.82	**23**	Q	0.67	**18**	Q	40-140	20		40

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Fluorobiphenyl	77		67		15-120
4-Terphenyl-d14	79		67		41-149
Nitrobenzene-d5	100		91		23-120

METALS

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-01	Date Collected:	12/20/22 10:25
Client ID:	TG02-MW-01-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 13:44	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY   **Lab Number:** L2272201
Project Number: P044.001.002   **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-03	Date Collected:	12/20/22 11:00
Client ID:	FB-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/27/22 08:53	12/29/22 15:53	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-04 Date Collected: 12/20/22 13:10
Client ID: TG02-MW-02-221220D Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	3.434		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 13:48	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-05
Date Collected: 12/20/22 13:10
Client ID: TG02-MW-02-221220
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	3.571		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:08	EPA 3005A	1,6020B	SV

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-06	Date Collected:	12/20/22 16:15
Client ID:	TG02-MW-07-221220	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	1.118		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:13	EPA 3005A	1,6020B	SV

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2272201
Project Number:	P044.001.002	**Report Date:**	12/30/22

SAMPLE RESULTS

Lab ID:	L2272201-07	Date Collected:	12/21/22 10:50
Client ID:	TG02-MW-14-221221	Date Received:	12/22/22
Sample Location:	3144 W PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.8013	J	ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:17	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-08
Date Collected: 12/21/22 11:05
Client ID: TG02-MW-13-221221
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 13:34	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-09 Date Collected: 12/21/22 14:30
Client ID: TG02-MW-18-221221 Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:22	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-10 Date Collected: 12/21/22 15:10
Client ID: TG02-MW-16-221221 Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	6.734		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:27	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-11
Date Collected: 12/21/22 17:35
Client ID: S-77P-221221
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:32	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-12
Date Collected: 12/21/22 17:25
Client ID: S-200-221221
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.6155	J	ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:37	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2272201
Project Number: P044.001.002 **Report Date:** 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-13
Client ID: S-206-221222
Sample Location: 3144 W PASSYUNK AVE.
Date Collected: 12/22/22 10:20
Date Received: 12/22/22
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:41	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-14
Date Collected: 12/22/22 10:50
Client ID: S-207-221222
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:46	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2272201
Project Number: P044.001.002
Report Date: 12/30/22

SAMPLE RESULTS

Lab ID: L2272201-15
Date Collected: 12/22/22 13:20
Client ID: S-271-221222
Date Received: 12/22/22
Sample Location: 3144 W PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	9.270		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 14:51	EPA 3005A	1,6020B	SV

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2272201
Report Date: 12/30/22

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01,04-15 Batch: WG1727151-1										
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/26/22 04:45	12/29/22 13:05	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 03 Batch: WG1727539-1										
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	12/27/22 08:53	12/29/22 15:34	1,6020B	SV

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2272201
Report Date: 12/30/22

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01,04-15 Batch: WG1727151-2								
Lead, Dissolved	101		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 03 Batch: WG1727539-2								
Lead, Dissolved	100		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2272201
Report Date: 12/30/22

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01,04-15 QC Batch ID: WG1727151-3 WG1727151-4 QC Sample: L2272201-08 Client ID: TG02-MW-13-221221												
Lead, Dissolved	ND	530	545.7	103		526.2	99		75-125	4		20
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1727539-3 QC Sample: L2272201-03 Client ID: FB-221220												
Lead, Dissolved	ND	530	520.2	98		-	-		75-125	-		20

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 03 QC Batch ID: WG1727539-4 QC Sample: L2272201-03 Client ID: FB-221220						
Lead, Dissolved	ND	ND	ug/l	NC		20

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2272201-01A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-01B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-01C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-01D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-01E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-01F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-01G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-01H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-02A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-02B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-02C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-02D	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-02E	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-02F	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-02G	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-02H	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-02J	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-02K	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-02L	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-02M	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-03A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-03B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2272201-03C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-03D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-03E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-03F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-03G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-03H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-04A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-04B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-04C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-04D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-04E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-04F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-04G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-04H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-05A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-05B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-05C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-05D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-05E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-05F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-05G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-05H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-06A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-06B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-06C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-06D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-06E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-06F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)

*Values in parentheses indicate holding time in days

Serial_No:12302213:11

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2272201-06G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-06H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-07A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-07B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-07C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-07D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-07E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-07F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-07G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-07H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08A1	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08A2	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08B1	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08B2	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08C1	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08C2	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-08D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08D1	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08D2	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08E1	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08E2	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-08F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-08F1	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-08F2	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)

*Values in parentheses indicate holding time in days

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Container Information

Container ID	*Container Type*	*Cooler*	*Initial pH*	*Final pH*	*Temp deg C*	*Pres*	*Seal*	*Frozen Date/Time*	*Analysis(*)*
L2272201-08G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08G1	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08G2	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08H1	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-08H2	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-09A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-09B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-09C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-09D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-09E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-09F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-09G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-09H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-10A	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-10B	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-10C	Vial HCl preserved	A	NA		4.1	Y	Absent		PA-8260(14)
L2272201-10D	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-10E	Vial Na2S2O3 preserved	A	NA		4.1	Y	Absent		8011(14)
L2272201-10F	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		PB-6020S-PPB(180)
L2272201-10G	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-10H	Amber 250ml unpreserved	A	7	7	4.1	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-11A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-11B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-11C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-11D	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-11E	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-11F	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		PB-6020S-PPB(180)

*Values in parentheses indicate holding time in days

Serial_No:12302213:11

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2272201
Report Date: 12/30/22

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2272201-11G	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-11H	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-12A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-12B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-12C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-12D	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-12E	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-12F	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		PB-6020S-PPB(180)
L2272201-12G	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-12H	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-13A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-13B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-13C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-13D	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-13E	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-13F	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		PB-6020S-PPB(180)
L2272201-13G	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-13H	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-14A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-14B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-14C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-14D	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-14E	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-14F	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		PB-6020S-PPB(180)
L2272201-14G	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-14H	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-15A	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-15B	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2272201-15C	Vial HCl preserved	B	NA		3.5	Y	Absent		PA-8260(14)
L2272201-15D	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-15E	Vial Na2S2O3 preserved	B	NA		3.5	Y	Absent		8011(14)
L2272201-15F	Plastic 250ml HNO3 preserved	B	<2	<2	3.5	Y	Absent		PB-6020S-PPB(180)
L2272201-15G	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)
L2272201-15H	Amber 250ml unpreserved	B	7	7	3.5	Y	Absent		PA-PAHSIM-LVI(7)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:12302213:11

CHAIN OF CUSTODY

PAGE 1 OF 2

ALPHA

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 12/23/22

ALPHA Job #: L2272201

Client Information

Client: Terraphase Engineering
Address: 100 Canal Pointe Blvd Princeton 08540 NJ Suite 108
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery
Project Location: 3144 W Passyunk Ave.
Project #: P049.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD @ terraphase.com
Equis EDD

ANALYSIS: 8260, Benzene, Ethylbenzene, Methyl tert-butyl; 124/135 TMB; 1,2-Dibromoethane; 8011 - 1,2-Dibromoethane; 8270 (SIM) - Naphthalene; Lead - 6020

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260	8260 (124/135 TMB)	1,2-Dibromoethane 8011	8270 (SIM)	Lead 6020	Sample Specific Comments	TOTAL # BOTTLES
72201 -01	TG02-MW-01-221220	12/20/22	10:25	GW	KJO	X	X	X	X	X		
-02	TB-221220-2	12/20/22	10:20	TB	KJO	X	X	X				
-03	FB-221220	12/20/22	11:00	FB	KJO	X	X	X	X	X		
-04	TG02-MW-02-221220D	12/20/22	13:10	GW	KJO	X	X	X	X	X		
-05	TG02-MW-02-221220	12/20/22	13:10	GW	KJO	X	X	X	X	X		
-06	TG02-MW-07-221220	12/20/22	16:15	GW	KJO	X	X	X	X	X		
-07	TG02-MW-14-221221	12/21/22	10:50	GW	EAB	X	X	X	X	X		
-08	TG02-MW-13-221221	12/21/22	11:05	GW	KJO	X	X	X	X	X		
-08	TG02-MW-13-221221MS	12/21/22	11:05	GW	KJO	X	X	X	X	X		
-08 ~~-10~~	TG02-MW-13-221221MSD	12/21/22	11:05	GW	KJO	X	X	X	X	X		

Container Type	G	G	G	G	G
Preservative	HCl		Na2S2O3		HNO3

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12/22/22 1:55	[signature] AAL	12/22 1400
[signature] AAL	12/22/22 1800	[signature] AAL	12/22/22 1800
[signature] AAL	12/22/22 22:06	[signature]	12-22-22 2100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 12/23/22

ALPHA Job #: L2270201

ALPHA
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 100 Canal Pointe Blvd
Princeton 08540 NJ, Suite 105
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com
☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery
Project Location: 3144 Passyunk Avenue
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)
Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD @ terraphase.com
Equis EDD

ANALYSIS:
1. 8260 - Benzene, Ethyl Benzene, methyl tert butyl, 1,2,4 TMB, 1,3,5 TMB, 1,2-Dichloroethane
2. 8011 - 1,2-Dibromoethane
3. 8270 (SIM) - Naphthalene
4. Lead - 6020

SAMPLE HANDLING
Filtration ______
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	8260		8260	8011	8270 SIM / Lead	Sample Specific Comments	TOTAL # BOTTLES
72201-09	TG02-MW-18-221221	12/21/22	1450	GW	KJO	X	X	X	X	X		
-10	TG02-MW-16-221221	12/21/22	1510	GW	EAB	X	X	X	X	X		
-11	S-77P-221221	12/21/22	1735	GW	KJO	X	X	X	X	X		
-12	S-200-221221	12/21/22	1725	GW	EAB	X	X	X	X	X		
-13	S-206-221222	12/22/22	1020	GW	EAB	X	X	X	X	X		
-14	S-207-221222	12/22/22	1050	GW	KJO	X	X	X	X	X		
-15	S-271-221222	12/22/22	1320	GW	KJO	X	X	X	X	X		

Container Type	G	G	G	G	G
Preservative	HCl		$Na_2S_2O_3$		HNO_3

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	12.22 1405	[signature] AAL	12.22 1405
[signature] AAL	12.22 1800	[signature] AAL	12/22/22 1800
[signature] AAL	12/22/22 2150	[signature]	12-22-22 2150

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ANALYTICAL REPORT

Lab Number:	L2300373
Client:	Terraphase Engineering Inc. 1100 East Hector Street Suite 416 Conshohocken, PA 19428
ATTN:	Nick Scala
Phone:	(215) 297-3502
Project Name:	FORMER PHILADELPHIA REFINERY
Project Number:	P044.001.002
Report Date:	01/13/23

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2300373-01	GPR794-09-1.5-2.0	SOIL	Not Specified	01/03/23 08:45	01/04/23
L2300373-02	GPR794-09-2.0-2.5	SOIL	Not Specified	01/03/23 08:55	01/04/23
L2300373-03	GPR794-09-2.0-2.5D	SOIL	Not Specified	01/03/23 08:55	01/04/23
L2300373-04	GPR794-09-3.0-3.5	SOIL	Not Specified	01/03/23 09:05	01/04/23
L2300373-05	GPR794-10-1.5-2.0	SOIL	Not Specified	01/03/23 09:45	01/04/23
L2300373-06	GPR794-10-2.0-2.5	SOIL	Not Specified	01/03/23 09:50	01/04/23
L2300373-07	GPR790-08-0.0-0.5	SOIL	Not Specified	01/03/23 10:20	01/04/23
L2300373-08	TG07-MW-04-1.5-2.0	SOIL	Not Specified	01/03/23 11:00	01/04/23
L2300373-09	TG07-MW-04-2.0-2.5	SOIL	Not Specified	01/03/23 11:10	01/04/23
L2300373-10	GPR799-08-1.0-1.5	SOIL	Not Specified	01/03/23 11:30	01/04/23
L2300373-11	GPR799-08-3.0-3.5	SOIL	Not Specified	01/03/23 11:40	01/04/23
L2300373-12	GPR791-09-0.0-0.5	SOIL	Not Specified	01/03/23 12:05	01/04/23
L2300373-13	GPR791-09-2.0-2.5	SOIL	Not Specified	01/03/23 12:10	01/04/23
L2300373-14	GPR791-09-2.5-3.0	SOIL	Not Specified	01/03/23 12:15	01/04/23
L2300373-15	GPR793-03R-2.5-3.0	SOIL	Not Specified	01/03/23 12:45	01/04/23
L2300373-16	GPR793-03R-3.0-3.5	SOIL	Not Specified	01/03/23 13:00	01/04/23
L2300373-17	GPR792-03R-1.5-2.0	SOIL	Not Specified	01/03/23 13:20	01/04/23
L2300373-18	GPR792-03R-2.0-2.5	SOIL	Not Specified	01/03/23 13:30	01/04/23
L2300373-19	GPR1117-03R-0.0-0.5	SOIL	Not Specified	01/03/23 14:40	01/04/23
L2300373-20	PB-847-15R-6.0-6.5	SOIL	Not Specified	01/04/23 09:00	01/04/23
L2300373-21	PB-847-15R-17.0-17.5	SOIL	Not Specified	01/04/23 09:10	01/04/23
L2300373-22	TG02-MW-18-15.5-16.0	SOIL	Not Specified	01/04/23 10:15	01/04/23
L2300373-23	TG01-MW-02-6.5-7.0	SOIL	Not Specified	01/04/23 12:40	01/04/23
L2300373-24	TG01-MW-02-7.0-7.5	SOIL	Not Specified	01/04/23 12:55	01/04/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2300373-25	TB-230104-1	WATER	Not Specified	01/04/23 00:00	01/04/23

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Submission

January 13, 2023: This final report includes the results of all requested analyses.

January 10, 2023: This preliminary report includes the results of the Volatile Organics and Semivolatile Organics analyses performed on L2300373-22.

January 10, 2023: This preliminary report includes the results of the Volatile Organics and Semivolatile Organics analyses performed on L2300373-09, -16, -18, and -21 and the Total Metals analysis performed on L2300373-21.

January 06, 2023: This is a preliminary report.

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

L2300373-20: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (148%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

L2300373-21: The internal standard (IS) response for fluorobenzene (479%) and the surrogate recoveries for dibromofluoromethane (35%) and 4-bromofluorobenzene (675%) were outside the acceptance criteria due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. Since the IS response was above method criteria, all associated compounds are considered to have a potentially low bias. A high-level analysis was performed, and those results are also reported. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to sample non-homogeneity.

L2300373-21: The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene (169%); however, the sample was not re-analyzed due to coelution with an obvious interference. A copy of the chromatogram is included as an attachment to this report.

Case Narrative (continued)

Semivolatile Organics

L2300373-15D, -16D, -17D, and -18D: The sample has elevated detection limits due to the dilution required by the sample matrix.

L2300373-16D and -18D: The surrogate recoveries are below the acceptance criteria for nitrobenzene-d5 (0%), 2-fluorobiphenyl (0%) and 4-terphenyl-d14 (0%) due to the dilution required to quantitate the sample. Re-extraction was not required; therefore, the results of the original analysis are reported.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Melissa Sturgis Melissa Sturgis

Title: Technical Director/Representative Date: 01/13/23

ORGANICS

VOLATILES

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-01	Date Collected:	01/03/23 08:45
Client ID:	GPR794-09-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 13:42
Analyst: NLK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.098	0.0099	1
Benzene	1.0		mg/kg	0.024	0.0082	1
Toluene	0.42		mg/kg	0.049	0.027	1
Ethylbenzene	0.11		mg/kg	0.049	0.0069	1
p/m-Xylene	0.32		mg/kg	0.098	0.028	1
o-Xylene	ND		mg/kg	0.049	0.014	1
Xylenes, Total	0.32		mg/kg	0.049	0.014	1
Isopropylbenzene	17.	E	mg/kg	0.049	0.0054	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.098	0.0095	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.098	0.016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	100		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-01 D	Date Collected:	01/03/23 08:45
Client ID:	GPR794-09-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 01:19
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	18.		mg/kg	0.098	0.011	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	116		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-02	Date Collected:	01/03/23 08:55
Client ID:	GPR794-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 14:02
Analyst: NLK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.097	0.0098	1
Benzene	2.6		mg/kg	0.024	0.0081	1
Toluene	1.7		mg/kg	0.049	0.026	1
Ethylbenzene	0.32		mg/kg	0.049	0.0069	1
p/m-Xylene	1.0		mg/kg	0.097	0.027	1
o-Xylene	0.11		mg/kg	0.049	0.014	1
Xylenes, Total	1.1		mg/kg	0.049	0.014	1
Isopropylbenzene	20.	E	mg/kg	0.049	0.0053	1
1,3,5-Trimethylbenzene	0.016	J	mg/kg	0.097	0.0094	1
1,2,4-Trimethylbenzene	0.047	J	mg/kg	0.097	0.016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-02 D	Date Collected:	01/03/23 08:55
Client ID:	GPR794-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 01:47
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	20.		mg/kg	0.12	0.013	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	86		70-130
Dibromofluoromethane	114		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-03
Client ID: GPR794-09-2.0-2.5D
Sample Location: Not Specified
Date Collected: 01/03/23 08:55
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 14:22
Analyst: NLK
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.093	0.0094	1
Benzene	1.1		mg/kg	0.023	0.0077	1
Toluene	0.83		mg/kg	0.046	0.025	1
Ethylbenzene	0.21		mg/kg	0.046	0.0066	1
p/m-Xylene	0.72		mg/kg	0.093	0.026	1
o-Xylene	0.092		mg/kg	0.046	0.014	1
Xylenes, Total	0.81		mg/kg	0.046	0.014	1
Isopropylbenzene	14.	E	mg/kg	0.046	0.0051	1
1,3,5-Trimethylbenzene	0.017	J	mg/kg	0.093	0.0090	1
1,2,4-Trimethylbenzene	0.042	J	mg/kg	0.093	0.016	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	103		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-03 D	Date Collected:	01/03/23 08:55
Client ID:	GPR794-09-2.0-2.5D	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 02:14
Analyst: JIC
Percent Solids: 92%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	14.		mg/kg	0.093	0.010	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	87		70-130
Dibromofluoromethane	117		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-05 D2
Client ID: GPR794-10-1.5-2.0
Sample Location: Not Specified

Date Collected: 01/03/23 09:45
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 02:41
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	42.		mg/kg	0.47	0.051	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	88		70-130
Dibromofluoromethane	117		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-05 D
Client ID: GPR794-10-1.5-2.0
Sample Location: Not Specified

Date Collected: 01/03/23 09:45
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 14:41
Analyst: NLK
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.19	0.019	2
Benzene	0.35		mg/kg	0.047	0.016	2
Toluene	0.27		mg/kg	0.094	0.051	2
Ethylbenzene	0.020	J	mg/kg	0.094	0.013	2
p/m-Xylene	0.076	J	mg/kg	0.19	0.052	2
o-Xylene	ND		mg/kg	0.094	0.027	2
Xylenes, Total	0.076	J	mg/kg	0.094	0.027	2
Isopropylbenzene	37.	E	mg/kg	0.094	0.010	2
1,3,5-Trimethylbenzene	ND		mg/kg	0.19	0.018	2
1,2,4-Trimethylbenzene	ND		mg/kg	0.19	0.031	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	111		70-130
Dibromofluoromethane	102		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-07	Date Collected:	01/03/23 10:20
Client ID:	GPR790-08-0.0-0.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 12:24
Analyst: JIC
Percent Solids: 81%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00021	1
Benzene	0.00076		mg/kg	0.00051	0.00017	1
Toluene	0.00074	J	mg/kg	0.0010	0.00056	1
Ethylbenzene	0.00019	J	mg/kg	0.0010	0.00014	1
p/m-Xylene	0.00068	J	mg/kg	0.0020	0.00057	1
o-Xylene	ND		mg/kg	0.0010	0.00030	1
Xylenes, Total	0.00068	J	mg/kg	0.0010	0.00030	1
Isopropylbenzene	0.0063		mg/kg	0.0010	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00020	1
1,2,4-Trimethylbenzene	0.00039	J	mg/kg	0.0020	0.00034	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	114		70-130
Dibromofluoromethane	109		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-08 D2	Date Collected:	01/03/23 11:00
Client ID:	TG07-MW-04-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 09:59
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	440		mg/kg	3.0	1.0	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	105		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	106		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-08 D
Client ID: TG07-MW-04-1.5-2.0
Sample Location: Not Specified

Date Collected: 01/03/23 11:00
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 15:01
Analyst: NLK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	2.4	0.24	20
Benzene	420	E	mg/kg	0.60	0.20	20
Toluene	ND		mg/kg	1.2	0.65	20
Ethylbenzene	ND		mg/kg	1.2	0.17	20
p/m-Xylene	ND		mg/kg	2.4	0.67	20
o-Xylene	ND		mg/kg	1.2	0.35	20
Xylenes, Total	ND		mg/kg	1.2	0.35	20
Isopropylbenzene	41.		mg/kg	1.2	0.13	20
1,3,5-Trimethylbenzene	ND		mg/kg	2.4	0.23	20
1,2,4-Trimethylbenzene	ND		mg/kg	2.4	0.40	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	98		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-09 D2	Date Collected:	01/03/23 11:10
Client ID:	TG07-MW-04-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 20:37
Analyst: JIC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.72	0.072	5
Benzene	160	E	mg/kg	0.18	0.059	5
Toluene	0.28	J	mg/kg	0.36	0.19	5
Ethylbenzene	0.081	J	mg/kg	0.36	0.050	5
p/m-Xylene	ND		mg/kg	0.72	0.20	5
o-Xylene	0.17	J	mg/kg	0.36	0.10	5
Xylenes, Total	0.17	J	mg/kg	0.36	0.10	5
Isopropylbenzene	42.		mg/kg	0.36	0.039	5
1,3,5-Trimethylbenzene	0.24	J	mg/kg	0.72	0.069	5
1,2,4-Trimethylbenzene	0.51	J	mg/kg	0.72	0.12	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	104		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-09 D
Client ID: TG07-MW-04-2.0-2.5
Sample Location: Not Specified

Date Collected: 01/03/23 11:10
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/08/23 20:26
Analyst: JIC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	170		mg/kg	0.72	0.24	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	113		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	118		70-130
Dibromofluoromethane	92		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-10	Date Collected:	01/03/23 11:30
Client ID:	GPR799-08-1.0-1.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 12:44
Analyst: JIC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0019	0.00019	1
Benzene	0.20		mg/kg	0.00047	0.00016	1
Toluene	0.0048		mg/kg	0.00094	0.00051	1
Ethylbenzene	ND		mg/kg	0.00094	0.00013	1
p/m-Xylene	ND		mg/kg	0.0019	0.00052	1
o-Xylene	ND		mg/kg	0.00094	0.00027	1
Xylenes, Total	ND		mg/kg	0.00094	0.00027	1
Isopropylbenzene	0.0044		mg/kg	0.00094	0.00010	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0019	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0019	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	102		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-11 D2	Date Collected:	01/03/23 11:40
Client ID:	GPR799-08-3.0-3.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 03:08
Analyst: JIC
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	700		mg/kg	4.0	0.43	50

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	114		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-11 D
Client ID: GPR799-08-3.0-3.5
Sample Location: Not Specified
Date Collected: 01/03/23 11:40
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 15:20
Analyst: NLK
Percent Solids: 77%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	1.6	0.16	10
Benzene	0.77		mg/kg	0.40	0.13	10
Toluene	ND		mg/kg	0.80	0.43	10
Ethylbenzene	0.13	J	mg/kg	0.80	0.11	10
p/m-Xylene	0.46	J	mg/kg	1.6	0.44	10
o-Xylene	ND		mg/kg	0.80	0.23	10
Xylenes, Total	0.46	J	mg/kg	0.80	0.23	10
Isopropylbenzene	460	E	mg/kg	0.80	0.087	10
1,3,5-Trimethylbenzene	ND		mg/kg	1.6	0.15	10
1,2,4-Trimethylbenzene	ND		mg/kg	1.6	0.26	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	95		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-12
Client ID: GPR791-09-0.0-0.5
Sample Location: Not Specified
Date Collected: 01/03/23 12:05
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 13:03
Analyst: JIC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0016	0.00016	1
Benzene	0.0046		mg/kg	0.00041	0.00014	1
Toluene	0.0045		mg/kg	0.00081	0.00044	1
Ethylbenzene	0.00061	J	mg/kg	0.00081	0.00011	1
p/m-Xylene	0.0021		mg/kg	0.0016	0.00046	1
o-Xylene	0.00045	J	mg/kg	0.00081	0.00024	1
Xylenes, Total	0.0026	J	mg/kg	0.00081	0.00024	1
Isopropylbenzene	0.14		mg/kg	0.00081	0.00008	1
1,3,5-Trimethylbenzene	0.00028	J	mg/kg	0.0016	0.00016	1
1,2,4-Trimethylbenzene	0.00067	J	mg/kg	0.0016	0.00027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	127		70-130
Dibromofluoromethane	99		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-13	Date Collected:	01/03/23 12:10
Client ID:	GPR791-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 13:23
Analyst: JIC
Percent Solids: 90%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.0035		mg/kg	0.00049	0.00016	1
Toluene	0.00064	J	mg/kg	0.00099	0.00054	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.0043		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	99		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-15 D2	Date Collected:	01/03/23 12:45
Client ID:	GPR793-03R-2.5-3.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 10:19
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	1500		mg/kg	50	5.4	1000

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	107		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-15 D	Date Collected:	01/03/23 12:45
Client ID:	GPR793-03R-2.5-3.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 03:35
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	10	1.0	100
Benzene	ND		mg/kg	2.5	0.83	100
Toluene	ND		mg/kg	5.0	2.7	100
Ethylbenzene	ND		mg/kg	5.0	0.70	100
p/m-Xylene	ND		mg/kg	10	2.8	100
o-Xylene	ND		mg/kg	5.0	1.4	100
Xylenes, Total	ND		mg/kg	5.0	1.4	100
Isopropylbenzene	2700	E	mg/kg	5.0	0.54	100
1,3,5-Trimethylbenzene	ND		mg/kg	10	0.96	100
1,2,4-Trimethylbenzene	ND		mg/kg	10	1.7	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	90		70-130
Dibromofluoromethane	114		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-16 D2	Date Collected:	01/03/23 13:00
Client ID:	GPR793-03R-3.0-3.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 21:32
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	2200		mg/kg	22	2.4	400

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	97		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	109		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-16 D
Client ID: GPR793-03R-3.0-3.5
Sample Location: Not Specified
Date Collected: 01/03/23 13:00
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/08/23 20:52
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	11	1.1	100
Benzene	ND		mg/kg	2.8	0.93	100
Toluene	ND		mg/kg	5.6	3.0	100
Ethylbenzene	ND		mg/kg	5.6	0.79	100
p/m-Xylene	ND		mg/kg	11	3.1	100
o-Xylene	ND		mg/kg	5.6	1.6	100
Xylenes, Total	ND		mg/kg	5.6	1.6	100
Isopropylbenzene	2300	E	mg/kg	5.6	0.61	100
1,3,5-Trimethylbenzene	ND		mg/kg	11	1.1	100
1,2,4-Trimethylbenzene	ND		mg/kg	11	1.9	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	107		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	93		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-17 D2	Date Collected:	01/03/23 13:20
Client ID:	GPR792-03R-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 04:02
Analyst: JIC
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.56	0.056	5
Benzene	0.32		mg/kg	0.14	0.047	5
Toluene	ND		mg/kg	0.28	0.15	5
Ethylbenzene	0.060	J	mg/kg	0.28	0.040	5
p/m-Xylene	ND		mg/kg	0.56	0.16	5
o-Xylene	ND		mg/kg	0.28	0.082	5
Xylenes, Total	ND		mg/kg	0.28	0.082	5
Isopropylbenzene	200	E	mg/kg	0.28	0.031	5
1,3,5-Trimethylbenzene	0.067	J	mg/kg	0.56	0.054	5
1,2,4-Trimethylbenzene	0.12	J	mg/kg	0.56	0.094	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	93		70-130
Dibromofluoromethane	112		70-130

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2300373
Project Number: P044.001.002 | **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-17 D
Client ID: GPR792-03R-1.5-2.0
Sample Location: Not Specified

Date Collected: 01/03/23 13:20
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/05/23 15:59
Analyst: NLK
Percent Solids: 86%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	160		mg/kg	0.56	0.061	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	104		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	102		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-18 D2
Client ID: GPR792-03R-2.0-2.5
Sample Location: Not Specified
Date Collected: 01/03/23 13:30
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 21:59
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.50	0.050	5
Benzene	0.46		mg/kg	0.12	0.041	5
Toluene	ND		mg/kg	0.25	0.14	5
Ethylbenzene	0.052	J	mg/kg	0.25	0.035	5
p/m-Xylene	ND		mg/kg	0.50	0.14	5
o-Xylene	ND		mg/kg	0.25	0.073	5
Xylenes, Total	ND		mg/kg	0.25	0.073	5
Isopropylbenzene	190	E	mg/kg	0.25	0.027	5
1,3,5-Trimethylbenzene	0.074	J	mg/kg	0.50	0.048	5
1,2,4-Trimethylbenzene	0.14	J	mg/kg	0.50	0.083	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	95		70-130
4-Bromofluorobenzene	94		70-130
Dibromofluoromethane	106		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-18 D
Client ID: GPR792-03R-2.0-2.5
Sample Location: Not Specified

Date Collected: 01/03/23 13:30
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/08/23 21:18
Analyst: JIC
Percent Solids: 91%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Isopropylbenzene	160		mg/kg	1.0	0.11	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	92		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-19	Date Collected:	01/03/23 14:40
Client ID:	GPR1117-03R-0.0-0.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 09:20
Analyst: JIC
Percent Solids: 84%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020	1
Benzene	0.00032	J	mg/kg	0.00050	0.00016	1
Toluene	ND		mg/kg	0.00099	0.00054	1
Ethylbenzene	ND		mg/kg	0.00099	0.00014	1
p/m-Xylene	ND		mg/kg	0.0020	0.00055	1
o-Xylene	ND		mg/kg	0.00099	0.00029	1
Xylenes, Total	ND		mg/kg	0.00099	0.00029	1
Isopropylbenzene	0.11		mg/kg	0.00099	0.00011	1
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	112		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-20
Client ID: PB-847-15R-6.0-6.5
Sample Location: Not Specified
Date Collected: 01/04/23 09:00
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 09:40
Analyst: JIC
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.13	0.013	1
Benzene	ND		mg/kg	0.032	0.011	1
Ethylbenzene	5.4		mg/kg	0.064	0.0090	1
p/m-Xylene	2.3		mg/kg	0.13	0.036	1
o-Xylene	0.23		mg/kg	0.064	0.019	1
Xylenes, Total	2.5		mg/kg	0.064	0.019	1
Isopropylbenzene	3.2		mg/kg	0.064	0.0070	1
1,3,5-Trimethylbenzene	3.2		mg/kg	0.13	0.012	1
1,2,4-Trimethylbenzene	5.1		mg/kg	0.13	0.021	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	104		70-130
4-Bromofluorobenzene	**148**	Q	70-130
Dibromofluoromethane	97		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-21
Client ID: PB-847-15R-17.0-17.5
Sample Location: Not Specified
Date Collected: 01/04/23 09:10
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 21:05
Analyst: JIC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.10	0.010	1
Benzene	0.16		mg/kg	0.026	0.0085	1
Ethylbenzene	0.018	J	mg/kg	0.051	0.0073	1
p/m-Xylene	ND		mg/kg	0.10	0.029	1
o-Xylene	ND		mg/kg	0.051	0.015	1
Xylenes, Total	ND		mg/kg	0.051	0.015	1
Isopropylbenzene	1.1		mg/kg	0.051	0.0056	1
1,3,5-Trimethylbenzene	0.016	J	mg/kg	0.10	0.0099	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	116		70-130
4-Bromofluorobenzene	**169**	Q	70-130
Dibromofluoromethane	85		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-21	Date Collected:	01/04/23 09:10
Client ID:	PB-847-15R-17.0-17.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/09/23 22:53
Analyst: JIC
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 Low - Westborough Lab						
Methyl tert butyl ether	ND		mg/kg	0.0018	0.00019	1
Benzene	0.0076		mg/kg	0.00046	0.00015	1
Ethylbenzene	0.0024		mg/kg	0.00093	0.00013	1
p/m-Xylene	0.00070	J	mg/kg	0.0018	0.00052	1
o-Xylene	0.0014		mg/kg	0.00093	0.00027	1
Xylenes, Total	0.0021	J	mg/kg	0.00093	0.00027	1
Isopropylbenzene	0.11		mg/kg	0.00093	0.00010	1
1,3,5-Trimethylbenzene	0.0011	J	mg/kg	0.0018	0.00018	1
1,2,4-Trimethylbenzene	ND		mg/kg	0.0018	0.00031	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	120		70-130
Toluene-d8	117		70-130
4-Bromofluorobenzene	**675**	Q	70-130
Dibromofluoromethane	**35**	Q	70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-22
Client ID: TG02-MW-18-15.5-16.0
Sample Location: Not Specified
Date Collected: 01/04/23 10:15
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8260D
Analytical Date: 01/06/23 15:32
Analyst: LAC
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by EPA 5035 High - Westborough Lab						
Benzene	0.034	J	mg/kg	0.037	0.012	1
Toluene	0.30		mg/kg	0.074	0.040	1
1,2-Dibromoethane	ND		mg/kg	0.037	0.022	1
Ethylbenzene	3.4		mg/kg	0.074	0.010	1
p/m-Xylene	14.		mg/kg	0.15	0.041	1
o-Xylene	5.3		mg/kg	0.074	0.022	1
Xylenes, Total	19.		mg/kg	0.074	0.022	1
Isopropylbenzene	0.42		mg/kg	0.074	0.0081	1
1,3,5-Trimethylbenzene	3.8		mg/kg	0.15	0.014	1
1,2,4-Trimethylbenzene	11.		mg/kg	0.15	0.025	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	109		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	102		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-25
Client ID: TB-230104-1
Sample Location: Not Specified

Date Collected: 01/04/23 00:00
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/05/23 10:09
Analyst: LAC

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	98		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/05/23 09:19
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 07,10,12-13 Batch: WG1730307-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/05/23 09:19
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-03,05,08,11,17 Batch: WG1730426-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	107		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	107		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/05/23 09:43
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 25 Batch: WG1730461-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	95		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	97		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/05/23 18:31
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 01-03,05,11,15,17 Batch: WG1730645-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	92		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	115		70-130

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2300373
Project Number: P044.001.002 | **Report Date:** 01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/06/23 08:35
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 19 Batch: WG1730716-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Toluene	ND		mg/kg	0.0010	0.00054
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	107		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/06/23 08:35
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 08,15,20,22 Batch: WG1730717-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
1,2-Dibromoethane	ND		mg/kg	0.025	0.015
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	96		70-130
Dibromofluoromethane	107		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/08/23 14:47
Analyst: AJK

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09,16,18 Batch: WG1731730-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	111		70-130
Toluene-d8	106		70-130
4-Bromofluorobenzene	116		70-130
Dibromofluoromethane	90		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 14:43
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 Low - Westborough Lab for sample(s): 21 Batch: WG1731733-5					
Methyl tert butyl ether	ND		mg/kg	0.0020	0.00020
Benzene	ND		mg/kg	0.00050	0.00017
Ethylbenzene	ND		mg/kg	0.0010	0.00014
p/m-Xylene	ND		mg/kg	0.0020	0.00056
o-Xylene	ND		mg/kg	0.0010	0.00029
Xylenes, Total	ND		mg/kg	0.0010	0.00029
Isopropylbenzene	ND		mg/kg	0.0010	0.00011
1,3,5-Trimethylbenzene	ND		mg/kg	0.0020	0.00019
1,2,4-Trimethylbenzene	ND		mg/kg	0.0020	0.00033

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	116		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/09/23 14:43
Analyst: JIC

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by EPA 5035 High - Westborough Lab for sample(s): 09,16,18,21 Batch: WG1731736-5					
Methyl tert butyl ether	ND		mg/kg	0.10	0.010
Benzene	ND		mg/kg	0.025	0.0083
Toluene	ND		mg/kg	0.050	0.027
Ethylbenzene	ND		mg/kg	0.050	0.0070
p/m-Xylene	ND		mg/kg	0.10	0.028
o-Xylene	ND		mg/kg	0.050	0.014
Xylenes, Total	ND		mg/kg	0.050	0.014
Isopropylbenzene	ND		mg/kg	0.050	0.0054
1,3,5-Trimethylbenzene	ND		mg/kg	0.10	0.0096
1,2,4-Trimethylbenzene	ND		mg/kg	0.10	0.017

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	103		70-130
Toluene-d8	91		70-130
4-Bromofluorobenzene	89		70-130
Dibromofluoromethane	116		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 07,10,12-13 Batch: WG1730307-3 WG1730307-4								
Methyl tert butyl ether	107		107		66-130	0		30
Benzene	108		110		70-130	2		30
Toluene	104		108		70-130	4		30
Ethylbenzene	107		110		70-130	3		30
p/m-Xylene	108		112		70-130	4		30
o-Xylene	108		112		70-130	4		30
Isopropylbenzene	106		108		70-130	2		30
1,3,5-Trimethylbenzene	108		109		70-130	1		30
1,2,4-Trimethylbenzene	107		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-03,05,08,11,17 Batch: WG1730426-3 WG1730426-4								
Methyl tert butyl ether	107		107		66-130	0		30
Benzene	108		110		70-130	2		30
Toluene	104		108		70-130	4		30
Ethylbenzene	107		110		70-130	3		30
p/m-Xylene	108		112		70-130	4		30
o-Xylene	108		112		70-130	4		30
Isopropylbenzene	106		108		70-130	2		30
1,3,5-Trimethylbenzene	108		109		70-130	1		30
1,2,4-Trimethylbenzene	107		108		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		97		70-130
Toluene-d8	98		99		70-130
4-Bromofluorobenzene	100		97		70-130
Dibromofluoromethane	97		98		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 25 Batch: WG1730461-3 WG1730461-4								
Methyl tert butyl ether	97		95		63-130	2		20
Benzene	110		110		70-130	0		20
1,2-Dichloroethane	100		100		70-130	0		20
Toluene	110		100		70-130	10		20
1,2-Dibromoethane	100		100		70-130	0		20
Ethylbenzene	110		100		70-130	10		20
p/m-Xylene	110		105		70-130	5		20
o-Xylene	105		105		70-130	0		20
Isopropylbenzene	110		110		70-130	0		20
1,3,5-Trimethylbenzene	110		110		64-130	0		20
1,2,4-Trimethylbenzene	110		100		70-130	10		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		98		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	96		96		70-130
Dibromofluoromethane	98		96		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 01-03,05,11,15,17 Batch: WG1730645-3 WG1730645-4								
Methyl tert butyl ether	101		101		66-130	0		30
Benzene	111		111		70-130	0		30
Toluene	102		101		70-130	1		30
Ethylbenzene	105		104		70-130	1		30
p/m-Xylene	110		109		70-130	1		30
o-Xylene	105		106		70-130	1		30
Isopropylbenzene	100		102		70-130	2		30
1,3,5-Trimethylbenzene	100		102		70-130	2		30
1,2,4-Trimethylbenzene	100		102		70-130	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		98		70-130
Toluene-d8	95		95		70-130
4-Bromofluorobenzene	82		85		70-130
Dibromofluoromethane	113		114		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 19 Batch: WG1730716-3 WG1730716-4								
Methyl tert butyl ether	85		92		66-130	8		30
Benzene	86		91		70-130	6		30
Toluene	84		90		70-130	7		30
Ethylbenzene	86		92		70-130	7		30
p/m-Xylene	88		94		70-130	7		30
o-Xylene	87		93		70-130	7		30
Isopropylbenzene	87		91		70-130	4		30
1,3,5-Trimethylbenzene	87		93		70-130	7		30
1,2,4-Trimethylbenzene	87		92		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 08,15,20,22 Batch: WG1730717-3 WG1730717-4								
Methyl tert butyl ether	85		92		66-130	8		30
Benzene	86		91		70-130	6		30
Toluene	84		90		70-130	7		30
1,2-Dibromoethane	86		93		70-130	8		30
Ethylbenzene	86		92		70-130	7		30
p/m-Xylene	88		94		70-130	7		30
o-Xylene	87		93		70-130	7		30
Isopropylbenzene	87		91		70-130	4		30
1,3,5-Trimethylbenzene	87		93		70-130	7		30
1,2,4-Trimethylbenzene	87		92		70-130	6		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	96		97		70-130
Toluene-d8	99		99		70-130
4-Bromofluorobenzene	100		98		70-130
Dibromofluoromethane	98		99		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09,16,18 Batch: WG1731730-3 WG1731730-4								
Methyl tert butyl ether	100		101		66-130	1		30
Benzene	106		107		70-130	1		30
Toluene	103		103		70-130	0		30
Ethylbenzene	107		107		70-130	0		30
p/m-Xylene	103		103		70-130	0		30
o-Xylene	100		100		70-130	0		30
Isopropylbenzene	112		112		70-130	0		30
1,3,5-Trimethylbenzene	110		110		70-130	0		30
1,2,4-Trimethylbenzene	108		108		70-130	0		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	107		106		70-130
Toluene-d8	108		108		70-130
4-Bromofluorobenzene	116		116		70-130
Dibromofluoromethane	91		91		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 Low - Westborough Lab Associated sample(s): 21 Batch: WG1731733-3 WG1731733-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	102		105		70-130	3		30
Ethylbenzene	96		98		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	99		101		70-130	2		30
Isopropylbenzene	93		95		70-130	2		30
1,3,5-Trimethylbenzene	95		96		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		99		70-130
Toluene-d8	95		94		70-130
4-Bromofluorobenzene	84		84		70-130
Dibromofluoromethane	109		110		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by EPA 5035 High - Westborough Lab Associated sample(s): 09,16,18,21 Batch: WG1731736-3 WG1731736-4								
Methyl tert butyl ether	92		94		66-130	2		30
Benzene	102		105		70-130	3		30
Toluene	94		95		70-130	1		30
Ethylbenzene	96		98		70-130	2		30
p/m-Xylene	101		104		70-130	3		30
o-Xylene	99		101		70-130	2		30
Isopropylbenzene	93		95		70-130	2		30
1,3,5-Trimethylbenzene	95		96		70-130	1		30
1,2,4-Trimethylbenzene	95		96		70-130	1		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	97		99		70-130
Toluene-d8	95		95		70-130
4-Bromofluorobenzene	84		84		70-130
Dibromofluoromethane	109		110		70-130

SEMIVOLATILES

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-01	Date Collected:	01/03/23 08:45
Client ID:	GPR794-09-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 13:01		
Analyst:	MG		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.031	J	mg/kg	0.036	0.022	1
Benzo(a)pyrene	0.19		mg/kg	0.14	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	61		30-120
4-Terphenyl-d14	58		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373

Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-02
Client ID: GPR794-09-2.0-2.5
Sample Location: Not Specified

Date Collected: 01/03/23 08:55
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 13:26
Analyst: MG
Percent Solids: 92%

Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.27		mg/kg	0.036	0.022	1
Benzo(a)pyrene	0.087	J	mg/kg	0.14	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	69		18-120

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-03
Client ID: GPR794-09-2.0-2.5D
Sample Location: Not Specified
Date Collected: 01/03/23 08:55
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 13:50
Analyst: MG
Percent Solids: 92%
Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.20		mg/kg	0.036	0.022	1
Benzo(a)pyrene	0.058	J	mg/kg	0.14	0.043	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	91		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	65		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-05	Date Collected:	01/03/23 09:45
Client ID:	GPR794-10-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 14:14		
Analyst:	MG		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.30		mg/kg	0.036	0.022	1
Benzo(a)pyrene	0.047	J	mg/kg	0.14	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	72		30-120
4-Terphenyl-d14	66		18-120

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-07
Client ID: GPR790-08-0.0-0.5
Sample Location: Not Specified
Date Collected: 01/03/23 10:20
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 14:38
Analyst: MG
Percent Solids: 81%
Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.036	J	mg/kg	0.040	0.024	1
Benzo(a)pyrene	0.47		mg/kg	0.16	0.049	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	52		23-120
2-Fluorobiphenyl	42		30-120
4-Terphenyl-d14	42		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-08
Client ID: TG07-MW-04-1.5-2.0
Sample Location: Not Specified

Date Collected: 01/03/23 11:00
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 15:02
Analyst: MG
Percent Solids: 86%

Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.0		mg/kg	0.038	0.023	1
Benzo(a)pyrene	0.076	J	mg/kg	0.15	0.046	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	83		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	61		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-09	Date Collected:	01/03/23 11:10
Client ID:	TG07-MW-04-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/07/23 09:51
Analytical Date:	01/08/23 19:06		
Analyst:	CMM		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.23		mg/kg	0.043	0.026	1
Benzo(a)pyrene	ND		mg/kg	0.17	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	37		23-120
2-Fluorobiphenyl	48		30-120
4-Terphenyl-d14	33		18-120

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-10
Client ID: GPR799-08-1.0-1.5
Sample Location: Not Specified
Date Collected: 01/03/23 11:30
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 15:26
Analyst: MG
Percent Solids: 90%
Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.032	J	mg/kg	0.037	0.022	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	90		23-120
2-Fluorobiphenyl	69		30-120
4-Terphenyl-d14	67		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-11	Date Collected:	01/03/23 11:40
Client ID:	GPR799-08-3.0-3.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 15:50		
Analyst:	MG		
Percent Solids:	77%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.6		mg/kg	0.042	0.026	1
Benzo(a)pyrene	0.83		mg/kg	0.17	0.052	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	66		30-120
4-Terphenyl-d14	60		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-12
Client ID: GPR791-09-0.0-0.5
Sample Location: Not Specified
Date Collected: 01/03/23 12:05
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 16:14
Analyst: MG
Percent Solids: 90%
Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.12		mg/kg	0.036	0.022	1
Benzo(a)pyrene	0.51		mg/kg	0.14	0.044	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	84		23-120
2-Fluorobiphenyl	65		30-120
4-Terphenyl-d14	60		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-13	Date Collected:	01/03/23 12:10
Client ID:	GPR791-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 16:38		
Analyst:	MG		
Percent Solids:	90%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.037	0.022	1
Benzo(a)pyrene	ND		mg/kg	0.15	0.045	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	68		30-120
4-Terphenyl-d14	61		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-15 D	Date Collected:	01/03/23 12:45
Client ID:	GPR793-03R-2.5-3.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/06/23 01:54		
Analyst:	CMM		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.18	0.11	5
Benzo(a)pyrene	ND		mg/kg	0.72	0.22	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	79		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-16 D	Date Collected:	01/03/23 13:00
Client ID:	GPR793-03R-3.0-3.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/07/23 09:51
Analytical Date:	01/10/23 06:07		
Analyst:	SLR		
Percent Solids:	91%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.73	0.45	20
Benzo(a)pyrene	ND		mg/kg	2.9	0.89	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-17 D	Date Collected:	01/03/23 13:20
Client ID:	GPR792-03R-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/06/23 03:31		
Analyst:	CMM		
Percent Solids:	86%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.19	0.11	5
Benzo(a)pyrene	ND		mg/kg	0.75	0.23	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	78		23-120
2-Fluorobiphenyl	49		30-120
4-Terphenyl-d14	62		18-120

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-18 D
Client ID: GPR792-03R-2.0-2.5
Sample Location: Not Specified
Date Collected: 01/03/23 13:30
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/10/23 06:31
Analyst: SLR
Percent Solids: 91%
Extraction Method: EPA 3546
Extraction Date: 01/07/23 09:51

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	ND		mg/kg	0.71	0.44	20
Benzo(a)pyrene	ND		mg/kg	2.8	0.87	20

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**0**	Q	23-120
2-Fluorobiphenyl	**0**	Q	30-120
4-Terphenyl-d14	**0**	Q	18-120

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2300373
Project Number: P044.001.002 | **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-19
Client ID: GPR1117-03R-0.0-0.5
Sample Location: Not Specified

Date Collected: 01/03/23 14:40
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Analytical Method: 1,8270E
Analytical Date: 01/05/23 17:50
Analyst: MG
Percent Solids: 84%

Extraction Method: EPA 3546
Extraction Date: 01/05/23 06:08

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	0.46		mg/kg	0.039	0.024	1
Benzo(a)pyrene	0.76		mg/kg	0.16	0.048	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	77		23-120
2-Fluorobiphenyl	70		30-120
4-Terphenyl-d14	67		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-20	Date Collected:	01/04/23 09:00
Client ID:	PB-847-15R-6.0-6.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 18:14		
Analyst:	MG		
Percent Solids:	82%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	7.5		mg/kg	0.040	0.024	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	79		23-120
2-Fluorobiphenyl	63		30-120
4-Terphenyl-d14	56		18-120

SAMPLE RESULTS

Lab ID:	L2300373-21	Date Collected:	01/04/23 09:10
Client ID:	PB-847-15R-17.0-17.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/07/23 09:51
Analytical Date:	01/08/23 20:17		
Analyst:	CMM		
Percent Solids:	87%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.6		mg/kg	0.038	0.023	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	44		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	50		18-120

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-22	Date Collected:	01/04/23 10:15
Client ID:	TG02-MW-18-15.5-16.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil	Extraction Method:	EPA 3546
Analytical Method:	1,8270E	Extraction Date:	01/05/23 06:08
Analytical Date:	01/05/23 18:38		
Analyst:	JG		
Percent Solids:	72%		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS - Westborough Lab						
Naphthalene	1.4		mg/kg	0.045	0.027	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	68		23-120
2-Fluorobiphenyl	62		30-120
4-Terphenyl-d14	59		18-120

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E
Analytical Date: 01/04/23 22:58
Analyst: IM

Extraction Method: EPA 3546
Extraction Date: 01/04/23 17:12

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,05,07-08,10-13,15,17,19-20,22 Batch: WG1730021-1					
Naphthalene	ND		mg/kg	0.033	0.020
Benzo(a)pyrene	ND		mg/kg	0.13	0.040

Surrogate	%Recovery	Qualifier	Acceptance Criteria
2-Fluorophenol	75		25-120
Phenol-d6	74		10-120
Nitrobenzene-d5	63		23-120
2-Fluorobiphenyl	79		30-120
2,4,6-Tribromophenol	76		10-136
4-Terphenyl-d14	90		18-120

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E	Extraction Method:	EPA 3546
Analytical Date:	01/06/23 22:06	Extraction Date:	01/06/23 13:05
Analyst:	CMM		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS - Westborough Lab for sample(s): 09,16,18,21 Batch: WG1730747-1					
Naphthalene	ND		mg/kg	0.033	0.020
Benzo(a)pyrene	ND		mg/kg	0.13	0.040

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	67		23-120
2-Fluorobiphenyl	58		30-120
4-Terphenyl-d14	67		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,05,07-08,10-13,15,17,19-20,22 Batch: WG1730021-2 WG1730021-3								
Naphthalene	66		66		40-140	0		50
Benzo(a)pyrene	77		78		40-140	1		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
2-Fluorophenol	67		67		25-120
Phenol-d6	66		65		10-120
Nitrobenzene-d5	58		58		23-120
2-Fluorobiphenyl	70		68		30-120
2,4,6-Tribromophenol	70		68		10-136
4-Terphenyl-d14	76		76		18-120

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS - Westborough Lab Associated sample(s): 09,16,18,21 Batch: WG1730747-2 WG1730747-3								
Naphthalene	57		57		40-140	0		50
Benzo(a)pyrene	57		56		40-140	2		50

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	69		68		23-120
2-Fluorobiphenyl	58		59		30-120
4-Terphenyl-d14	65		64		18-120

METALS

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-20	Date Collected:	01/04/23 09:00
Client ID:	PB-847-15R-6.0-6.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 82%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	6.75		mg/kg	2.37	0.127	1	01/05/23 07:30	01/05/23 11:04	EPA 3050B	1,6010D	EGW

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-21 Date Collected: 01/04/23 09:10
Client ID: PB-847-15R-17.0-17.5 Date Received: 01/04/23
Sample Location: Not Specified Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 87%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	5.90		mg/kg	2.26	0.121	1	01/09/23 22:00	01/10/23 08:24	EPA 3050B	1,6010D	EGW

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-22 Date Collected: 01/04/23 10:15
Client ID: TG02-MW-18-15.5-16.0 Date Received: 01/04/23
Sample Location: Not Specified Field Prep: Not Specified

Sample Depth:
Matrix: Soil
Percent Solids: 72%

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Lead, Total	83.5		mg/kg	2.63	0.141	1	01/05/23 07:30	01/05/23 11:09	EPA 3050B	1,6010D	EGW

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 20,22 Batch: WG1730143-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	01/05/23 07:30	01/05/23 10:32	1,6010D	EGW

Prep Information

Digestion Method: EPA 3050B

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 21 Batch: WG1731076-1										
Lead, Total	ND		mg/kg	2.00	0.107	1	01/09/23 22:00	01/10/23 08:02	1,6010D	EGW

Prep Information

Digestion Method: EPA 3050B

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20,22 Batch: WG1730143-2 SRM Lot Number: D116-540								
Lead, Total	104		-		83-117	-		
Total Metals - Mansfield Lab Associated sample(s): 21 Batch: WG1731076-2 SRM Lot Number: D116-540								
Lead, Total	101		-		83-117	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2300373
Report Date: 01/13/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20,22 QC Batch ID: WG1730143-3 QC Sample: L2300289-01 Client ID: MS Sample												
Lead, Total	26.7	47.8	63.5	77		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1731076-3 QC Sample: L2300989-03 Client ID: MS Sample												
Lead, Total	12.6	45.2	56.6	97		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY

Project Number: P044.001.002

Lab Number: L2300373

Report Date: 01/13/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 20,22 QC Batch ID: WG1730143-4 QC Sample: L2300289-01 Client ID: DUP Sample						
Lead, Total	26.7	24.3	mg/kg	9		20
Total Metals - Mansfield Lab Associated sample(s): 21 QC Batch ID: WG1731076-4 QC Sample: L2300989-03 Client ID: DUP Sample						
Lead, Total	12.6	10.6	mg/kg	17		20

INORGANICS
&
MISCELLANEOUS

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-01 Date Collected: 01/03/23 08:45
Client ID: GPR794-09-1.5-2.0 Date Received: 01/04/23
Sample Location: Not Specified Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.4		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-02	Date Collected:	01/03/23 08:55
Client ID:	GPR794-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.2		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-03
Date Collected: 01/03/23 08:55
Client ID: GPR794-09-2.0-2.5D
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	92.0		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-05	Date Collected:	01/03/23 09:45
Client ID:	GPR794-10-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.7		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-07
Client ID: GPR790-08-0.0-0.5
Sample Location: Not Specified

Date Collected: 01/03/23 10:20
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.3		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-08	Date Collected:	01/03/23 11:00
Client ID:	TG07-MW-04-1.5-2.0	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.2		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-09
Date Collected: 01/03/23 11:10
Client ID: TG07-MW-04-2.0-2.5
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	76.8		%	0.100	NA	1	-	01/06/23 17:00	121,2540G	MF

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2300373
Project Number: P044.001.002 **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-10 Date Collected: 01/03/23 11:30
Client ID: GPR799-08-1.0-1.5 Date Received: 01/04/23
Sample Location: Not Specified Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.4		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-11
Date Collected: 01/03/23 11:40
Client ID: GPR799-08-3.0-3.5
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	77.2		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-12	Date Collected:	01/03/23 12:05
Client ID:	GPR791-09-0.0-0.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	89.6		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-13	Date Collected:	01/03/23 12:10
Client ID:	GPR791-09-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.0		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-15
Client ID: GPR793-03R-2.5-3.0
Sample Location: Not Specified

Date Collected: 01/03/23 12:45
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.8		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2300373
Project Number: P044.001.002 | **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-16 | Date Collected: 01/03/23 13:00
Client ID: GPR793-03R-3.0-3.5 | Date Received: 01/04/23
Sample Location: Not Specified | Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	90.5		%	0.100	NA	1	-	01/06/23 17:00	121,2540G	MF

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-17
Date Collected: 01/03/23 13:20
Client ID: GPR792-03R-1.5-2.0
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.1		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-18	Date Collected:	01/03/23 13:30
Client ID:	GPR792-03R-2.0-2.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	91.1		%	0.100	NA	1	-	01/06/23 17:00	121,2540G	MF

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-19
Date Collected: 01/03/23 14:40
Client ID: GPR1117-03R-0.0-0.5
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	83.6		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2300373
Project Number:	P044.001.002	**Report Date:**	01/13/23

SAMPLE RESULTS

Lab ID:	L2300373-20	Date Collected:	01/04/23 09:00
Client ID:	PB-847-15R-6.0-6.5	Date Received:	01/04/23
Sample Location:	Not Specified	Field Prep:	Not Specified
Sample Depth:			
Matrix:	Soil		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	81.7		%	0.100	NA	1	-	01/05/23 08:02	121,2540G	RI

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2300373
Project Number: P044.001.002 | **Report Date:** 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-21
Client ID: PB-847-15R-17.0-17.5
Sample Location: Not Specified
Date Collected: 01/04/23 09:10
Date Received: 01/04/23
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	86.7		%	0.100	NA	1	-	01/06/23 17:00	121,2540G	MF

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2300373
Project Number: P044.001.002
Report Date: 01/13/23

SAMPLE RESULTS

Lab ID: L2300373-22
Date Collected: 01/04/23 10:15
Client ID: TG02-MW-18-15.5-16.0
Date Received: 01/04/23
Sample Location: Not Specified
Field Prep: Not Specified

Sample Depth:
Matrix: Soil

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Solids, Total	72.2		%	0.100	NA	1	-	01/05/23 08:16	121,2540G	RI

Lab Duplicate Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01-03,05,07-08,10-13,15,17,19-20 QC Batch ID: WG1730150-1 QC Sample: L2300262-01 Client ID: DUP Sample						
Solids, Total	91.4	92.1	%	1		20
General Chemistry - Westborough Lab Associated sample(s): 22 QC Batch ID: WG1730152-1 QC Sample: L2300472-01 Client ID: DUP Sample						
Solids, Total	78.1	76.4	%	2		20
General Chemistry - Westborough Lab Associated sample(s): 09,16,18,21 QC Batch ID: WG1730839-1 QC Sample: L2300373-09 Client ID: TG07-MW-04-2.0-2.5						
Solids, Total	76.8	78.0	%	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-01A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-01B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-01C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-01D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-01E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-01X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-01Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-01Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-02A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-02B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-02C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-02D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-02E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-02X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-02Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-02Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-03A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-03B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-03C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-03D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-03E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-03X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-03Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-03Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-04A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-04B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-04C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-04D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2300373-04E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		HOLD-8270(14)
L2300373-04X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-04Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-04Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-05A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-05B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-05C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-05D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-05E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-05X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-05Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-05Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-06A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-06B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-06C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-06D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2300373-06E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		HOLD-8270(14)
L2300373-06X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-06Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-06Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-07A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-07B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-07C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-07D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-07E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-07X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-07Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-07Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-08A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-08B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-08C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-08D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-08E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-08X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-08Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-08Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-09A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-09B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-09C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-09D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-09E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-09X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-09Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-09Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-10A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-10B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-10C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-10D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-10E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-10X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-10Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-10Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-11A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-11B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-11C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-11D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-11E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-11X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-11Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-11Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-12A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-12B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-12C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-12D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-12E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-12X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-12Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-12Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-13A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-13B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-13C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-13D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-13E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-13X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-13Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-13Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-14A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-14B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-14C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2300373
Report Date: 01/13/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-14D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2300373-14E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		HOLD-8270(14)
L2300373-14X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-14Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-14Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	HOLD-8260HLW(14)
L2300373-15A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-15B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-15C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-15D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-15E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-15X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-15Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-15Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-16A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-16B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-16C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-16D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-16E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-16X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-16Y	Vial Water preserved split	A	NA		5.2	Y	Absent	**06-JAN-23 13:16**	PA-8260HLW(14)
L2300373-16Z	Vial Water preserved split	A	NA		5.2	Y	Absent	**06-JAN-23 13:16**	PA-8260HLW(14)
L2300373-17A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-17B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-17C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-17D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-17E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-17X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-17Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-17Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-18A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-18B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-18C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-18D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-18E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-18X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-18Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-18Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-19A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-19B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-19C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-19D	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-19E	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-19X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-19Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-19Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-20A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-20B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-20C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-20D	Glass 60mL/2oz unpreserved	A	NA		5.2	Y	Absent		PB-TI(180)
L2300373-20E	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-20F	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-20X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-20Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-20Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:03	PA-8260HLW(14)
L2300373-21A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2300373-21B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-21C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2300373-21D	Glass 60mL/2oz unpreserved	A	NA		5.2	Y	Absent		PB-TI(180)
L2300373-21E	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-21F	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-21X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260H(14),PA-8260HLW(14)
L2300373-21Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	PA-8260H(14),PA-8260HLW(14)
L2300373-21Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	PA-8260H(14),PA-8260HLW(14)
L2300373-22A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-22B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-22C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-22D	Glass 60mL/2oz unpreserved	A	NA		5.2	Y	Absent		PB-TI(180)
L2300373-22E	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		TS(7)
L2300373-22F	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		PA-PAH(14)
L2300373-22X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		PA-8260HLW(14)
L2300373-22Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	PA-8260HLW(14)
L2300373-22Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	PA-8260HLW(14)
L2300373-23A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-23B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-23C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-23D	Glass 60mL/2oz unpreserved	A	NA		5.2	Y	Absent		HOLD-METAL(180)
L2300373-23E	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2300373-23F	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		HOLD-8270(14)
L2300373-23X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-23Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	HOLD-8260HLW(14)
L2300373-23Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	HOLD-8260HLW(14)
L2300373-24A	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-24B	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-24C	5 gram Encore Sampler	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2300373-24D	Glass 60mL/2oz unpreserved	A	NA		5.2	Y	Absent		HOLD-METAL(180)
L2300373-24E	Plastic 2oz unpreserved for TS	A	NA		5.2	Y	Absent		HOLD-WETCHEM()
L2300373-24F	Glass 120ml/4oz unpreserved	A	NA		5.2	Y	Absent		HOLD-8270(14)
L2300373-24X	Vial MeOH preserved split	A	NA		5.2	Y	Absent		HOLD-8260HLW(14)
L2300373-24Y	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	HOLD-8260HLW(14)
L2300373-24Z	Vial Water preserved split	A	NA		5.2	Y	Absent	05-JAN-23 07:05	HOLD-8260HLW(14)
L2300373-25A	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)
L2300373-25B	Vial HCl preserved	A	NA		5.2	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL - Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

EDL - Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).

EMPC - Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.

EPA - Environmental Protection Agency.

LCS - Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LCSD - Laboratory Control Sample Duplicate: Refer to LCS.

LFB - Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.

LOD - Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

LOQ - Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)

MDL - Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

MS - Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.

MSD - Matrix Spike Sample Duplicate: Refer to MS.

NA - Not Applicable.

NC - Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.

NDPA/DPA - N-Nitrosodiphenylamine/Diphenylamine.

NI - Not Ignitable.

NP - Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.

NR - No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.

RL - Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.

RPD - Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.

SRM - Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.

STLP - Semi-dynamic Tank Leaching Procedure per EPA Method 1315.

TEF - Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.

TEQ - Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.

TIC - Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

CHAIN OF CUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 1/5/23

ALPHA Job #: L2300373

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Client Information

Client: Terraphase Engineering

Address: 1100 E Hector St
Conshohocken, Pa

Phone: 215-297-3502

Fax:

Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refinery

Project Location:

Project #: PO414.001.002

Project Manager:

ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!) 48hr

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

EDD@terraphase.com
EDD Format Equis

ANALYSIS: 8260 - Benzene, Cumene, Ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, Toluene, Xylenes; 8270 - Benzo(a)pyrene, Naphthalene; 8260 - Benzene, Cumene, Ethylbenzene, MTBE, 1,2,4-TMB, 1,3,5-TMB, Xylenes; 8270 - Naphthalene; 8260 - Benzene, Toluene, Ethyl Benzene, Xylenes, 1,2,4-TMB, 1,3,5-TMB, Cumene, 1,2-DBA; 8260 - Benzene, Toluene, Xylenes, 1,2,4-TMB, 1,3,5-TMB, Cumene, MTBE; 6020 - Lead

SAMPLE HANDLING

Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	Analysis 1	Analysis 2	Analysis 3	Sample Specific Comments
00373-01	GPR794-09-1.5-2.0	1/3/23	845	SO	SMM	X		X	Rush/Analyze
02	GPR794-09-2.0-2.5	1/3/23	855	SO	SMM	X		X	Rush/Analyze
03	GPR794-09-2.0-2.5D	1/3/23	855	SO	SMM	X		X	Rush/Analyze
04	GPR794-09-3.0-3.5	1/3/23	905	SO	SMM	H		H	Rush/Hold
05	GPR794-10-1.5-2.0	1/3/23	945	SO	SMM	X		X	Rush/Analyze
06	GPR794-10-2.0-2.5	1/3/23	950	SO	SMM	H		H	Rush/Hold
07	GPR790-08-0.0-0.5	1/3/23	1020	SO	SMM	X		X	Rush/Analyze
08	T607-MW-04-1.5-2.0	1/3/23	1100	SO	SMM	X		X	Rush/Analyze
09	T607-MW-04-2.0-2.5	1/3/23	1110	SO	SMM	H		H	Rush/Hold
10	GPR799-08-1.0-1.5	1/3/23	1130	SO	SMM	X		X	Rush/Analyze

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/4/23 1510	[signature] AAL	1/4/23 1510
[signature] AAL	1/4/23 1800	[signature] AAL	1/4/23 1800
[signature] AAL	1/4/23 2100	[signature]	1-4-23 2100

SORIAL 1/5/23 0120

1/5/22 0120

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

CHAIN OF COUSTODY

PAGE ____ OF ____

Date Rec'd in Lab: 1/5/23

ALPHA Job #: L2300373

Client Information

Client: Terraphase Engineering
Address: 1100 E Hector St, ste 416
Conshohocken, Pa 19428
Phone: 215-297-3502
Fax:
Email: nick.scala@terraphase.com

❑ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery AST Closure
Project Location:
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard (per VA) ☒ RUSH (only confirmed if pre-approved!)
Date Due: 48hr Time:

Report Information - Data Deliverables

❑ FAX ❑ EMAIL
❑ ADEx ❑ Add'l Deliverables

Billing Information

❑ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
EDD Format Equis

ANALYSIS

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	T001: 8260 - Benzene, Cumene, Ethyl Benzene, Naphthalene, tert-Butyl alcohol, 1,2,4 TMB, 1,3,5 TMB, Toluene, Xylenes		T001: 8270 - Benzo(a)Pyrene, Naphthalene	T004: 8260 - Benzene, Cumene, Ethyl Benzene, Naphthalene, 1,2,4 TMB, 1,3,5 TMB, Toluene, Xylenes		8270 - Naphthalene	8260 - Benzene, Toluene, Ethyl Benzene, Xylenes, 1,2,4 TMB, 1,3,5 TMB, 1,2 DCA, Cumene		8270 - Naphthalene	T005: 8260 - Benzene, Toluene, Xylenes, 1,2,4 TMB, 1,3,5 TMB, Cumene, MTBE		6020 - Lead	Sample Specific Comments
00373-11	GPR799-08-3.0-3.5	1/3/23	1140	SO	SMM	X		X										Rush/Analyze
12	GPR791-09-0.0-0.5	1/3/23	1205	SO	SMM	X		X										Rush/Analyze
13	GPR791-09-2.0-2.5	1/3/23	1210	SO	SMM	X		X										Rush/Analyze
14	GPR791-09-2.5-3.0	1/3/23	1215	SO	SMM	H		H										Rush/Hold
15	GPR793-03R-2.5-3.0	1/3/23	1245	SO	SMM	X		X										Rush/Analyze
16	GPR793-03R-3.0-3.5	1/3/23	1300	SO	SMM	H		H										Rush/Hold
17	GPR792-03R-1.5-2.0	1/3/23	1320	SO	SMM	X		X										Rush/Analyze
18	GPR792-03R-2.0-2.5	1/3/23	1330	SO	SMM	H		H										Rush/Hold
19	GPR1117-03R-0.0-0.5	1/3/23	1440	SO	SMM	X		X										Rush/Analyze
20	PB-847-15R-6.0-6.5	1/04/23	900	SO	SMM	~~X~~ SMH		~~X~~ SMH	X		X						X	Rush/Analyze
	Container Type																	
	Preservative																	

SAMPLE HANDLING

Filtration ________
❑ Done
❑ Not needed
❑ Lab to do
Preservation
❑ Lab to do
(Please specify below)

TOTAL # BOTTLES

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/4/23 1510	STm AAL	1/4/23 15:10
STm	1/4/23 1800	[signature] AAL	1/4/22 1800
[signature] AAL	1/4/23 2100	[signature]	1-4-23 2400

ES/AAL
1/5/22
0120
1/5/22 0120

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

CHAIN OF CUSTODY

PAGE ____ OF ____

ALPHA ANALYTICAL

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 1/5/23

ALPHA Job #: L2300373

Client Information

Client: Terraphase Engineering

Address: 1100 E Hector St
Conshohocken Pa 19428

Phone: 215-297-3502

Fax:

Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Phila Refining AST closure

Project Location:

Project #: P044.001.002

Project Manager: Nick Scala

ALPHA Quote #:

Turn-Around Time

☐ Standard ☒ RUSH (only confirmed if pre-approved!) 48hr

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☐ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program	Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD@terraphase.com
EDD Form

ANALYSIS

- A: 8260 - Benzene, Cumene, Ethyl Benzene, Methyl tert-butyl ether, 1,2,4 TMB, 1,3,5 TMB, Toluene, Xylenes
- B: 8270 - Benzo(a)pyrene, Naphthalene
- C: 8260 - Benzene, Cumene, Ethylbenzene, Methyl tert-butyl ether, 1,2,4 TMB, 1,3,5 TMB, Toluene, Xylenes
- D: 8270 - Naphthalene
- E: 8260 - Benzene, Toluene, Ethylbenzene, Xylenes, Cumene, 1,2,4 TMB, 1,3,5 TMB, 1,2 DBA
- F: 8270 - Naphthalene
- G: 8260 - Benzene, Toluene, Xylenes, 1,2,4 TMB, 1,3,5 TMB, Ethylbenzene, MTBE
- H: 6020 - Lead

SAMPLE HANDLING
Filtration ____
☐ Done
☐ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	A	B	C	D	E	F	G	H	Sample Specific Comments	TOTAL # BOTTLES
00373-21	PB-847-15R-17.0-17.5	1/4/23	910	SO	SMM			H	H				H	Rush/Hold	
22	T602-MW-18-15.5-16.0	1/4/23	1015	SO	SMM					X	X		X	Standard TAT/Analyze	
23	T601-MW-02-6.5-7.0	1/4/23	1240	SO	SMM		H					H	H	Standard TAT/Hold	
24	T601-MW-02-7.0-7.5	1/4/23	1255	SO	SMM		H					H	H	Standard TAT/Hold	
25	TB-230104-1	1/4/23	1458	TO	SMM	X								Analyze for Full 8260 VOCs	

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/4/23 1510	S Tom AAL	1/4/23 1510
S+	1/4/23 1800	[signature] AAL	1/4/23 1800
[signature] AAL	1/4/23 2100	UPS	1-4-23 2100
[signature]	1/5/22 0120		

UPS 1/5/23 0120

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

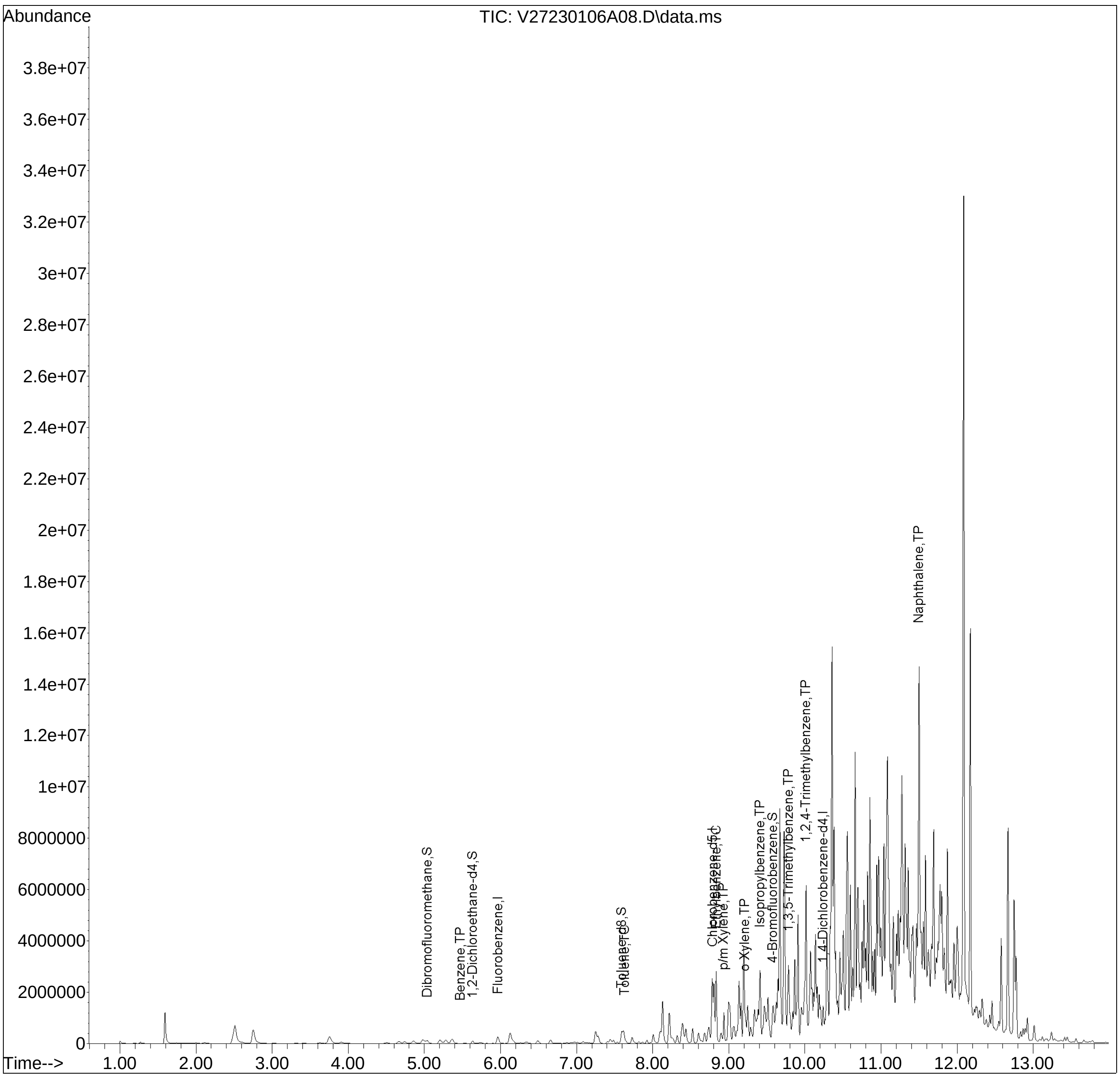
FORM NO: 01-01 (rev. 14-OCT-07)

Quantitation Report   (QT Reviewed)

Data Path : I:\VOLATILES\VOA127\2023\230106A\
Data File : V27230106A08.D
Acq On   : 06 Jan 2023 09:40 am
Operator : VOA127:JIC
Sample   : L2300373-20,31H,5.78,5,0.100,,X,R3B
Misc   : WG1730717,ICAL19627
ALS Vial : 8   Sample Multiplier: 1

Quant Time: Jan 06 10:20:59 2023
Quant Method : I:\VOLATILES\VOA127\2023\230106A\V127_221227N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Wed Dec 28 14:42:32 2022
Response via : Initial Calibration

Sub List   : 8260-PA_ShortList - PA Short list06A\V27230106A01.D•

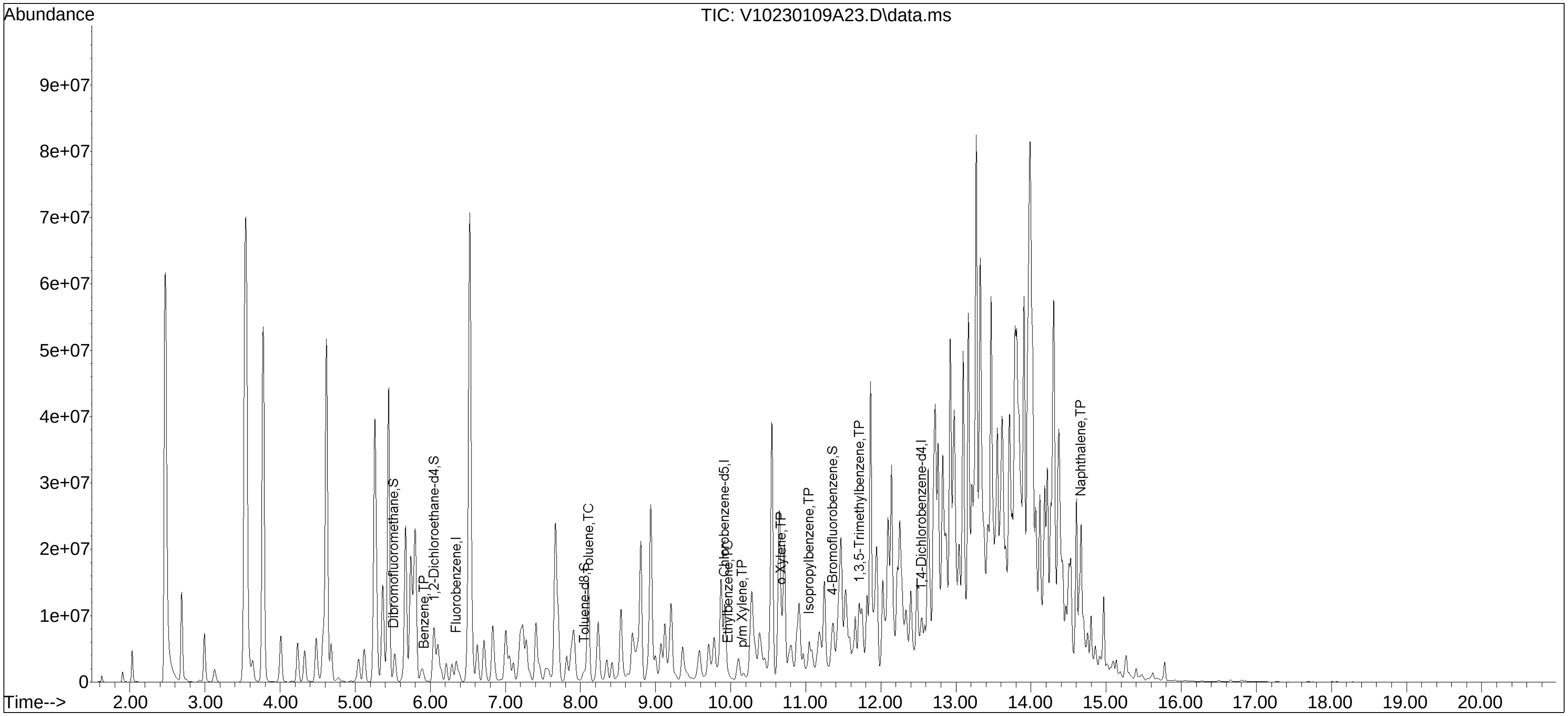


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2023\230109A\
Data File : V10230109A23.D
Acq On : 9 Jan 2023 10:53 pm
Operator : VOA110:JIC
Sample : l2300373-21,31,6.22,5,,z,r3b
Misc : WG1731733,ICAL19281
ALS Vial : 23 Sample Multiplier: 1

Quant Time: Jan 10 08:29:30 2023
Quant Method : I:\VOLATILES\VOA110\2023\230109A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V10230109A02.D•

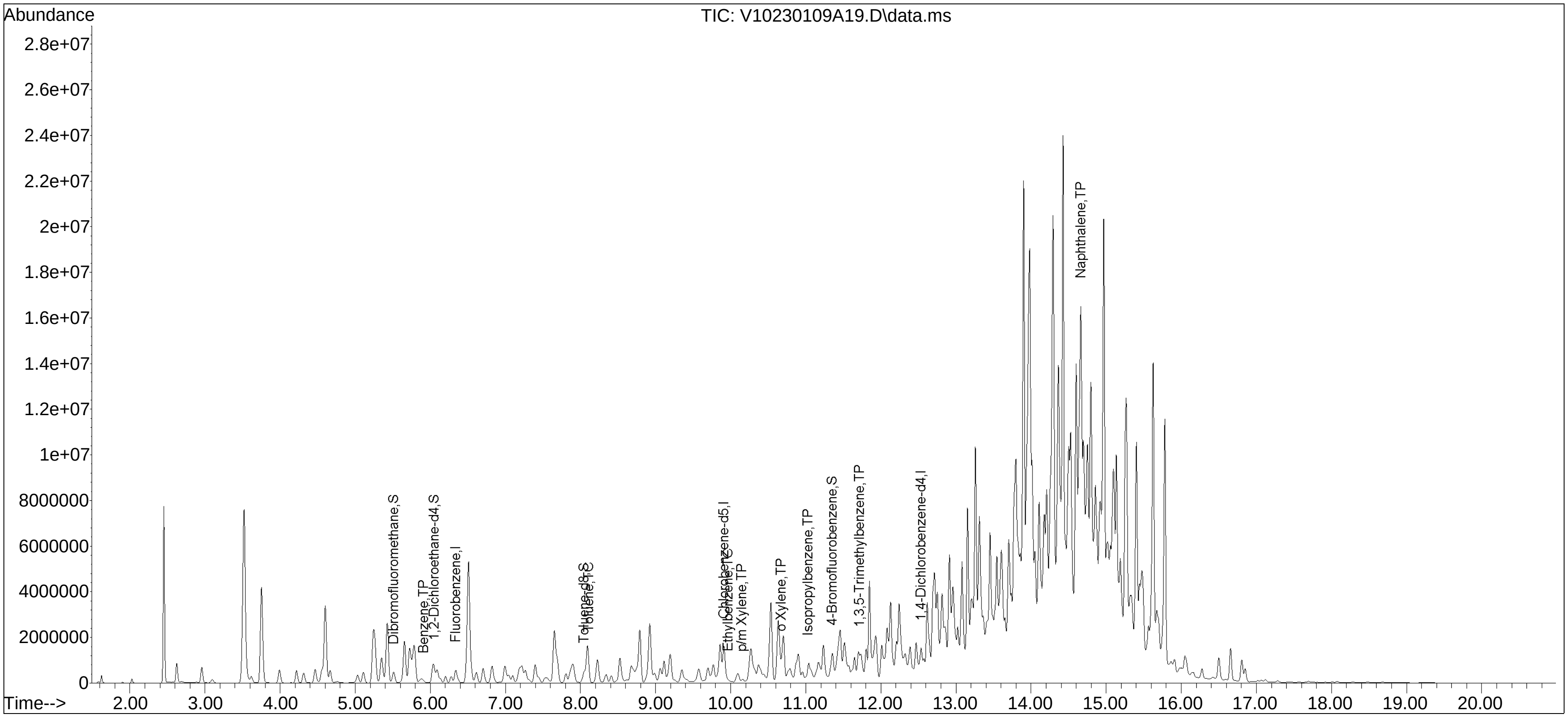


Quantitation Report (QT Reviewed)

Data Path : I:\VOLATILES\VOA110\2023\230109A\
Data File : V10230109A19.D
Acq On : 9 Jan 2023 9:05 pm
Operator : VOA110:JIC
Sample : l2300373-21,31h,6.58,5,0.100,,x,r3b
Misc : WG1731736,ICAL19281
ALS Vial : 19 Sample Multiplier: 1

Quant Time: Jan 10 08:27:54 2023
Quant Method : I:\VOLATILES\VOA110\2023\230109A\V110_220822N_8260.m
Quant Title : VOLATILES BY GC/MS
QLast Update : Tue Aug 23 09:34:28 2022
Response via : Initial Calibration

Sub List : 8260-PA_ShortList - PA Short list09A\V10230109A02.D•



ANALYTICAL REPORT

Lab Number:	L2304048
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHILADELPHIA REFINERY
Project Number:	P044.001.002
Report Date:	02/08/23

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2304048
Report Date: 02/08/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2304048-01	TG02-MW-01-230123	WATER	3144 W. PASSYUNK AVE.	01/23/23 09:55	01/24/23
L2304048-02	TG02-MW-01-230123D	WATER	3144 W. PASSYUNK AVE.	01/23/23 09:55	01/24/23
L2304048-03	TG02-MW-02-230123	WATER	3144 W. PASSYUNK AVE.	01/23/23 12:00	01/24/23
L2304048-04	S-271-230123	WATER	3144 W. PASSYUNK AVE.	01/23/23 14:45	01/24/23
L2304048-05	S-206-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 10:00	01/24/23
L2304048-06	TG02-MW-13-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 10:10	01/24/23
L2304048-07	S-207-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 12:30	01/24/23
L2304048-08	TG02-MW-18-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 12:35	01/24/23
L2304048-09	TB-230124-2	WATER	3144 W. PASSYUNK AVE.	01/24/23 00:00	01/24/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

Case Narrative (continued)

Report Revision

February 08, 2023: The Client ID was amended on L2304048-08.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Volatile Organics

The WG1737973-6/-7 MS/MSD recoveries, performed on L2304048-03, are outside the acceptance criteria for benzene (0%/0%) and p/m-xylene (62%MSD). The unacceptable percent recoveries are attributed to the elevated concentrations of target compounds present in the native sample.

Semivolatile Organics by SIM

The WG1737104-1 Method Blank, associated with L2304048-01, -02, and -04, has a concentration above the reporting limit for Phenanthrene. Since the associated sample concentrations are either greater than 10x the blank concentration or non-detect to the RL for this target analyte, no corrective action is required. Any results detected below the reporting limit are qualified with a "B".

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative

Date: 02/08/23

ALPHA ANALYTICAL

ORGANICS

VOLATILES

SAMPLE RESULTS

Lab ID: L2304048-01
Client ID: TG02-MW-01-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 13:46
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-01 D
Client ID: TG02-MW-01-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 13:43
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	1400		ug/l	100	17.	100
Benzene	10000		ug/l	50	16.	100
1,2-Dichloroethane	ND		ug/l	50	13.	100
Toluene	150		ug/l	75	20.	100
1,2-Dibromoethane	ND		ug/l	200	19.	100
Ethylbenzene	360		ug/l	50	17.	100
p/m-Xylene	920		ug/l	100	33.	100
o-Xylene	160		ug/l	100	39.	100
Xylenes, Total	1100		ug/l	100	33.	100
Isopropylbenzene	57		ug/l	50	19.	100
1,3,5-Trimethylbenzene	70	J	ug/l	250	22.	100
1,2,4-Trimethylbenzene	260		ug/l	250	19.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	97		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-02
Client ID: TG02-MW-01-230123D
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 13:55
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-02 D
Client ID: TG02-MW-01-230123D
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 14:04
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	1300		ug/l	100	17.	100
Benzene	9100		ug/l	50	16.	100
1,2-Dichloroethane	ND		ug/l	50	13.	100
Toluene	130		ug/l	75	20.	100
1,2-Dibromoethane	ND		ug/l	200	19.	100
Ethylbenzene	330		ug/l	50	17.	100
p/m-Xylene	890		ug/l	100	33.	100
o-Xylene	150		ug/l	100	39.	100
Xylenes, Total	1000		ug/l	100	33.	100
Isopropylbenzene	50		ug/l	50	19.	100
1,3,5-Trimethylbenzene	62	J	ug/l	250	22.	100
1,2,4-Trimethylbenzene	250		ug/l	250	19.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	93		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-03
Client ID: TG02-MW-02-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 12:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:03
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-03 D
Client ID: TG02-MW-02-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 12:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 14:24
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	69		ug/l	40	6.6	40
Benzene	5600		ug/l	20	6.4	40
1,2-Dichloroethane	ND		ug/l	20	5.3	40
Toluene	560		ug/l	30	8.1	40
1,2-Dibromoethane	ND		ug/l	80	7.7	40
Ethylbenzene	50		ug/l	20	6.7	40
p/m-Xylene	1900		ug/l	40	13.	40
o-Xylene	820		ug/l	40	16.	40
Xylenes, Total	2700		ug/l	40	13.	40
Isopropylbenzene	ND		ug/l	20	7.5	40
1,3,5-Trimethylbenzene	150		ug/l	100	8.7	40
1,2,4-Trimethylbenzene	330		ug/l	100	7.6	40

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	100		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	95		70-130
Dibromofluoromethane	92		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-04
Client ID: S-271-230123
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/23/23 14:45
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:11
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-04 D	Date Collected:	01/23/23 14:45
Client ID:	S-271-230123	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 14:44
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	11000		ug/l	100	17.	100
Benzene	130		ug/l	50	16.	100
1,2-Dichloroethane	ND		ug/l	50	13.	100
Toluene	51	J	ug/l	75	20.	100
1,2-Dibromoethane	ND		ug/l	200	19.	100
Ethylbenzene	ND		ug/l	50	17.	100
p/m-Xylene	48	J	ug/l	100	33.	100
o-Xylene	ND		ug/l	100	39.	100
Xylenes, Total	48	J	ug/l	100	33.	100
Isopropylbenzene	66		ug/l	50	19.	100
1,3,5-Trimethylbenzene	ND		ug/l	250	22.	100
1,2,4-Trimethylbenzene	ND		ug/l	250	19.	100

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	102		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	99		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-05
Client ID: S-206-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 10:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:19
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-05
Client ID: S-206-230124
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 10:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 12:43
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	2.2		ug/l	1.0	0.17	1
Benzene	1.0		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	0.36	J	ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	0.85	J	ug/l	1.0	0.33	1
o-Xylene	0.72	J	ug/l	1.0	0.39	1
Xylenes, Total	1.6	J	ug/l	1.0	0.33	1
Isopropylbenzene	8.1		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	92		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-06
Client ID: TG02-MW-13-230124
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 10:10
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:28
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-06 Date Collected: 01/24/23 10:10

Client ID: TG02-MW-13-230124 Date Received: 01/24/23

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Analytical Method: 1,8260D

Analytical Date: 01/26/23 13:03

Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	44		ug/l	1.0	0.17	1
Benzene	54		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	2.2		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	4.3		ug/l	0.50	0.17	1
p/m-Xylene	10		ug/l	1.0	0.33	1
o-Xylene	2.0		ug/l	1.0	0.39	1
Xylenes, Total	12		ug/l	1.0	0.33	1
Isopropylbenzene	27		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	1.2	J	ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	5.1		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	105		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	81		70-130

Project Name: FORMER PHILADELPHIA REFINERY | **Lab Number:** L2304048
Project Number: P044.001.002 | **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-07
Client ID: S-207-230124
Sample Location: 3144 W. PASSYUNK AVE.

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:36
Analyst: AMM

Date Collected: 01/24/23 12:30
Date Received: 01/24/23
Field Prep: Refer to COC

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-07	Date Collected:	01/24/23 12:30
Client ID:	S-207-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 13:23
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	0.76	J	ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	0.23	J	ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	16		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	91		70-130
Toluene-d8	110		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	86		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-08	Date Collected:	01/24/23 12:35
Client ID:	TG02-MW-18-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/27/23 11:50
Analytical Date:	01/27/23 14:44		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-08 D
Client ID: TG02-MW-18-230124
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 12:35
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 15:04
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	0.77	J	ug/l	2.0	0.33	2
Benzene	49		ug/l	1.0	0.32	2
1,2-Dichloroethane	ND		ug/l	1.0	0.26	2
Toluene	1.3	J	ug/l	1.5	0.41	2
1,2-Dibromoethane	ND		ug/l	4.0	0.39	2
Ethylbenzene	190		ug/l	1.0	0.33	2
p/m-Xylene	360		ug/l	2.0	0.66	2
o-Xylene	38		ug/l	2.0	0.78	2
Xylenes, Total	400		ug/l	2.0	0.66	2
Isopropylbenzene	120		ug/l	1.0	0.37	2
1,3,5-Trimethylbenzene	14		ug/l	5.0	0.43	2
1,2,4-Trimethylbenzene	66		ug/l	5.0	0.38	2

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	101		70-130
Toluene-d8	102		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	94		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-09
Client ID: TB-230124-2
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 00:00
Date Received: 01/24/23
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/27/23 14:53
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-09	Date Collected:	01/24/23 00:00
Client ID:	TB-230124-2	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/26/23 12:23
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	108		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	108		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 01/27/23 13:13
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/27/23 11:50

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-09 Batch: WG1737941-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/26/23 08:03
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-09 Batch: WG1737973-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	106		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	102		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2304048
Report Date: 02/08/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-09 Batch: WG1737941-2									
1,2-Dibromoethane	100		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 Batch: WG1737973-3 WG1737973-4								
Methyl tert butyl ether	90		94		63-130	4		20
Benzene	98		98		70-130	0		20
1,2-Dichloroethane	96		96		70-130	0		20
Toluene	95		96		70-130	1		20
1,2-Dibromoethane	93		97		70-130	4		20
Ethylbenzene	94		95		70-130	1		20
p/m-Xylene	90		95		70-130	5		20
o-Xylene	90		90		70-130	0		20
Isopropylbenzene	100		95		70-130	5		20
1,3,5-Trimethylbenzene	93		90		64-130	3		20
1,2,4-Trimethylbenzene	94		90		70-130	4		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	98		99		70-130
Toluene-d8	100		100		70-130
4-Bromofluorobenzene	99		96		70-130
Dibromofluoromethane	97		97		70-130

Matrix Spike Analysis
Batch Quality Control

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1737941-3 WG1737941-4 QC Sample: L2304048-03 Client ID: TG02-MW-02-230123													
1,2-Dibromoethane	ND	0.251	0.264	105		0.269	106		80-120	2		20	A

Matrix Spike Analysis

Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY

Project Number: P044.001.002

Lab Number: L2304048

Report Date: 02/08/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1737973-6 WG1737973-7 QC Sample: L2304048-03 Client ID: TG02-MW-02-230123												
Methyl tert butyl ether	69	400	460	98		460	98		63-130	0		20
Benzene	5600	400	5600	**0**	Q	5400	**0**	Q	70-130	4		20
1,2-Dichloroethane	ND	400	390	98		390	98		70-130	0		20
Toluene	560	400	900	85		870	78		70-130	3		20
1,2-Dibromoethane	ND	400	390	98		400	100		70-130	3		20
Ethylbenzene	50	400	430	95		410	90		70-130	5		20
p/m-Xylene	1900	800	2500	75		2400	**62**	Q	70-130	4		20
o-Xylene	820	800	1500	85		1500	85		70-130	0		20
Isopropylbenzene	ND	400	380	95		380	95		70-130	0		20
1,3,5-Trimethylbenzene	150	400	510	90		510	90		64-130	0		20
1,2,4-Trimethylbenzene	330	400	670	85		670	85		70-130	0		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	99		97		70-130
4-Bromofluorobenzene	94		95		70-130
Dibromofluoromethane	95		96		70-130
Toluene-d8	99		101		70-130

SEMIVOLATILES

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-01
Client ID: TG02-MW-01-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/26/23 09:23
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 01/25/23 10:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	140	E	ug/l	0.10	0.05	1
Fluorene	1.4		ug/l	0.10	0.01	1
Phenanthrene	1.9		ug/l	0.05	0.02	1
Anthracene	0.21		ug/l	0.10	0.01	1
Pyrene	0.13		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.03	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**132**	Q	23-120
2-Fluorobiphenyl	67		15-120
4-Terphenyl-d14	72		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-01 D
Client ID: TG02-MW-01-230123
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/30/23 16:32
Analyst: JJW
Extraction Method: EPA 3510C
Extraction Date: 01/25/23 10:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	170		ug/l	0.50	0.24	5

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-02
Client ID: TG02-MW-01-230123D
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 09:55
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/26/23 09:40
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 01/25/23 10:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	140	E	ug/l	0.10	0.05	1
Fluorene	1.4		ug/l	0.10	0.01	1
Phenanthrene	1.8		ug/l	0.05	0.02	1
Anthracene	0.18		ug/l	0.10	0.01	1
Pyrene	0.14		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.05		ug/l	0.05	0.02	1
Chrysene	0.05	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**132**	Q	23-120
2-Fluorobiphenyl	65		15-120
4-Terphenyl-d14	65		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-02 D	Date Collected:	01/23/23 09:55
Client ID:	TG02-MW-01-230123D	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/25/23 10:49
Analytical Date:	01/30/23 16:48		
Analyst:	JJW		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	170		ug/l	0.50	0.24	5

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-03
Client ID: TG02-MW-02-230123
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/23/23 12:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/31/23 09:02
Analyst: WR
Extraction Method: EPA 3510C
Extraction Date: 01/30/23 15:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	7.1		ug/l	0.10	0.05	1
Fluorene	0.28		ug/l	0.10	0.01	1
Phenanthrene	0.06		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	0.04	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.02	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.01	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	67		15-120
4-Terphenyl-d14	60		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-04
Client ID: S-271-230123
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/23/23 14:45
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/26/23 10:47
Analyst: DV

Extraction Method: EPA 3510C
Extraction Date: 01/25/23 10:49

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	0.70		ug/l	0.10	0.05	1
Fluorene	8.6		ug/l	0.10	0.01	1
Phenanthrene	8.0		ug/l	0.05	0.02	1
Anthracene	1.2		ug/l	0.10	0.01	1
Pyrene	0.60		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.06		ug/l	0.05	0.02	1
Chrysene	0.07	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.03	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	119		23-120
2-Fluorobiphenyl	68		15-120
4-Terphenyl-d14	71		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-05
Client ID: S-206-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 10:00
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/31/23 09:52
Analyst: WR
Extraction Method: EPA 3510C
Extraction Date: 01/30/23 15:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.70		ug/l	0.10	0.01	1
Phenanthrene	0.46		ug/l	0.05	0.02	1
Anthracene	0.02	J	ug/l	0.10	0.01	1
Pyrene	0.02	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.04	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.06		ug/l	0.05	0.01	1
Benzo(a)pyrene	0.03	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.04	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.03	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**121**	Q	23-120
2-Fluorobiphenyl	66		15-120
4-Terphenyl-d14	60		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048

Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-06	Date Collected:	01/24/23 10:10
Client ID:	TG02-MW-13-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/30/23 15:35
Analytical Date:	01/31/23 10:08		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	1.5		ug/l	0.10	0.01	1
Phenanthrene	0.21		ug/l	0.05	0.02	1
Anthracene	0.08	J	ug/l	0.10	0.01	1
Pyrene	0.05	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	104		23-120
2-Fluorobiphenyl	62		15-120
4-Terphenyl-d14	60		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-07	Date Collected:	01/24/23 12:30
Client ID:	S-207-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/30/23 15:35
Analytical Date:	01/31/23 10:24		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	0.85		ug/l	0.10	0.01	1
Phenanthrene	0.40		ug/l	0.05	0.02	1
Anthracene	0.08	J	ug/l	0.10	0.01	1
Pyrene	0.03	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	66		15-120
4-Terphenyl-d14	62		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-08
Client ID: TG02-MW-18-230124
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 12:35
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/31/23 10:41
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/30/23 15:35

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	16		ug/l	0.10	0.05	1
Fluorene	0.30		ug/l	0.10	0.01	1
Phenanthrene	0.24		ug/l	0.05	0.02	1
Anthracene	0.03	J	ug/l	0.10	0.01	1
Pyrene	0.04	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	113		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	69		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM	Extraction Method:	EPA 3510C
Analytical Date:	01/26/23 09:07	Extraction Date:	01/25/23 10:49
Analyst:	DV		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-02,04 Batch: WG1737104-1					
Naphthalene	0.06	J	ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.07		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.03	J	ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	95		23-120
2-Fluorobiphenyl	63		15-120
4-Terphenyl-d14	70		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 01/31/23 08:13
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/30/23 15:35

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 03,05-08 Batch: WG1738829-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	0.05	J	ug/l	0.10	0.02
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02
Chrysene	0.04	J	ug/l	0.10	0.01
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	120		23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	80		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-02,04 Batch: WG1737104-2 WG1737104-3								
Naphthalene	78		64		40-140	20		40
Fluorene	92		72		40-140	24		40
Phenanthrene	75		76		40-140	1		40
Anthracene	75		76		40-140	1		40
Pyrene	79		82		26-127	4		40
Benzo(a)anthracene	75		83		40-140	10		40
Chrysene	79		88		40-140	11		40
Benzo(b)fluoranthene	74		86		40-140	15		40
Benzo(a)pyrene	76		83		40-140	9		40
Indeno(1,2,3-cd)pyrene	83		90		40-140	8		40
Benzo(ghi)perylene	77		85		40-140	10		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	109		98		23-120
2-Fluorobiphenyl	71		65		15-120
4-Terphenyl-d14	78		81		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03,05-08 Batch: WG1738829-2 WG1738829-3								
Naphthalene	61		59		40-140	3		40
Fluorene	64		62		40-140	3		40
Phenanthrene	68		62		40-140	9		40
Anthracene	69		62		40-140	11		40
Pyrene	68		62		26-127	9		40
Benzo(a)anthracene	72		66		40-140	9		40
Chrysene	73		66		40-140	10		40
Benzo(b)fluoranthene	77		66		40-140	15		40
Benzo(a)pyrene	73		66		40-140	10		40
Indeno(1,2,3-cd)pyrene	90		74		40-140	20		40
Benzo(ghi)perylene	72		69		40-140	4		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	100		95		23-120
2-Fluorobiphenyl	62		59		15-120
4-Terphenyl-d14	68		60		41-149

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304048
Report Date: 02/08/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 03,05-08 QC Batch ID: WG1738829-4 WG1738829-5 QC Sample: L2304048-03 Client ID: TG02-MW-02-230123												
Naphthalene	7.1	3.64	8.8	47		10	80		40-140	13		40
Fluorene	0.28	3.64	2.8	69		2.9	72		40-140	4		40
Phenanthrene	0.06	3.64	2.6	70		2.7	73		40-140	4		40
Anthracene	ND	3.64	2.7	74		2.7	74		40-140	0		40
Pyrene	0.04J	3.64	2.6	72		2.6	72		26-127	0		40
Benzo(a)anthracene	0.03J	3.64	2.5	69		2.4	66		40-140	4		40
Chrysene	0.02J	3.64	2.6	72		2.5	69		40-140	4		40
Benzo(b)fluoranthene	0.01J	3.64	2.2	61		2.2	61		40-140	0		40
Benzo(a)pyrene	ND	3.64	2.3	63		2.2	61		40-140	4		40
Indeno(1,2,3-cd)pyrene	ND	3.64	1.4	**39**	Q	1.3	**36**	Q	40-140	7		40
Benzo(ghi)perylene	ND	3.64	1.2	**33**	Q	1.2	**33**	Q	40-140	0		40

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Fluorobiphenyl	68		66		15-120
4-Terphenyl-d14	67		64		41-149
Nitrobenzene-d5	112		107		23-120

METALS

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-01 Date Collected: 01/23/23 09:55
Client ID: TG02-MW-01-230123 Date Received: 01/24/23
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 17:20	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-02	Date Collected:	01/23/23 09:55
Client ID:	TG02-MW-01-230123D	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 17:25	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-03 Date Collected: 01/23/23 12:00
Client ID: TG02-MW-02-230123 Date Received: 01/24/23
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	3.930		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 15:51	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY　　**Lab Number:** L2304048

Project Number: P044.001.002　　**Report Date:** 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-04　　Date Collected: 01/23/23 14:45

Client ID: S-271-230123　　Date Received: 01/24/23

Sample Location: 3144 W. PASSYUNK AVE.　　Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	8.246		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 17:30	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-05	Date Collected:	01/24/23 10:00
Client ID:	S-206-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 17:36	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304048
Project Number:	P044.001.002	**Report Date:**	02/08/23

SAMPLE RESULTS

Lab ID:	L2304048-06	Date Collected:	01/24/23 10:10
Client ID:	TG02-MW-13-230124	Date Received:	01/24/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 17:59	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-07
Date Collected: 01/24/23 12:30
Client ID: S-207-230124
Date Received: 01/24/23
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 18:05	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

SAMPLE RESULTS

Lab ID: L2304048-08
Client ID: TG02-MW-18-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 12:35
Date Received: 01/24/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 18:10	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304048
Project Number: P044.001.002 **Report Date:** 02/08/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-08 Batch: WG1737110-1										
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/25/23 16:36	01/26/23 15:19	1,6020B	WKP

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304048
Project Number: P044.001.002
Report Date: 02/08/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 Batch: WG1737110-2								
Lead, Dissolved	99		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304048
Report Date: 02/08/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-08 QC Batch ID: WG1737110-3 WG1737110-4 QC Sample: L2304048-03 Client ID: TG02-MW-02-230123												
Lead, Dissolved	3.930	530	519.1	97		531.6	100		75-125	2		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304048-01A	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-01B	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-01C	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-01D	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-01E	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-01F	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-01G	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-01H	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-02A	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-02B	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-02C	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-02D	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-02E	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-02F	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-02G	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-02H	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-03A	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03A1	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03A2	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03B	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03B1	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03B2	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304048-03C	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03C1	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03C2	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-03D	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03D1	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03D2	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03E	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03E1	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03E2	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-03F	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03F1	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03F2	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03G	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03G1	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03G2	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-03H	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-03H1	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-03H2	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-04A	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-04B	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-04C	Vial HCl preserved	B	NA		3.4	Y	Absent		PA-8260(14)
L2304048-04D	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-04E	Vial Na2S2O3 preserved	B	NA		3.4	Y	Absent		8011(14)
L2304048-04F	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-04G	Amber 250ml unpreserved	B	7	7	3.4	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-04H	Plastic 250ml HNO3 preserved	B	<2	<2	3.4	Y	Absent		PB-6020S-PPB(180)
L2304048-05A	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-05B	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2304048
Report Date: 02/08/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304048-05C	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-05D	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-05E	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-05F	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-05G	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-05H	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-6020S-PPB(180)
L2304048-06A	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-06B	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-06C	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-06D	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-06E	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-06F	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-06G	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-06H	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-6020S-PPB(180)
L2304048-07A	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-07B	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-07C	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-07D	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-07E	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-07F	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-07G	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-07H	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-6020S-PPB(180)
L2304048-08A	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-08B	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-08C	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-08D	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-08E	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-08F	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304048-08G	Amber 250ml unpreserved	A	7	7	3.7	Y	Absent		PA-PAHSIM-LVI(7)
L2304048-08H	Plastic 250ml HNO3 preserved	A	<2	<2	3.7	Y	Absent		PB-6020S-PPB(180)
L2304048-09A	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-09B	Vial HCl preserved	A	NA		3.7	Y	Absent		PA-8260(14)
L2304048-09C	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)
L2304048-09D	Vial Na2S2O3 preserved	A	NA		3.7	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: DU Report with 'J' Qualifiers

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

ALPHA ANALYTICAL

CHAIN OF CUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 1/24/23

ALPHA Job #: L2304048

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering

Address: 100 Canal Pointe Blvd. Suite 105, Princeton NJ 08540

Phone: 215 297 3502

Fax:

Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery

Project Location: 3144 Passyunk Ave.

Project #: P044.001.002

Project Manager: Nick Scala

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EOD@Terraphase.com
Equis EDD
A see attached sheet for short list compounds.

ANALYSIS: VOC's - Short List 1-5; SVOC's - Short List 1-5; Lead

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed — lead field filtered
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOC's - Short List 1-5	SVOC's - Short List 1-5	Lead	Sample Specific Comments	TOTAL # BOTTLES
04048 -01	TG02-MW-01-230123	1/23/23	9:55	GW	EAB	X	X	X		
02	TG02-MW-01-230123D	1/23/23	9:55	GW	EAB	X	X	X		
03	TG02-MW-02-230123	1/23/23	12:00	GW	EAB	X	X	X		
03	TG02-MW-02-230123 MS	1/23/23	12:00	GW	EAB	X	X	X		
03	TG02-MW-02-230123 MSD	1/23/23	12:00	GW	EAB	X	X	X		
04	S-271-230123	1/23/23	14:45	GW	EAB	X	X	X		
05	S-206-230124	1/24/23	10:00	GW	EAB	X	X	X		
06	TG02-MW-13-230124	1/24/23	10:10	GW	KJO	X	X	X		
07	S-207-230124	1/24/23	12:30	GW	EAB	X	X	X		
08	TG02-MW-15-230124	1/24/23	12:35	GW	KJO	X	X	X		

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/24/23 1550	[signature]	1/24/23 1550
[signature]	1/24/23 1800	[signature] AAL	1/24/23 1800
[signature] AAL	1/24/23 2100	404	1-24-23 2100

SDAAL 1/25/23 0100

1/25/23 0100 AAL

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

CHAIN OF CUSTODY

PAGE 2 OF 2

Date Rec'd in Lab: 1/24/23

ALPHA Job #: L2304048

ALPHA ANALYTICAL
WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193
MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering
Address: 100 Canal Pointe Blvd Suite 108, Princeton NJ 08540
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery
Project Location: 3144 Passyunk Ave
Project #: 0044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:
EDD @ Terraphase.com
Equis EDD
* see attached sheet for Short List Compounds

ANALYSIS: VOCs - short List 1-5; SVOCs - short List 1-5 (Lead)

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs - short List 1-5	SVOCs - short List 1-5 (Lead)	Sample Specific Comments	TOTAL # BOTTLES
04048 .09	TB-230124-2	1/24/23	14:25	TB	KJO	X	~~X~~ GO 1/24/23		

Container Type	
Preservative	

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/24/23 1550	[signature]	1/24/23 1550
[signature]	1/24/23 1800	[signature] AAL	1/24/23 1800
[signature] AAL	1/24/23 2106	[signature]	1-24-23 2106
[illegible]	1/24/23	[signature] AAL	1/24/23 2210

SJAAL 1/25/23 0100

1/25/23 0100

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

- **Short List 1**. *Leaded Gasoline, Aviation Gasoline and Jet Fuel*: benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2**. *Unleaded Gasoline*: benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 3**. *Kerosene, Fuel Oil No. 1*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 4**. *Diesel Fuel and Fuel Oil No. 2*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethyl benzene, and 1,3,5-trimethyl benzene.
- **Short List 5**. *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids*: benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene.
- **Short List 6**. *Waste Oil*: benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)pyrene, and lead.

ANALYTICAL REPORT

Lab Number:	L2304491
Client:	Terraphase Engineering Inc. 100 Canal Pointe Boulevard Suite 108 Princeton, NJ 08540
ATTN:	Nick Scala
Phone:	(609) 236-8171
Project Name:	FORMER PHILADELPHIA REFINERY
Project Number:	P044.001.002
Report Date:	02/15/23

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NJ (MA935), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-17-00196).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2304491
Report Date: 02/15/23

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L2304491-01	TG02-MW-14-230125	WATER	3144 W. PASSYUNK AVE.	01/25/23 09:30	01/26/23
L2304491-02	TG02-MW-07-230125	WATER	3144 W. PASSYUNK AVE.	01/25/23 11:35	01/26/23
L2304491-03	TG01-MW-01-230125	WATER	3144 W. PASSYUNK AVE.	01/25/23 12:15	01/26/23
L2304491-04	TG01-MW-03-230125	WATER	3144 W. PASSYUNK AVE.	01/25/23 14:10	01/26/23
L2304491-05	TG01-MW-02-230126	WATER	3144 W. PASSYUNK AVE.	01/26/23 09:40	01/26/23
L2304491-06	TG02-MW-16-230126	WATER	3144 W. PASSYUNK AVE.	01/26/23 10:25	01/26/23
L2304491-07	TG01-MW-02-230126D	WATER	3144 W. PASSYUNK AVE.	01/26/23 09:40	01/26/23
L2304491-08	S-77P-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 15:20	01/26/23
L2304491-09	S-200-230124	WATER	3144 W. PASSYUNK AVE.	01/24/23 15:50	01/26/23
L2304491-10	FB-230126-1	WATER	3144 W. PASSYUNK AVE.	01/26/23 11:45	01/26/23
L2304491-11	FB-230126-2	WATER	3144 W. PASSYUNK AVE.	01/26/23 11:40	01/26/23
L2304491-12	TB-230126-1	WATER	3144 W. PASSYUNK AVE.	01/26/23 11:50	01/26/23
L2304491-13	TB-230126-2	WATER	3144 W. PASSYUNK AVE.	01/26/23 11:55	01/26/23

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively.

When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances, the specific failure is not narrated but noted in the associated QC Outlier Summary Report, located directly after the Case Narrative. QC information is also incorporated in the Data Usability Assessment table (Format 11) of our Data Merger tool, where it can be reviewed in conjunction with the sample result, associated regulatory criteria and any associated data usability implications.

Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

HOLD POLICY - For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Alpha Project Manager and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Project Management at 800-624-9220 with any questions.

Case Narrative (continued)

Report Revision

February 15, 2023: The Volatile Organics analyte list has been amended on L2304491-01 through -13.

Report Submission

All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

Sample Receipt

L2304491-04: The collection date and time on the chain of custody was 25-JAN-23 14:55; however, the collection date/time on the container label was 25-JAN-23 14:10. At the client's request, the collection date/time is reported as 25-JAN-23 14:10.

Volatile Organics

The WG1739352-6/-7 MS/MSD recoveries, performed on L2304491-03, are outside the acceptance criteria for toluene (0%/0%) and 1,2,4-trimethylbenzene (0%/0%). The unacceptable percent recoveries are attributed to the elevated concentrations of target compounds present in the native sample.

Microextractables

The WG1738819-3 MS recovery for 1,2-dibromoethane (132%), performed on L2304491-03, is outside Alpha's acceptance criteria, but within the acceptance criteria specified in the method.
The WG1738819-3/-4 Laboratory Duplicate RPD for 1,2-dibromoethane (25%), performed on L2304491-03, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

Semivolatile Organics by SIM

The WG1738236-4/-5 MS/MSD recoveries, performed on L2304491-03, are outside the acceptance criteria for naphthalene (0%/0%). The unacceptable percent recoveries are attributed to the elevated concentrations of

Case Narrative (continued)

target compounds present in the native sample.

Dissolved Metals

The WG1738040-3/-4 MS/MSD recoveries, performed on L2304491-03, are outside the acceptance criteria for lead (58%/58%). A post digestion spike was performed and was within acceptance criteria.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature: Caitlin Walukevich Caitlin Walukevich

Title: Technical Director/Representative Date: 02/15/23

ORGANICS

VOLATILES

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-01
Client ID: TG02-MW-14-230125
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/25/23 09:30
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 18:19
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-01 D2
Client ID: TG02-MW-14-230125
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/25/23 09:30
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 13:35
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	690	E	ug/l	2.5	0.42	2.5
Benzene	330		ug/l	1.2	0.40	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
Toluene	6.5		ug/l	1.9	0.51	2.5
1,2-Dibromoethane	ND		ug/l	5.0	0.48	2.5
Ethylbenzene	2.3		ug/l	1.2	0.42	2.5
p/m-Xylene	11		ug/l	2.5	0.83	2.5
o-Xylene	3.0		ug/l	2.5	0.98	2.5
Xylenes, Total	14		ug/l	2.5	0.83	2.5
Isopropylbenzene	59		ug/l	1.2	0.47	2.5
1,3,5-Trimethylbenzene	8.2		ug/l	6.2	0.54	2.5
1,2,4-Trimethylbenzene	17		ug/l	6.2	0.48	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	78		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	89		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-01 D	Date Collected:	01/25/23 09:30
Client ID:	TG02-MW-14-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 13:14
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	710		ug/l	10	1.7	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	88		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	104		70-130
Dibromofluoromethane	94		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-02
Client ID: TG02-MW-07-230125
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/25/23 11:35
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 18:27
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-02 D
Client ID: TG02-MW-07-230125
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/25/23 11:35
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 12:53
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	300		ug/l	5.0	0.83	5
Benzene	180		ug/l	2.5	0.80	5
1,2-Dichloroethane	ND		ug/l	2.5	0.66	5
Toluene	76		ug/l	3.8	1.0	5
1,2-Dibromoethane	ND		ug/l	10	0.96	5
Ethylbenzene	25		ug/l	2.5	0.84	5
p/m-Xylene	63		ug/l	5.0	1.7	5
o-Xylene	20		ug/l	5.0	2.0	5
Xylenes, Total	83		ug/l	5.0	1.7	5
Isopropylbenzene	32		ug/l	2.5	0.94	5
1,3,5-Trimethylbenzene	7.5	J	ug/l	12	1.1	5
1,2,4-Trimethylbenzene	27		ug/l	12	0.96	5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	88		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-03
Client ID: TG01-MW-01-230125
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/25/23 12:15
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 18:36
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-03 D
Client ID: TG01-MW-01-230125
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/25/23 12:15
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 12:13
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	10	1.7	10
Benzene	10		ug/l	5.0	1.6	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
Toluene	1200		ug/l	7.5	2.0	10
1,2-Dibromoethane	ND		ug/l	20	1.9	10
Ethylbenzene	150		ug/l	5.0	1.7	10
p/m-Xylene	1300		ug/l	10	3.3	10
o-Xylene	560		ug/l	10	3.9	10
Xylenes, Total	1900		ug/l	10	3.3	10
Isopropylbenzene	71		ug/l	5.0	1.9	10
1,3,5-Trimethylbenzene	660		ug/l	25	2.2	10
1,2,4-Trimethylbenzene	1600		ug/l	25	1.9	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	109		70-130
Dibromofluoromethane	97		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-04	Date Collected:	01/25/23 14:10
Client ID:	TG01-MW-03-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 18:44		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-04	Date Collected:	01/25/23 14:10
Client ID:	TG01-MW-03-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 21:52
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	5.7		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	0.18	J	ug/l	0.50	0.17	1
p/m-Xylene	0.52	J	ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	0.52	J	ug/l	1.0	0.33	1
Isopropylbenzene	1.2		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	0.28	J	ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	0.51	J	ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	116		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-05	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 18:52		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY　　**Lab Number:** L2304491

Project Number: P044.001.002　　**Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-05	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 22:17
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	0.44	J	ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	16		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	100		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	114		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-06	Date Collected:	01/26/23 10:25
Client ID:	TG02-MW-16-230126	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 19:00		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-06 D
Client ID: TG02-MW-16-230126
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/26/23 10:25
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 22:42
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	410		ug/l	10	1.7	10
Benzene	460		ug/l	5.0	1.6	10
1,2-Dichloroethane	ND		ug/l	5.0	1.3	10
Toluene	450		ug/l	7.5	2.0	10
1,2-Dibromoethane	ND		ug/l	20	1.9	10
Ethylbenzene	460		ug/l	5.0	1.7	10
p/m-Xylene	1800		ug/l	10	3.3	10
o-Xylene	530		ug/l	10	3.9	10
Xylenes, Total	2300		ug/l	10	3.3	10
Isopropylbenzene	84		ug/l	5.0	1.9	10
1,3,5-Trimethylbenzene	270		ug/l	25	2.2	10
1,2,4-Trimethylbenzene	740		ug/l	25	1.9	10

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	90		70-130
Toluene-d8	101		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	85		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-07	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126D	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 19:08		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-07	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126D	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 23:06
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	0.44	J	ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	17		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	0.38	J	ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	0.38	J	ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	0.31	J	ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	113		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-08	Date Collected:	01/24/23 15:20
Client ID:	S-77P-230124	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 19:17		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-08 D
Client ID: S-77P-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 15:20
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 12:33
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	330		ug/l	2.5	0.42	2.5
Benzene	290		ug/l	1.2	0.40	2.5
1,2-Dichloroethane	ND		ug/l	1.2	0.33	2.5
Toluene	24		ug/l	1.9	0.51	2.5
1,2-Dibromoethane	ND		ug/l	5.0	0.48	2.5
Ethylbenzene	6.4		ug/l	1.2	0.42	2.5
p/m-Xylene	50		ug/l	2.5	0.83	2.5
o-Xylene	3.8		ug/l	2.5	0.98	2.5
Xylenes, Total	54		ug/l	2.5	0.83	2.5
Isopropylbenzene	100		ug/l	1.2	0.47	2.5
1,3,5-Trimethylbenzene	1.7	J	ug/l	6.2	0.54	2.5
1,2,4-Trimethylbenzene	2.0	J	ug/l	6.2	0.48	2.5

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	88		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-09
Client ID: S-200-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 15:50
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 19:25
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-09 D	Date Collected:	01/24/23 15:50
Client ID:	S-200-230124	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 23:55
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	200		ug/l	25	4.2	25
Benzene	4600		ug/l	12	4.0	25
1,2-Dichloroethane	ND		ug/l	12	3.3	25
Toluene	150		ug/l	19	5.1	25
1,2-Dibromoethane	ND		ug/l	50	4.8	25
Ethylbenzene	1100		ug/l	12	4.2	25
p/m-Xylene	1900		ug/l	25	8.3	25
o-Xylene	840		ug/l	25	9.8	25
Xylenes, Total	2700		ug/l	25	8.3	25
Isopropylbenzene	130		ug/l	12	4.7	25
1,3,5-Trimethylbenzene	470		ug/l	62	5.4	25
1,2,4-Trimethylbenzene	1200		ug/l	62	4.8	25

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	86		70-130
Toluene-d8	99		70-130
4-Bromofluorobenzene	98		70-130
Dibromofluoromethane	95		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-10
Client ID: FB-230126-1
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/26/23 11:45
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 19:34
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-10	Date Collected:	01/26/23 11:45
Client ID:	FB-230126-1	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 20:14
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	100		70-130
Dibromofluoromethane	122		70-130

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-11
Client ID: FB-230126-2
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/26/23 11:40
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8011
Analytical Date: 01/30/23 19:42
Analyst: AMM
Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-11
Client ID: FB-230126-2
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/26/23 11:40
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/29/23 20:39
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	97		70-130
Dibromofluoromethane	117		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-12	Date Collected:	01/26/23 11:50
Client ID:	TB-230126-1	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	None
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 19:51		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-12	Date Collected:	01/26/23 11:50
Client ID:	TB-230126-1	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 11:52
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	97		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	96		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-13	Date Collected:	01/26/23 11:55
Client ID:	TB-230126-2	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	None
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 8011
Analytical Method:	1,8011	Extraction Date:	01/30/23 16:16
Analytical Date:	01/30/23 19:59		
Analyst:	AMM		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Column
Microextractables by GC - Westborough Lab							
1,2-Dibromoethane	ND		ug/l	0.010	0.005	1	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-13
Client ID: TB-230126-2
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/26/23 11:55
Date Received: 01/26/23
Field Prep: None

Sample Depth:
Matrix: Water
Analytical Method: 1,8260D
Analytical Date: 01/30/23 11:31
Analyst: PID

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methyl tert butyl ether	ND		ug/l	1.0	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
Toluene	ND		ug/l	0.75	0.20	1
1,2-Dibromoethane	ND		ug/l	2.0	0.19	1
Ethylbenzene	ND		ug/l	0.50	0.17	1
p/m-Xylene	ND		ug/l	1.0	0.33	1
o-Xylene	ND		ug/l	1.0	0.39	1
Xylenes, Total	ND		ug/l	1.0	0.33	1
Isopropylbenzene	ND		ug/l	0.50	0.19	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	84		70-130
Toluene-d8	94		70-130
4-Bromofluorobenzene	99		70-130
Dibromofluoromethane	95		70-130

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8011
Analytical Date: 01/30/23 17:22
Analyst: AMM

Extraction Method: EPA 8011
Extraction Date: 01/30/23 16:16

Parameter	Result	Qualifier	Units	RL	MDL	
Microextractables by GC - Westborough Lab for sample(s): 01-13 Batch: WG1738819-1						
1,2-Dibromoethane	ND		ug/l	0.010	0.005	A

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/29/23 15:44
Analyst: KJD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 04-07,09-11 Batch: WG1739125-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	119		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	105		70-130
Dibromofluoromethane	123		70-130

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260D
Analytical Date: 01/30/23 10:50
Analyst: MJV

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-03,08,12-13 Batch: WG1739352-5					
Methyl tert butyl ether	ND		ug/l	1.0	0.17
Benzene	ND		ug/l	0.50	0.16
1,2-Dichloroethane	ND		ug/l	0.50	0.13
Toluene	ND		ug/l	0.75	0.20
1,2-Dibromoethane	ND		ug/l	2.0	0.19
Ethylbenzene	ND		ug/l	0.50	0.17
p/m-Xylene	ND		ug/l	1.0	0.33
o-Xylene	ND		ug/l	1.0	0.39
Xylenes, Total	ND		ug/l	1.0	0.33
Isopropylbenzene	ND		ug/l	0.50	0.19
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.22
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.19

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	93		70-130
Toluene-d8	96		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-13 Batch: WG1738819-2									
1,2-Dibromoethane	110		-		80-120	-		20	A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 04-07,09-11 Batch: WG1739125-3 WG1739125-4								
Methyl tert butyl ether	97		100		63-130	3		20
Benzene	96		99		70-130	3		20
1,2-Dichloroethane	110		110		70-130	0		20
Toluene	97		92		70-130	5		20
1,2-Dibromoethane	84		86		70-130	2		20
Ethylbenzene	100		97		70-130	3		20
p/m-Xylene	105		100		70-130	5		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	99		98		70-130	1		20
1,3,5-Trimethylbenzene	94		94		64-130	0		20
1,2,4-Trimethylbenzene	91		92		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	115		115		70-130
Toluene-d8	100		97		70-130
4-Bromofluorobenzene	99		101		70-130
Dibromofluoromethane	110		113		70-130

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,08,12-13 Batch: WG1739352-3 WG1739352-4								
Methyl tert butyl ether	83		88		63-130	6		20
Benzene	99		99		70-130	0		20
1,2-Dichloroethane	84		91		70-130	8		20
Toluene	94		95		70-130	1		20
1,2-Dibromoethane	83		84		70-130	1		20
Ethylbenzene	100		98		70-130	2		20
p/m-Xylene	100		100		70-130	0		20
o-Xylene	100		100		70-130	0		20
Isopropylbenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	100		100		64-130	0		20
1,2,4-Trimethylbenzene	100		99		70-130	1		20

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	82		91		70-130
Toluene-d8	97		99		70-130
4-Bromofluorobenzene	107		107		70-130
Dibromofluoromethane	97		105		70-130

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304491
Report Date: 02/15/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits	Column
Microextractables by GC - Westborough Lab Associated sample(s): 01-13 QC Batch ID: WG1738819-3 WG1738819-4 QC Sample: L2304491-03 Client ID: TG01-MW-01-230125													
1,2-Dibromoethane	ND	0.255	0.336	**132**	Q	0.261	104		80-120	**25**	Q	20	A

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304491
Report Date: 02/15/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-03,08,12-13 QC Batch ID: WG1739352-6 WG1739352-7 QC Sample: L2304491-03 Client ID: TG01-MW-01-230125												
Methyl tert butyl ether	ND	100	96	96		100	100		63-130	4		20
Benzene	10	100	120	110		130	120		70-130	8		20
1,2-Dichloroethane	ND	100	98	98		100	100		70-130	2		20
Toluene	1200	100	1200	**0**	Q	1200	**0**	Q	70-130	0		20
1,2-Dibromoethane	ND	100	94	94		100	100		70-130	6		20
Ethylbenzene	150	100	240	90		250	100		70-130	4		20
p/m-Xylene	1300	200	1400	**50**	Q	1400	**50**	Q	70-130	0		20
o-Xylene	560	200	710	75		740	90		70-130	4		20
Isopropylbenzene	71	100	170	99		180	109		70-130	6		20
1,3,5-Trimethylbenzene	660	100	670	**10**	Q	680	**20**	Q	64-130	1		20
1,2,4-Trimethylbenzene	1600	100	1500	**0**	Q	1500	**0**	Q	70-130	0		20

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	85		85		70-130
4-Bromofluorobenzene	103		103		70-130
Dibromofluoromethane	97		99		70-130
Toluene-d8	96		96		70-130

SEMIVOLATILES

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-01	Date Collected:	01/25/23 09:30
Client ID:	TG02-MW-14-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 15:42		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	7.3		ug/l	0.10	0.05	1
Fluorene	2.3		ug/l	0.10	0.01	1
Phenanthrene	1.3		ug/l	0.05	0.02	1
Anthracene	0.05	J	ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	115		23-120
2-Fluorobiphenyl	65		15-120
4-Terphenyl-d14	67		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-02
Client ID: TG02-MW-07-230125
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/25/23 11:35
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/29/23 15:58
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/27/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	10		ug/l	0.10	0.05	1
Fluorene	1.5		ug/l	0.10	0.01	1
Phenanthrene	0.90		ug/l	0.05	0.02	1
Anthracene	0.11		ug/l	0.10	0.01	1
Pyrene	0.06	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.02	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	62		15-120
4-Terphenyl-d14	68		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-03	Date Collected:	01/25/23 12:15
Client ID:	TG01-MW-01-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 15:25		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	22		ug/l	0.10	0.05	1
Fluorene	0.39		ug/l	0.10	0.01	1
Phenanthrene	1.1		ug/l	0.05	0.02	1
Anthracene	0.33		ug/l	0.10	0.01	1
Pyrene	0.22		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.03	J	ug/l	0.05	0.02	1
Chrysene	0.02	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**138**	Q	23-120
2-Fluorobiphenyl	65		15-120
4-Terphenyl-d14	76		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-04	Date Collected:	01/25/23 14:10
Client ID:	TG01-MW-03-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 16:15		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.2		ug/l	0.10	0.05	1
Fluorene	0.20		ug/l	0.10	0.01	1
Phenanthrene	0.25		ug/l	0.05	0.02	1
Anthracene	0.28		ug/l	0.10	0.01	1
Pyrene	0.23		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.05	J	ug/l	0.05	0.02	1
Chrysene	0.03	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.04	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	0.02	J	ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	102		23-120
2-Fluorobiphenyl	62		15-120
4-Terphenyl-d14	59		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-05
Client ID: TG01-MW-02-230126
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/26/23 09:40
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/29/23 16:31
Analyst: AH
Extraction Method: EPA 3510C
Extraction Date: 01/27/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.2		ug/l	0.10	0.05	1
Fluorene	0.11		ug/l	0.10	0.01	1
Phenanthrene	0.36		ug/l	0.05	0.02	1
Anthracene	0.14		ug/l	0.10	0.01	1
Pyrene	0.32		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.06		ug/l	0.05	0.02	1
Chrysene	0.07	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	97		23-120
2-Fluorobiphenyl	57		15-120
4-Terphenyl-d14	57		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-06	Date Collected:	01/26/23 10:25
Client ID:	TG02-MW-16-230126	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 16:48		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	29		ug/l	0.10	0.05	1
Fluorene	1.1		ug/l	0.10	0.01	1
Phenanthrene	1.0		ug/l	0.05	0.02	1
Anthracene	0.10		ug/l	0.10	0.01	1
Pyrene	0.05	J	ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**141**	Q	23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	75		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-07	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126D	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 17:05		
Analyst:	WR		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	1.3		ug/l	0.10	0.05	1
Fluorene	0.11		ug/l	0.10	0.01	1
Phenanthrene	0.38		ug/l	0.05	0.02	1
Anthracene	0.13		ug/l	0.10	0.01	1
Pyrene	0.29		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.06		ug/l	0.05	0.02	1
Chrysene	0.07	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.03	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.03	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	0.02	J	ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	87		23-120
2-Fluorobiphenyl	52		15-120
4-Terphenyl-d14	52		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-08	Date Collected:	01/24/23 15:20
Client ID:	S-77P-230124	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water	Extraction Method:	EPA 3510C
Analytical Method:	1,8270E-SIM	Extraction Date:	01/27/23 23:29
Analytical Date:	01/29/23 17:21		
Analyst:	WR		

Parameter	**Result**	**Qualifier**	**Units**	**RL**	**MDL**	**Dilution Factor**
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	4.5		ug/l	0.10	0.05	1
Fluorene	11		ug/l	0.10	0.01	1
Phenanthrene	7.4		ug/l	0.05	0.02	1
Anthracene	1.0		ug/l	0.10	0.01	1
Pyrene	0.33		ug/l	0.10	0.02	1
Benzo(a)anthracene	0.04	J	ug/l	0.05	0.02	1
Chrysene	0.04	J	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	0.02	J	ug/l	0.05	0.01	1
Benzo(a)pyrene	0.02	J	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	**% Recovery**	**Qualifier**	**Acceptance Criteria**
Nitrobenzene-d5	**151**	Q	23-120
2-Fluorobiphenyl	77		15-120
4-Terphenyl-d14	76		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-09
Client ID: S-200-230124
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/24/23 15:50
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 01/29/23 17:38
Analyst: AH

Extraction Method: EPA 3510C
Extraction Date: 01/27/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	5000	E	ug/l	0.10	0.05	1
Fluorene	300	E	ug/l	0.10	0.01	1
Phenanthrene	960	E	ug/l	0.05	0.02	1
Anthracene	230	E	ug/l	0.10	0.01	1
Pyrene	430	E	ug/l	0.10	0.02	1
Benzo(a)anthracene	150	E	ug/l	0.05	0.02	1
Chrysene	140	E	ug/l	0.10	0.01	1
Benzo(b)fluoranthene	110	E	ug/l	0.05	0.01	1
Benzo(a)pyrene	92	E	ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	38		ug/l	0.10	0.01	1
Benzo(ghi)perylene	39		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**156**	Q	23-120
2-Fluorobiphenyl	96		15-120
4-Terphenyl-d14	81		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-09 D
Client ID: S-200-230124
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/24/23 15:50
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 02/01/23 16:45
Analyst: DV
Extraction Method: EPA 3510C
Extraction Date: 01/27/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	6600		ug/l	10	4.9	100
Fluorene	470		ug/l	10	1.4	100
Phenanthrene	1100		ug/l	5.0	2.3	100
Anthracene	260		ug/l	10	1.4	100
Pyrene	430		ug/l	10	1.9	100
Benzo(a)anthracene	150		ug/l	5.0	2.0	100
Chrysene	150		ug/l	10	1.2	100
Benzo(b)fluoranthene	120		ug/l	5.0	1.2	100
Benzo(a)pyrene	95		ug/l	10	1.5	100

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-10
Client ID: FB-230126-1
Sample Location: 3144 W. PASSYUNK AVE.
Date Collected: 01/26/23 11:45
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 02/02/23 08:23
Analyst: AH
Extraction Method: EPA 3510C
Extraction Date: 02/01/23 18:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	0.03	J	ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	**128**	Q	23-120
2-Fluorobiphenyl	88		15-120
4-Terphenyl-d14	93		41-149

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-11
Client ID: FB-230126-2
Sample Location: 3144 W. PASSYUNK AVE.

Date Collected: 01/26/23 11:40
Date Received: 01/26/23
Field Prep: Refer to COC

Sample Depth:
Matrix: Water
Analytical Method: 1,8270E-SIM
Analytical Date: 02/02/23 08:39
Analyst: AH

Extraction Method: EPA 3510C
Extraction Date: 02/01/23 18:15

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Semivolatile Organics by GC/MS-SIM - Westborough Lab						
Naphthalene	ND		ug/l	0.10	0.05	1
Fluorene	ND		ug/l	0.10	0.01	1
Phenanthrene	ND		ug/l	0.05	0.02	1
Anthracene	ND		ug/l	0.10	0.01	1
Pyrene	ND		ug/l	0.10	0.02	1
Benzo(a)anthracene	ND		ug/l	0.05	0.02	1
Chrysene	ND		ug/l	0.10	0.01	1
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01	1
Benzo(a)pyrene	ND		ug/l	0.10	0.02	1
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01	1
Benzo(ghi)perylene	ND		ug/l	0.10	0.01	1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	106		23-120
2-Fluorobiphenyl	72		15-120
4-Terphenyl-d14	74		41-149

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8270E-SIM
Analytical Date: 01/29/23 14:36
Analyst: WR

Extraction Method: EPA 3510C
Extraction Date: 01/27/23 23:29

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 01-09 Batch: WG1738236-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	0.03	J	ug/l	0.10	0.01
Phenanthrene	0.03	J	ug/l	0.05	0.02
Anthracene	0.02	J	ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	114		23-120
2-Fluorobiphenyl	69		15-120
4-Terphenyl-d14	64		41-149

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

Method Blank Analysis
Batch Quality Control

Analytical Method:	1,8270E-SIM	Extraction Method:	EPA 3510C
Analytical Date:	02/02/23 07:34	Extraction Date:	02/01/23 18:15
Analyst:	AH		

Parameter	Result	Qualifier	Units	RL	MDL
Semivolatile Organics by GC/MS-SIM - Westborough Lab for sample(s): 10-11 Batch: WG1739827-1					
Naphthalene	ND		ug/l	0.10	0.05
Fluorene	ND		ug/l	0.10	0.01
Phenanthrene	ND		ug/l	0.05	0.02
Anthracene	ND		ug/l	0.10	0.01
Pyrene	ND		ug/l	0.10	0.02
Benzo(a)anthracene	ND		ug/l	0.05	0.02
Chrysene	ND		ug/l	0.10	0.01
Benzo(b)fluoranthene	ND		ug/l	0.05	0.01
Benzo(a)pyrene	ND		ug/l	0.10	0.02
Indeno(1,2,3-cd)pyrene	ND		ug/l	0.10	0.01
Benzo(ghi)perylene	ND		ug/l	0.10	0.01

Surrogate	%Recovery	Qualifier	Acceptance Criteria
Nitrobenzene-d5	110		23-120
2-Fluorobiphenyl	76		15-120
4-Terphenyl-d14	77		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-09 Batch: WG1738236-2 WG1738236-3								
Naphthalene	57		67		40-140	16		40
Fluorene	56		66		40-140	16		40
Phenanthrene	57		68		40-140	18		40
Anthracene	57		68		40-140	18		40
Pyrene	61		73		26-127	18		40
Benzo(a)anthracene	60		70		40-140	15		40
Chrysene	60		71		40-140	17		40
Benzo(b)fluoranthene	57		69		40-140	19		40
Benzo(a)pyrene	61		72		40-140	17		40
Indeno(1,2,3-cd)pyrene	71		82		40-140	14		40
Benzo(ghi)perylene	65		75		40-140	14		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	97		112		23-120
2-Fluorobiphenyl	57		66		15-120
4-Terphenyl-d14	58		70		41-149

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002

Lab Number: L2304491
Report Date: 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 10-11 Batch: WG1739827-2 WG1739827-3								
Naphthalene	68		76		40-140	11		40
Fluorene	69		78		40-140	12		40
Phenanthrene	71		82		40-140	14		40
Anthracene	72		83		40-140	14		40
Pyrene	66		79		26-127	18		40
Benzo(a)anthracene	72		84		40-140	15		40
Chrysene	75		86		40-140	14		40
Benzo(b)fluoranthene	86		82		40-140	5		40
Benzo(a)pyrene	74		85		40-140	14		40
Indeno(1,2,3-cd)pyrene	76		93		40-140	20		40
Benzo(ghi)perylene	70		89		40-140	24		40

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
Nitrobenzene-d5	110		**124**	Q	23-120
2-Fluorobiphenyl	75		80		15-120
4-Terphenyl-d14	89		82		41-149

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304491
Report Date: 02/15/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Semivolatile Organics by GC/MS-SIM - Westborough Lab Associated sample(s): 01-09 QC Batch ID: WG1738236-4 WG1738236-5 QC Sample: L2304491-03 Client ID: TG01-MW-01-230125												
Naphthalene	22	3.64	20	**0**	Q	20	**0**	Q	40-140	0		40
Fluorene	0.39	3.64	2.7	64		2.7	64		40-140	0		40
Phenanthrene	1.1	3.64	3.2	58		3.3	61		40-140	3		40
Anthracene	0.33	3.64	2.6	62		2.6	62		40-140	0		40
Pyrene	0.22	3.64	2.4	60		2.6	65		26-127	8		40
Benzo(a)anthracene	0.03J	3.64	2.2	61		2.2	61		40-140	0		40
Chrysene	0.02J	3.64	2.3	63		2.3	63		40-140	0		40
Benzo(b)fluoranthene	ND	3.64	1.9	52		2.0	55		40-140	5		40
Benzo(a)pyrene	ND	3.64	2.1	58		2.2	61		40-140	5		40
Indeno(1,2,3-cd)pyrene	ND	3.64	2.2	61		2.2	61		40-140	0		40
Benzo(ghi)perylene	ND	3.64	2.1	58		2.1	58		40-140	0		40

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
2-Fluorobiphenyl	60		59		15-120
4-Terphenyl-d14	63		69		41-149
Nitrobenzene-d5	**125**	Q	114		23-120

METALS

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-01	Date Collected:	01/25/23 09:30
Client ID:	TG02-MW-14-230125	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.9584	J	ug/l	1.000	0.3430	1	01/27/23 23:37	01/29/23 23:59	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY
Lab Number: L2304491
Project Number: P044.001.002
Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-02
Date Collected: 01/25/23 11:35
Client ID: TG02-MW-07-230125
Date Received: 01/26/23
Sample Location: 3144 W. PASSYUNK AVE.
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	1.048		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:04	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY   **Lab Number:** L2304491
Project Number: P044.001.002   **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-03   Date Collected: 01/25/23 12:15
Client ID: TG01-MW-01-230125   Date Received: 01/26/23
Sample Location: 3144 W. PASSYUNK AVE.   Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/29/23 23:25	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY

Lab Number: L2304491

Project Number: P044.001.002

Report Date: 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-04

Date Collected: 01/25/23 14:10

Client ID: TG01-MW-03-230125

Date Received: 01/26/23

Sample Location: 3144 W. PASSYUNK AVE.

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	1.810		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:09	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-05	Date Collected:	01/26/23 09:40
Client ID:	TG01-MW-02-230126	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:13	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-06 Date Collected: 01/26/23 10:25

Client ID: TG02-MW-16-230126 Date Received: 01/26/23

Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	9.963		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:18	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-07 Date Collected: 01/26/23 09:40
Client ID: TG01-MW-02-230126D Date Received: 01/26/23
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:23	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

SAMPLE RESULTS

Lab ID: L2304491-08 Date Collected: 01/24/23 15:20
Client ID: S-77P-230124 Date Received: 01/26/23
Sample Location: 3144 W. PASSYUNK AVE. Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:28	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-09	Date Collected:	01/24/23 15:50
Client ID:	S-200-230124	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	0.8838	J	ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:33	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-10	Date Collected:	01/26/23 11:45
Client ID:	FB-230126-1	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:38	EPA 3005A	1,6020B	WKP

Project Name:	FORMER PHILADELPHIA REFINERY	**Lab Number:**	L2304491
Project Number:	P044.001.002	**Report Date:**	02/15/23

SAMPLE RESULTS

Lab ID:	L2304491-11	Date Collected:	01/26/23 11:40
Client ID:	FB-230126-2	Date Received:	01/26/23
Sample Location:	3144 W. PASSYUNK AVE.	Field Prep:	Refer to COC
Sample Depth:			
Matrix:	Water		

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab											
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/30/23 00:52	EPA 3005A	1,6020B	WKP

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01-11 Batch: WG1738040-1										
Lead, Dissolved	ND		ug/l	1.000	0.3430	1	01/27/23 23:37	01/29/23 22:56	1,6020B	WKP

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491
Project Number: P044.001.002 **Report Date:** 02/15/23

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-11 Batch: WG1738040-2								
Lead, Dissolved	100		-		80-120	-		

Matrix Spike Analysis
Batch Quality Control

Project Name: FORMER PHILADELPHIA REFINERY
Project Number: P044.001.002
Lab Number: L2304491
Report Date: 02/15/23

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	Qual	MSD Found	MSD %Recovery	Qual	Recovery Limits	RPD	Qual	RPD Limits
Dissolved Metals - Mansfield Lab Associated sample(s): 01-11 QC Batch ID: WG1738040-3 WG1738040-4 QC Sample: L2304491-03 Client ID: TG01-MW-01-230125												
Lead, Dissolved	ND	530	309.8	**58**	Q	306.0	**58**	Q	75-125	1		20

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler	Custody Seal
A	Absent
B	Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304491-01A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-01B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-01C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-01D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-01E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-01F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)
L2304491-01G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-01H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-02A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-02B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-02C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-02D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-02E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-02F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)
L2304491-02G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-02H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03A1	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03A2	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03B1	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03B2	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304491-03C	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03C1	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03C2	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-03D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03D1	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03D2	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03E	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03E1	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03E2	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-03F	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-03F1	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-03F2	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-03G	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03G1	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03G2	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03H	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03H1	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-03H2	Amber 250ml unpreserved	A	12	12	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-04A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-04B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-04C	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-04D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-04E	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-04F	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-04G	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-04H	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-05A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-05B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304491-05C	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-05D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-05E	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-05F	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-05G	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-05H	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-06A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-06B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-06C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-06D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-06E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-06F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)
L2304491-06G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-06H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-07A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-07B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-07C	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-07D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-07E	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-07F	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-07G	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-07H	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-08A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-08B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-08C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-08D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-08E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-08F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)

*Values in parentheses indicate holding time in days

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304491-08G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-08H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-09A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-09B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-09C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-09D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-09E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-09F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)
L2304491-09G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-09H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-10A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-10B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-10C	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-10D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-10E	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-10F	Plastic 250ml HNO3 preserved	A	<2	<2	5.1	Y	Absent		PB-6020S-PPB(180)
L2304491-10G	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-10H	Amber 250ml unpreserved	A	7	7	5.1	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-11A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-11B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-11C	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-11D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-11E	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-11F	Plastic 250ml HNO3 preserved	B	<2	<2	4.2	Y	Absent		PB-6020S-PPB(180)
L2304491-11G	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-11H	Amber 250ml unpreserved	B	7	7	4.2	Y	Absent		PA-PAHSIM-LVI(7)
L2304491-12A	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)
L2304491-12B	Vial HCl preserved	A	NA		5.1	Y	Absent		PA-8260(14)

*Values in parentheses indicate holding time in days

Project Name: FORMER PHILADELPHIA REFINERY **Lab Number:** L2304491

Project Number: P044.001.002 **Report Date:** 02/15/23

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L2304491-12C	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-12D	Vial Na2S2O3 preserved	A	NA		5.1	Y	Absent		8011(14)
L2304491-13A	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-13B	Vial HCl preserved	B	NA		4.2	Y	Absent		PA-8260(14)
L2304491-13C	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)
L2304491-13D	Vial Na2S2O3 preserved	B	NA		4.2	Y	Absent		8011(14)

*Values in parentheses indicate holding time in days

GLOSSARY

Acronyms

DL	- Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the limit of quantitation (LOQ). The DL includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EMPC	- Estimated Maximum Possible Concentration: The concentration that results from the signal present at the retention time of an analyte when the ions meet all of the identification criteria except the ion abundance ratio criteria. An EMPC is a worst-case estimate of the concentration.
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCSD	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LOD	- Limit of Detection: This value represents the level to which a target analyte can reliably be detected for a specific analyte in a specific matrix by a specific method. The LOD includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
LOQ	- Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.) Limit of Quantitation: The value at which an instrument can accurately measure an analyte at a specific concentration. The LOQ includes any adjustments from dilutions, concentrations or moisture content, where applicable. (DoD report formats only.)
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available. For Method 332.0, the spike recovery is calculated using the native concentration, including estimated values.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
NR	- No Results: Term is utilized when 'No Target Compounds Requested' is reported for the analysis of Volatile or Semivolatile Organic TIC only requests.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TEF	- Toxic Equivalency Factors: The values assigned to each dioxin and furan to evaluate their toxicity relative to 2,3,7,8-TCDD.
TEQ	- Toxic Equivalent: The measure of a sample's toxicity derived by multiplying each dioxin and furan by its corresponding TEF and then summing the resulting values.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Report Format: DU Report with 'J' Qualifiers

Footnotes

1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Chlordane: The target compound Chlordane (CAS No. 57-74-9) is reported for GC ECD analyses. Per EPA,this compound "refers to a mixture of chlordane isomers, other chlorinated hydrocarbons and numerous other components." (Reference: USEPA Toxicological Review of Chlordane, In Support of Summary Information on the Integrated Risk Information System (IRIS), December 1997.)

Difference: With respect to Total Oxidizable Precursor (TOP) Assay analysis, the difference is defined as the Post-Treatment value minus the Pre-Treatment value.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Gasoline Range Organics (GRO): Gasoline Range Organics (GRO) results include all chromatographic peaks eluting from Methyl tert butyl ether through Naphthalene, with the exception of GRO analysis in support of State of Ohio programs, which includes all chromatographic peaks eluting from Hexane through Dodecane.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

PAH Total: With respect to Alkylated PAH analyses, the 'PAHs, Total' result is defined as the summation of results for all or a subset of the following compounds: Naphthalene, C1-C4 Naphthalenes, 2-Methylnaphthalene, 1-Methylnaphthalene, Biphenyl, Acenaphthylene, Acenaphthene, Fluorene, C1-C3 Fluorenes, Phenanthrene, C1-C4 Phenanthrenes/Anthracenes, Anthracene, Fluoranthene, Pyrene, C1-C4 Fluoranthenes/Pyrenes, Benz(a)anthracene, Chrysene, C1-C4 Chrysenes, Benzo(b)fluoranthene, Benzo(j)+(k)fluoranthene, Benzo(e)pyrene, Benzo(a)pyrene, Perylene, Indeno(1,2,3-cd)pyrene, Dibenz(ah)+(ac)anthracene, Benzo(g,h,i)perylene. If a 'Total' result is requested, the results of its individual components will also be reported.

PFAS Total: With respect to PFAS analyses, the 'PFAS, Total (5)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA and PFOS. In addition, the 'PFAS, Total (6)' result is defined as the summation of results for: PFHpA, PFHxS, PFOA, PFNA, PFDA and PFOS. For MassDEP DW compliance analysis only, the 'PFAS, Total (6)' result is defined as the summation of results at or above the RL. Note: If a 'Total' result is requested, the results of its individual components will also be reported.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

A - Spectra identified as "Aldol Condensates" are byproducts of the extraction/concentration procedures when acetone is introduced in the process.

B - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

C - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.

D - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.

E - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.

F - The ratio of quantifier ion response to qualifier ion response falls outside of the laboratory criteria. Results are considered to be an estimated maximum concentration.

G - The concentration may be biased high due to matrix interferences (i.e, co-elution) with non-target compound(s). The result should be considered estimated.

H - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.

I - The lower value for the two columns has been reported due to obvious interference.

J - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively

Data Qualifiers

Identified Compounds (TICs).

M - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.

ND - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

NJ - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.

P - The RPD between the results for the two columns exceeds the method-specified criteria.

Q - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)

R - Analytical results are from sample re-analysis.

RE - Analytical results are from sample re-extraction.

S - Analytical results are from modified screening analysis.

V - The surrogate associated with this target analyte has a recovery outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Z - The batch matrix spike and/or duplicate associated with this target analyte has a recovery/RPD outside the QC acceptance limits. (Applicable to MassDEP DW Compliance samples only.)

Report Format: *DU Report with 'J' Qualifiers*

REFERENCES

1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - VI, 2018.

LIMITATION OF LIABILITIES

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility
EPA 624/624.1: m/p-xylene, o-xylene, Naphthalene
EPA 625/625.1: alpha-Terpineol
EPA 8260C/8260D: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
EPA 8270D/8270E: NPW: Dimethylnaphthalene,1,4-Diphenylhydrazine, alpha-Terpineol; SCM: Dimethylnaphthalene,1,4-Diphenylhydrazine.
SM4500: NPW: Amenable Cyanide; SCM: Total Phosphorus, TKN, NO2, NO3.

Mansfield Facility
SM 2540D: TSS
EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water
EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; **EPA 353.2**: Nitrate-N, Nitrite-N; **SM4500NO3-F**: Nitrate-N, Nitrite-N; **SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500Cl-D, SM2320B, SM2540C, SM4500H-B, SM4500NO2-B**
EPA 332: Perchlorate; **EPA 524.2:** THMs and VOCs; **EPA 504.1:** EDB, DBCP.
Microbiology: **SM9215B; SM9223-P/A, SM9223B-Colilert-QT,SM9222D**.

Non-Potable Water
SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, **EPA 350.1**: Ammonia-N, **LACHAT 10-107-06-1-B**: Ammonia-N, **EPA 351.1, SM4500NO3-F, EPA 353.2**: Nitrate-N**, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D, EPA 300: Chloride, Sulfate, Nitrate.**
EPA 624.1: Volatile Halocarbons & Aromatics,
EPA 608.3: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
EPA 625.1: SVOC (Acid/Base/Neutral Extractables), **EPA 600/4-81-045**: PCB-Oil.
Microbiology: **SM9223B-Colilert-QT; Enterolert-QT, SM9221E, EPA 1600, EPA 1603, SM9222D.**

Mansfield Facility:

Drinking Water
EPA 200.7: Al, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Na, Ag, Ca, Zn. **EPA 200.8:** Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. **EPA 245.1** Hg.
EPA 522, EPA 537.1.

Non-Potable Water
EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Fe, Pb, Mn, Ni, K, Se, Ag, Na, TL, Zn.
EPA 245.1 Hg.
SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

Serial_No:02152310:29

CHAIN OF COUSTODY

PAGE 1 OF 2

Date Rec'd in Lab: 1/27/23

ALPHA Job #: L2304491

ALPHA ANALYTICAL

WESTBORO, MA TEL: 508-898-9220 FAX: 508-898-9193

MANSFIELD, MA TEL: 508-822-9300 FAX: 508-822-3288

Client Information

Client: Terraphase Engineering

Address: 100 Canal Pointe Blvd.

Suite 108 Princeton, NJ 08540

Phone: 215 297 3502

Fax:

Email: nick.sala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery

Project Location: P044.001.002

Project #: 3144 Passyunk Avenue.

Project Manager: Nick Scala

ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL

☐ ADEx ☐ Add'l Deliverables

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Billing Information

☐ Same as Client info PO #:

Other Project Specific Requirements/Comments/Detection Limits:

EDD format EQuIS

email EDD@terraphase.com

* See attached Short Lists.

ANALYSIS: VOCs - Short List 1-6; SVOCs - Short List 1-6; Lead

SAMPLE HANDLING

Filtration

☐ Done

☒ Not needed (Lead)

☐ Lab to do

Preservation (field filtered)

☐ Lab to do

(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs - Short List 1-6	SVOCs - Short List 1-6	Lead	Sample Specific Comments	TOTAL # BOTTLES
04491-01	TG02-MW-14-230125	1/25/23	9:30	GW	KSO	X	X	X		
02	TG02-MW-07-230125	1/25/23	11:35	GW	KSO	X	X	X		
03	TG01-MW-01-230125	1/25/23	12:15	GW	SMM	X	X	X		
↓	TG01-MW-01-230125MS	1/25/23	12:15	GW	SMM	X	X	X		
	TG01-MW-01-230125MSD	1/25/23	12:15	GW	SMM	X	X	X		
04	TG01-MW-03-230125	1/25/23	14:55	GW	~~SMM~~ KSO	X	X	X		
05	TG01-MW-02-230126	1/26/23	9:40	GW	SMM	X	X	X		
06	TG02-MW-16-230126	1/26/23	10:25	GW	KSO	X	X	X		
07	TG01-MW-02-230126D	1/26/23	9:40	GW	SMM	X	X	X		
08	S-77P-230124	1/24/23	15:20	GW	KSO	X	X	X		

Container Type

Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/26/23 12:43	[signature] AAL	1/26/23 1243
[signature] AAL	1/26/23 1800	[signature] AAL	1/26/23 1800
[signature]	1/26/23 2100	[signature]	1/26/23 2100

[signature] 1/27/23 200

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

ALPHA ANALYTICAL

CHAIN OF COSTODY

PAGE 2 OF 2

WESTBORO, MA
TEL: 508-898-9220
FAX: 508-898-9193

MANSFIELD, MA
TEL: 508-822-9300
FAX: 508-822-3288

Date Rec'd in Lab: 1/27/23

ALPHA Job #: L230449

Client Information

Client: Terraphase Engineering
Address: ~~1100 E He~~ 100 Canal Pointe Blvd Princeton, NJ 08540
Phone: 215 297 3502
Fax:
Email: nick.scala@terraphase.com

☐ These samples have been previously analyzed by Alpha

Project Information

Project Name: Former Philadelphia Refinery
Project Location: 3144 Passyunk Ave
Project #: P044.001.002
Project Manager: Nick Scala
ALPHA Quote #:

Turn-Around Time

☒ Standard ☐ RUSH (only confirmed if pre-approved!)

Date Due: Time:

Report Information - Data Deliverables

☐ FAX ☒ EMAIL
☐ ADEx ☐ Add'l Deliverables

Billing Information

☐ Same as Client info PO #:

Regulatory Requirements/Report Limits

State /Fed Program | Criteria

Other Project Specific Requirements/Comments/Detection Limits:

EDD format Equis
email EDD@terraphase.com
& see attached Short Lists

ANALYSIS: VOCs Short List 1-6; SVOCs Short List 1-6; Lead

SAMPLE HANDLING
Filtration
☐ Done
☒ Not needed (lead Bio lead filter)
☐ Lab to do
Preservation
☐ Lab to do
(Please specify below)

ALPHA Lab ID (Lab Use Only)	Sample ID	Collection Date	Collection Time	Sample Matrix	Sampler's Initials	VOCs Short List 1-6	SVOCs Short List 1-6	Lead	Sample Specific Comments	TOTAL # BOTTLES
04491-09	S-200-230124	1/24/23	15:50	GW	EAB	X	X	X		
10	FB-230126-1	1/26/23	11:45	FB	SMM	X	X	X		
11	FB-230126-2	1/26/23	11:40	FB	KJO	X	X	X		
12	TB-230126-1	1/26/23	11:50	TB	SMM	X				
13	TB-230126-2	1/26/23	11:55	TB	KJO	X				

Container Type
Preservative

Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1/26/23 12:45	[signature] AAL	1/26/23 1245
[signature] AAL	1/26/23 1800	[signature] AAL	1/26/23 1800
[signature] AAL	1/26/23 2100	[signature]	1/26/23 2100

[signature] AAL 1/27/23 0200

[signature] AAL 1/26/23

Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. All samples submitted are subject to Alpha's Terms and Conditions. See reverse side.

FORM NO: 01-01 (rev. 14-OCT-07)

- **Short List 1**. *Leaded Gasoline, Aviation Gasoline and Jet Fuel*: benzene, toluene, ethyl benzene, xylenes (total), cumene, naphthalene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, 1,2-dichloroethane, 1,2-dibromoethane, and lead.
- **Short List 2**. *Unleaded Gasoline*: benzene, toluene, ethyl benzene, xylenes (total), cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 3**. *Kerosene, Fuel Oil No. 1*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene.
- **Short List 4**. *Diesel Fuel and Fuel Oil No. 2*: benzene, toluene, ethyl benzene, cumene, methyl tert-butyl ether, naphthalene, 1,2,4-trimethyl benzene, and 1,3,5-trimethyl benzene.
- **Short List 5**. *Fuel Oil Nos. 4, 5, and 6, and Lubricating Oils and Fluids*: benzene, naphthalene, fluorene, anthracene, phenanthrene, pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, and benzo(g,h,i)perylene.
- **Short List 6**. *Waste Oil*: benzene, toluene, ethyl benzene, cumene, naphthalene (Method 8270), pyrene, benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, benzo(g,h,i)pyrene, and lead.

Appendix H

Site Assessment and Site Characterization Soil and Groundwater Results

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-26-01 PB-26-01-SS01 3.5 - 4.0 Grab 6/7/2021	PB-26-02 PB-26-02-SS01 3.0 - 3.5 Grab 6/7/2021	PB-26-03 PB-26-03-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-04 PB-26-04-SS01 4.0 - 4.5 Grab 6/7/2021	PB-26-05 PB-26-05-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-06 PB-26-06-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-07 PB-26-07-SS01 4.5 - 5.0 Grab 6/7/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	ND (2.55)	ND (2.34)	ND (2.38)	ND (2.49)	ND (2.31)	ND (2.34)	ND (2.34)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-26-08 PB-26-08-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-09 PB-26-09-SS01 3.0 - 3.5 Grab 6/7/2021	PB-26-10 PB-26-10-SS01 2.5 - 3.0 Grab 6/7/2021	PB-26-11 PB-26-11-SS01 3.5 - 4.0 Grab 6/7/2021	PB-26-12 PB-26-12-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-13 PB-26-13-SS01 4.5 - 5.0 Grab 6/7/2021	PB-26-14 PB-26-14-SS01 4.0 - 4.5 Grab 6/7/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	NA	NA	NA	NA	NA	NA
Cumene	10000	10000	2500	2500	NA	NA	NA	NA	NA	NA	NA
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	NA	NA	NA	NA	NA	NA	NA
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	NA	NA	NA	NA
Toluene	10000	10000	100	44	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	NA	NA	NA	NA
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	ND (2.29)	ND (2.42)	ND (2.44)	ND (2.44)	ND (2.43)	ND (2.4)	ND (2.48)
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-26-15	PB-26-16	PB-27-01	PB-27-01	PB-27-01	PB-27-02	PB-27-02
Field Sample ID					PB-26-15-SS01	PB-26-16-SS01	PB-27-01R-0.0-0.5	PB-27-01-SS01	PB-27-01R-3.5-4.0	PB-27-02R-0.0-0.5	PB-27-02-SS01
Collection Depth (ft bgs)					4.0 - 4.5	3.5 - 4.0	0.0 - 0.5	2.5 - 3.0	3.5 - 4.0	0.0 - 0.5	3.0 - 3.5
Sample Method					Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date					6/7/2021	6/7/2021	2/8/2022	6/7/2021	2/8/2022	2/8/2022	6/7/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	NA	NA	**16 (0.94)**	NA	NA	**69 (3.8)**
Cumene	10000	10000	2500	2500	NA	NA	NA	33 (1.9)	NA	NA	61 (7.6)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	ND (0.94)	NA	NA	ND (3.8)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	ND (1.9)	NA	NA	ND (7.6)
Ethyl Benzene	880	1000	70	46	NA	NA	NA	**130 (1.9)**	NA	NA	**250 (7.6)**
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	NA	**49 (3.8)**	NA	NA	**120 (15)**
Toluene	10000	10000	100	44	NA	NA	NA	89 (1.9)	NA	NA	**160 (7.6)**
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	NA	**400 (3.8)**	NA	NA	**530 (15)**
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	NA	**150 (3.8)**	NA	NA	**200 (15)**
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	770 J (3.8)	NA	NA	**1400 J (15)**
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	ND (2.44)	ND (2.4)	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	ND (0.2)	**98 (7.5)**	0.63 (0.2)	0.036 J (0.2)	**170 (31)**
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	273 (2.3)	182 (2.39)	16.9 (2.32)	**1210 (2.38)**	**1580 (2.49)**

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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NA - Not Analyzed
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-27-02	PB-27-02	PB-27-02	PB-27-03	PB-27-04	PB-27-04	PB-27-05
Field Sample ID					PB-27-02R-6.0-6.5	PB-27-02R-14.0-14.5	TG02-MW-05-18.5-19.0	PB-27-03-SS01	PB-27-04-SS01	DUP-03	PB-27-05-SS01
Collection Depth (ft bgs)					6.0 - 6.5	14.0 - 14.5	18.5 - 19.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0	3.5 - 4.0
Sample Method					Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date					2/8/2022	2/8/2022	12/7/2022	6/8/2021	6/8/2021	6/8/2021	6/8/2021
Comments										Field Duplicate	
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**19 (0.15)**	**6.6 (0.068)**	ND (0.027)	**39 (0.34)**	**1.3 (0.03)**	**0.64 (0.035)**	**60 (0.92)**
Cumene	10000	10000	2500	2500	17 (0.29)	4 (0.14)	0.37 (0.054)	32 (0.68)	3.2 (0.061)	1.9 (0.07)	56 (1.8)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.15)	ND (0.068)	ND (0.027)	ND (0.34)	ND (0.03)	ND (0.035)	ND (0.92)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	ND (0.68)	ND (0.061)	ND (0.07)	ND (1.8)
Ethyl Benzene	880	1000	70	46	**100 (5.9)**	31 (0.14)	1.2 (0.054)	**200 (2.7)**	0.56 (0.061)	0.45 (0.07)	**250 (1.8)**
Methyl tert-butyl ether	8500	9800	2	1.4	**2.5 (0.59)**	0.38 (0.27)	0.39 (0.11)	**36 (1.4)**	0.022 J (0.12)	0.019 J (0.14)	**9.5 (3.7)**
Toluene	10000	10000	100	44	**170 (5.9)**	12 (0.14)	0.052 J (0.054)	**370 (2.7)**	0.36 (0.061)	0.27 (0.07)	31 (1.8)
1,2,4-Trimethylbenzene	4700	5400	300	300	180 (12)	NA	7.3 (0.11)	**470 (5.5)**	7.2 (0.12)	6.4 (0.14)	**480 (3.7)**
1,3,5-Trimethylbenzene	4700	5400	93	93	57 (0.59)	19 (0.27)	2.3 (0.11)	**180 (1.4)**	0.27 (0.12)	0.3 (0.14)	**180 (3.7)**
Xylenes (total)	7900	9100	1000	990	460 J (12)	31 J (0.14)	6.1 J (0.11)	**1160 J (5.5)**	1.33 J (0.12)	1.21 J (0.14)	**1210 J (3.7)**
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.8 (0.2)	7.6 (0.54)	0.7 (0.18)	**59 (2.7)**	3.3 (0.24)	2.4 (0.28)	**93 (7.4)**
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	9 (2.35)	NA	NA	38.8 (2.35)	392 (2.32)	101 (2.39)	63 (2.38)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Method / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-27-06 / PB-27-06-SS01 / 4.0 - 4.5 / Grab / 6/8/2021	PB-27-07 / PB-27-07-SS01 / 3.0 - 3.5 / Grab / 6/8/2021	PB-27-08 / PB-27-08-SS01 / 4.0 - 4.5 / Grab / 6/8/2021	PB-27-09 / PB-27-09-SS01 / 4.0 - 4.5 / Grab / 6/8/2021	PB-27-10 / PB-27-10-SS01 / 3.5 - 4.0 / Grab / 6/8/2021	PB-27-11 / PB-27-11-SS01 / 4.5 - 5.0 / Grab / 6/8/2021	PB-27-12 / PB-27-12-SS01 / 4.5 - 5.0 / Grab / 6/8/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**39 (0.3)**	**3 (0.066)**	**30 (0.58)**	**32 (0.61)**	**17 (0.15)**	**23 (0.3)**	0.0015 (0.0005)
Cumene	10000	10000	2500	2500	17 (0.6)	9 (0.13)	11 (1.2)	30 (1.2)	8.6 (0.3)	17 (0.61)	0.25 (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.3)	ND (0.066)	ND (0.58)	ND (0.61)	ND (0.15)	ND (0.3)	ND (0.0005)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.6)	ND (0.13)	ND (1.2)	ND (1.2)	ND (0.3)	ND (0.61)	ND (0.001)
Ethyl Benzene	880	1000	70	46	**110 (0.6)**	1.5 (0.13)	**97 (1.2)**	**140 (1.2)**	38 (0.3)	54 (0.61)	0.0011 (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	**11 (2.4)**	ND (0.26)	ND (2.3)	1 J (2.4)	**7.2 (0.59)**	1.3 (1.2)	ND (0.002)
Toluene	10000	10000	100	44	100 (0.6)	1 (0.13)	**240 (1.2)**	**110 (1.2)**	67 (0.3)	38 (0.61)	0.0054 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	300 (2.4)	0.59 (0.26)	200 (2.3)	250 (2.4)	64 (0.59)	150 (1.2)	ND (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	93	**98 (1.2)**	1.2 (0.26)	75 (2.3)	91 (2.4)	25 (0.59)	56 (1.2)	0.00036 J (0.002)
Xylenes (total)	7900	9100	1000	990	650 J (2.4)	2.66 J (0.26)	500 J (2.3)	620 J (2.4)	163 J (0.59)	263 J (1.2)	0.0112 J (0.002)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	**27 (2.4)**	1.3 (0.52)	20 (4.7)	**53 (4.9)**	13 (1.2)	**49 (2.4)**	0.0008 J (0.004)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	22.8 (2.4)	224 (2.41)	32.9 (2.25)	11.3 (2.39)	11.8 (2.35)	11.7 (11.7)	112 (11.9)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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NA - Not Analyzed
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B - The analyte was detected above the reporting limit in the associated method blank

Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-27-13 PB-27-13-SS01 3.0 - 3.5 Grab 6/8/2021	PB-27-14 PB-27-14-SS01 3.0 - 3.5 Grab 6/8/2021	PB-27-15 PB-27-15-SS01 3.0 - 3.5 Grab 6/8/2021	PB-27-16 PB-27-16-SS01 4.0 - 4.5 Grab 6/8/2021	PB-27-17 PB-27-17-SS01 3.0 - 3.5 Grab 6/8/2021	PB-27-18 PB-27-18-0.0-0.5 0.0 - 0.5 Grab 2/8/2022	PB-27-18 PB-27-18-6.0-6.5 6.0 - 6.5 Grab 2/8/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.043 (0.0005)	0.052 (0.00048)	**9.8 (0.3)**	0.0017 (0.00058)	0.024 J (0.027)	0.034 (0.026)	0.016 J (0.038)
Cumene	10000	10000	2500	2500	0.036 (0.001)	0.016 (0.00096)	18 (0.6)	0.17 (0.0012)	4.3 (0.054)	0.032 J (0.051)	2.4 (0.077)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.0005)	ND (0.00048)	ND (0.3)	ND (0.00058)	ND (0.027)	ND (0.00054)	ND (0.038)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.001)	ND (0.00096)	ND (0.6)	ND (0.0012)	ND (0.054)	NA	NA
Ethyl Benzene	880	1000	70	46	0.0014 (0.001)	0.0037 (0.00096)	60 (0.6)	0.0003 J (0.0012)	0.93 (0.054)	0.0078 J (0.051)	0.026 J (0.077)
Methyl tert-butyl ether	8500	9800	2	1.4	0.003 (0.002)	0.0058 (0.0019)	0.66 J (1.2)	ND (0.0023)	ND (0.11)	0.025 J (0.1)	0.017 J (0.15)
Toluene	10000	10000	100	44	0.0024 (0.001)	0.0035 (0.00096)	16 (0.6)	0.0021 (0.0012)	0.091 (0.054)	0.0047 (0.0011)	ND (0.077)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0023 (0.002)	0.0083 (0.0019)	160 (1.2)	0.0032 (0.0023)	2.5 (0.11)	0.0011 J (0.0022)	0.033 J (0.15)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.0013 J (0.002)	0.0038 (0.0019)	59 (1.2)	0.00044 J (0.0023)	6.8 (0.11)	0.00058 J (0.0022)	ND (0.15)
Xylenes (total)	7900	9100	1000	990	0.018 J (0.002)	0.0095 J (0.0019)	308 J (1.2)	0.0116 J (0.0023)	0.75 J (0.11)	0.0058 J (0.0022)	0.109 J (0.15)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.00079 J (0.004)	0.023 (0.0038)	**45 (2.4)**	0.0062 (0.0046)	0.56 (0.21)	ND (0.18)	ND (0.2)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	215 (2.27)	11 (2.36)	55.8 (12.1)	120 (2.47)	20.7 (2.38)	330 (2.14)	32.6 (2.4)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-28-01 PB-28-01-SS01 3.0 - 3.5 Grab 6/8/2021	PB-28-02 PB-28-02-SS01 3.0 - 3.5 Grab 6/8/2021	PB-28-03 PB-28-03-SS01 4.0 - 4.5 Grab 6/8/2021	PB-28-04 PB-28-04-SS01 3.0 - 3.5 Grab 6/8/2021	PB-28-05 PB-28-05-SS01 3.0 - 3.5 Grab 2/8/2022	PB-28-06 PB-28-06-SS01 4.0 - 4.5 Grab 6/8/2021	PB-28-07 PB-28-07-SS01 4.0 - 4.5 Grab 6/9/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.2 (0.08)	0.13 (0.031)	0.049 J (0.074)	0.18 (0.029)	**3.2 (0.16)**	0.34 (0.16)	ND (0.12)
Cumene	10000	10000	2500	2500	1.4 (0.16)	1.7 (0.062)	3.2 (0.15)	0.71 (0.058)	3.4 (0.31)	2.1 (0.31)	7.6 (0.24)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.08)	ND (0.031)	ND (0.074)	ND (0.029)	ND (0.16)	ND (0.16)	ND (0.12)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.16)	ND (0.062)	ND (0.15)	ND (0.058)	ND (0.31)	ND (0.31)	ND (0.24)
Ethyl Benzene	880	1000	70	46	8.2 (0.16)	4.3 (0.062)	2.3 (0.15)	2.9 (0.058)	15 (0.31)	0.41 (0.31)	6.9 (0.24)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.32)	ND (0.12)	ND (0.29)	ND (0.12)	0.23 J (0.62)	ND (0.63)	ND (0.47)
Toluene	10000	10000	100	44	0.5 (0.16)	ND (0.062)	0.15 (0.15)	0.83 (0.058)	2.1 (0.31)	0.18 J (0.31)	ND (0.24)
1,2,4-Trimethylbenzene	4700	5400	300	300	25 (0.32)	48 (0.62)	56 (0.59)	12 (0.12)	46 (0.62)	55 (0.63)	70 (0.47)
1,3,5-Trimethylbenzene	4700	5400	93	93	8.1 (0.32)	0.061 J (0.12)	15 (0.29)	4.3 (0.12)	19 (0.62)	18 (0.63)	7.7 (0.47)
Xylenes (total)	7900	9100	1000	990	20.7 J (0.32)	ND (0.12)	1.95 J (0.29)	18.9 J (0.12)	37 J (0.62)	5.73 J (0.63)	1.992 J (0.47)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.029 J (0.04)	0.03 J (0.083)	0.027 (0.0081)	0.0051 J (0.041)	0.11 J (0.12)	0.034 (0.0082)	ND (0.32)
Benzo(a)anthracene	130	190000	340	--	ND (0.04)	0.01 J (0.083)	0.0046 J (0.0081)	ND (0.041)	0.13 (0.12)	0.0068 J (0.0082)	0.03 J (0.32)
Benzo(a)pyrene	91	190000	46	--	ND (0.04)	ND (0.083)	0.0015 J (0.0081)	ND (0.041)	0.12 J (0.16)	0.0019 J (0.0082)	ND (0.32)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.04)	ND (0.083)	0.0023 J (0.0081)	ND (0.041)	0.16 (0.12)	0.0028 J (0.0082)	ND (0.32)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.04)	ND (0.083)	0.0014 J (0.0081)	ND (0.041)	0.087 J (0.16)	0.0013 J (0.0082)	ND (0.32)
Chrysene	760	190000	230	--	ND (0.04)	0.007 J (0.083)	0.0028 J (0.0081)	ND (0.041)	0.13 (0.12)	0.0084 (0.0082)	0.045 J (0.32)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.13 (0.04)	0.1 (0.083)	0.056 (0.0081)	0.024 J (0.041)	0.26 (0.21)	0.24 (0.0082)	0.64 (0.32)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.4 (0.04)	4.4 (0.083)	0.42 (0.0081)	1.4 (0.041)	11 (1)	0.14 (0.0082)	21 (0.32)
Phenanthrene	190000	190000	10000	--	0.2 (0.04)	0.14 (0.083)	0.11 B (0.0081)	0.033 JB (0.041)	0.63 (0.12)	0.31 (0.0082)	0.92 (0.32)
Pyrene	96000	190000	2200	--	0.0086 JB (0.04)	0.027 JB (0.083)	0.014 B (0.0081)	ND (0.041)	0.23 (0.12)	0.03 B (0.0082)	0.12 J (0.32)
Metals											
Lead	1000	190000	450	--	6.54 (2.41)	15.6 (2.43)	7.65 (2.46)	6.66 (2.42)	**461 (12.3)**	7.45 (2.46)	10.9 (2.36)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-28-08 PB-28-08-SS01 3.0 - 3.5 Grab 2/8/2022	PB-28-09 PB-28-09-SS01 3.0 - 3.5 Grab 2/9/2022	PB-28-10 PB-28-10-SS01 3.5 - 4.0 Grab 2/9/2022	PB-28-11 PB-28-11-SS01 3.0 - 3.5 Grab 6/9/2021	PB-28-12 PB-28-12-SS01 3.0 - 3.5 Grab 6/9/2021	PB-28-13 PB-28-13-SS01 3.0 - 3.5 Grab 2/9/2022	PB-28-14 PB-28-14-SS01 4.0 - 4.5 Grab 2/9/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**1.3 (0.033)**	**1.1 (0.03)**	**1.4 (0.066)**	0.0017 (0.00044)	ND (0.00046)	0.03 J (0.067)	0.2 (0.00063)
Cumene	10000	10000	2500	2500	0.024 J (0.067)	0.14 (0.06)	2.2 (0.13)	0.00037 J (0.00089)	0.00018 J (0.00093)	1.2 (0.13)	0.012 (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.033)	ND (0.03)	ND (0.066)	ND (0.00044)	ND (0.00046)	ND (0.067)	ND (0.00063)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.067)	ND (0.06)	ND (0.13)	ND (0.00089)	ND (0.00093)	ND (0.13)	ND (0.0012)
Ethyl Benzene	880	1000	70	46	0.45 (0.067)	0.26 (0.06)	5.3 (0.13)	0.0052 (0.00089)	ND (0.00093)	2.6 (0.13)	0.02 (0.0012)
Methyl tert-butyl ether	8500	9800	2	1.4	0.49 (0.13)	0.76 (0.12)	ND (0.26)	ND (0.0018)	ND (0.0018)	ND (0.27)	0.00047 J (0.0025)
Toluene	10000	10000	100	44	0.54 (0.067)	0.034 J (0.06)	0.37 (0.13)	0.049 (0.00089)	ND (0.00093)	ND (0.13)	0.0041 (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.77 (0.13)	0.097 J (0.12)	4.9 (0.26)	0.0028 (0.0018)	ND (0.0018)	3.7 (0.27)	0.048 (0.0025)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.25 (0.13)	0.036 J (0.12)	0.77 (0.26)	0.00093 J (0.0018)	ND (0.0018)	1.2 (0.27)	0.019 (0.0025)
Xylenes (total)	7900	9100	1000	990	2.3 J (0.13)	0.228 J (0.12)	5.39 J (0.26)	0.0269 J (0.0018)	ND (0.0018)	0.189 J (0.27)	0.0282 J (0.0025)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.12)	ND (0.12)	0.086 J (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)	ND (0.12)
Benzo(a)anthracene	130	190000	340	--	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)	ND (0.12)
Benzo(a)pyrene	91	190000	46	--	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.0078)	ND (0.0082)	ND (0.17)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)	ND (0.12)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.0078)	ND (0.0082)	ND (0.17)	ND (0.16)
Chrysene	760	190000	230	--	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.0078)	ND (0.0082)	ND (0.12)	ND (0.12)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.2)	ND (0.2)	0.45 (0.2)	0.0013 J (0.0078)	ND (0.0082)	0.19 J (0.21)	ND (0.21)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.12 J (0.2)	ND (0.2)	0.19 J (0.2)	0.0015 J (0.0078)	ND (0.0082)	2.6 (0.21)	ND (0.21)
Phenanthrene	190000	190000	10000	--	ND (0.12)	ND (0.12)	0.74 (0.12)	ND (0.0078)	ND (0.0082)	0.27 (0.12)	ND (0.12)
Pyrene	96000	190000	2200	--	ND (0.12)	ND (0.12)	0.03 J (0.12)	ND (0.0078)	ND (0.0082)	0.023 J (0.12)	ND (0.12)
Metals											
Lead	1000	190000	450	--	8.67 (2.39)	8.5 (2.31)	5.65 (2.33)	9.22 (2.4)	8.7 (2.42)	7.82 (2.37)	35.5 (2.41)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-28-15 PB-28-15-SS01 3.0 - 3.5 Grab 6/9/2021	PB-28-16 PB-28-16-SS01 3.0 - 3.5 Grab 6/9/2021	PB-28-16 DUP-04 3.0 - 3.5 Grab 6/9/2021 Field Duplicate	PB-28-17 PB-28-17-SS01 2.0 - 2.5 Grab 6/9/2021	PB-28-18 PB-28-18-SS01 1.5 - 2.0 Grab 6/9/2021	PB-28-19 PB-28-19-SS01 3.0 - 3.5 Grab 6/8/2021	PB-28-19 PB-28-19R-6.0-6.5 6.0 - 6.5 Grab 2/9/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.0027 (0.00048)	0.00018 J (0.00051)	ND (0.00051)	0.0041 (0.00059)	0.003 (0.00088)	**74 (1.7)**	**24 (1.6)**
Cumene	10000	10000	2500	2500	0.006 (0.00097)	0.014 (0.001)	0.016 (0.001)	0.0012 (0.0012)	0.00023 J (0.0018)	41 (3.4)	7.9 (3.2)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00048)	ND (0.00051)	ND (0.00051)	ND (0.00059)	ND (0.00088)	ND (1.7)	ND (1.6)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00097)	ND (0.001)	ND (0.001)	ND (0.0012)	ND (0.0018)	ND (3.4)	NA
Ethyl Benzene	880	1000	70	46	0.00052 J (0.00097)	ND (0.001)	ND (0.001)	0.00052 J (0.0012)	ND (0.0018)	**700 (3.4)**	**120 (3.2)**
Methyl tert-butyl ether	8500	9800	2	1.4	0.0018 J (0.0019)	ND (0.002)	ND (0.002)	ND (0.0023)	0.00044 J (0.0035)	ND (6.9)	1.1 J (6.3)
Toluene	10000	10000	100	44	0.0041 (0.00097)	ND (0.001)	0.00067 J (0.001)	ND (0.0012)	0.0017 J (0.0018)	**2000 (14)**	**510 (3.2)**
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0019)	ND (0.002)	ND (0.002)	ND (0.0023)	0.0012 J (0.0035)	**870 (27)**	240 (6.3)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.00028 J (0.0019)	ND (0.002)	ND (0.002)	0.0018 J (0.0023)	0.0011 J (0.0035)	**400 (6.9)**	79 (6.3)
Xylenes (total)	7900	9100	1000	990	0.00098 J (0.0019)	0.00164 J (0.002)	0.00174 J (0.002)	ND (0.0023)	0.0054 J (0.0035)	**3290 J (27)**	750 J (6.3)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.0083)	ND (0.0083)	0.02 (0.0081)	0.11 (0.039)	0.0036 J (0.0084)	0.0076 J (0.08)	NA
Benzo(a)anthracene	130	190000	340	--	ND (0.0083)	0.00099 J (0.0083)	0.0011 J (0.0081)	0.61 (0.039)	0.021 (0.0084)	ND (0.08)	NA
Benzo(a)pyrene	91	190000	46	--	ND (0.0083)	ND (0.0083)	ND (0.0081)	0.82 (0.039)	0.029 (0.0084)	ND (0.08)	NA
Benzo(b)fluoranthene	76	190000	170	--	ND (0.0083)	ND (0.0083)	0.00081 J (0.0081)	0.95 (0.039)	0.031 (0.0084)	ND (0.08)	NA
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.0083)	ND (0.0083)	ND (0.0081)	0.46 (0.039)	0.027 (0.0084)	ND (0.08)	NA
Chrysene	760	190000	230	--	ND (0.0083)	0.0011 J (0.0083)	0.00061 J (0.0081)	0.53 (0.039)	0.017 (0.0084)	ND (0.08)	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.0011 J (0.0083)	0.28 (0.0083)	0.13 (0.0081)	0.04 (0.039)	ND (0.0084)	0.054 J (0.08)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0018 J (0.0083)	0.042 (0.0083)	0.0095 (0.0081)	0.078 (0.039)	0.024 (0.0084)	4.9 (0.08)	23 (0.58)
Phenanthrene	190000	190000	10000	--	0.0024 J (0.0083)	0.32 (0.0083)	0.16 (0.0081)	0.36 (0.039)	0.016 (0.0084)	0.062 JB (0.08)	NA
Pyrene	96000	190000	2200	--	ND (0.0083)	0.0087 (0.0083)	0.0045 J (0.0081)	0.62 (0.039)	0.019 (0.0084)	0.015 JB (0.08)	NA
Metals											
Lead	1000	190000	450	--	6.85 (2.43)	7.88 (2.41)	7.15 (2.37)	19 (2.25)	313 (2.43)	7.29 (2.46)	NA

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-28-19 PB-28-19R-14.0-14.5 14.0 - 14.5 Grab 2/9/2022	PB-28-20 PB-28-20-SS01 4.5 - 5.0 Grab 6/9/2021	PB-28-21 PB-28-21-SS01 3.5 - 4.0 Grab 6/9/2021	PB-28-22 PB-28-22-SS01 4.5 - 5.0 Grab 6/9/2021	PB-28-23 TG02-MW-04-19.5-20.0 19.5 - 20.0 Grab 12/8/2022	PB-29-01 PB-29-01-SS01 3.0 - 3.5 Grab 6/9/2021	PB-29-02 PB-29-02R-0.0-0.5 0.0 - 0.5 Grab 2/7/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**51 (0.32)**	0.36 (0.032)	ND (0.00053)	ND (0.031)	0.023 J (0.026)	**3.5 (0.029)**	NA
Cumene	10000	10000	2500	2500	7.7 (0.65)	1.6 (0.064)	1.3 (0.06)	1.8 (0.063)	0.35 (0.053)	1.1 (0.059)	NA
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.32)	ND (0.032)	ND (0.00053)	ND (0.031)	ND (0.026)	ND (0.029)	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	ND (0.064)	ND (0.0011)	ND (0.063)	NA	ND (0.059)	NA
Ethyl Benzene	880	1000	70	46	**95 (0.65)**	1.7 (0.064)	0.017 J (0.06)	0.015 J (0.063)	0.73 (0.053)	14 (0.059)	NA
Methyl tert-butyl ether	8500	9800	2	1.4	ND (1.3)	ND (0.13)	ND (0.0021)	ND (0.12)	0.21 (0.11)	0.056 J (0.12)	NA
Toluene	10000	10000	100	44	9.9 (0.65)	0.04 J (0.064)	ND (0.0011)	ND (0.063)	0.034 J (0.053)	0.28 (0.059)	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	170 (1.3)	4.8 (0.13)	ND (0.0021)	ND (0.12)	4.1 (0.11)	32 (0.24)	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	60 (1.3)	ND (0.13)	ND (0.0021)	ND (0.12)	1.2 (0.11)	9.6 (0.12)	NA
Xylenes (total)	7900	9100	1000	990	530 J (1.3)	0.46 J (0.13)	0.00149 J (0.0021)	0.1175 J (0.12)	3.83 J (0.11)	32.97 J (0.12)	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	ND (0.04)	ND (0.0081)	0.0012 J (0.0081)	NA	0.015 J (0.08)	NA
Benzo(a)anthracene	130	190000	340	--	NA	0.0064 J (0.04)	0.0023 J (0.0081)	0.0019 J (0.0081)	NA	0.024 J (0.08)	NA
Benzo(a)pyrene	91	190000	46	--	NA	ND (0.04)	0.0011 J (0.0081)	ND (0.0081)	NA	0.013 J (0.08)	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	ND (0.04)	0.0014 J (0.0081)	0.0011 J (0.0081)	NA	0.017 J (0.08)	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	ND (0.04)	ND (0.0081)	ND (0.0081)	NA	ND (0.08)	NA
Chrysene	760	190000	230	--	NA	0.0042 J (0.04)	0.0033 J (0.0081)	0.0015 J (0.0081)	NA	0.013 J (0.08)	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	2 (0.04)	0.47 (0.0081)	0.0038 J (0.0081)	NA	0.022 J (0.08)	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	19 (2.6)	0.34 (0.04)	0.16 (0.0081)	0.13 (0.0081)	0.12 J (0.18)	3.6 (0.08)	NA
Phenanthrene	190000	190000	10000	--	NA	3 (0.04)	0.36 (0.0081)	0.0051 J (0.0081)	NA	0.062 J (0.08)	NA
Pyrene	96000	190000	2200	--	NA	0.098 (0.04)	0.018 (0.0081)	0.0032 J (0.0081)	NA	0.038 J (0.08)	NA
Metals											
Lead	1000	190000	450	--	NA	9.59 (2.33)	6.9 (2.35)	9.34 (2.37)	NA	6.55 (2.4)	**2500 (2.34)**

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-02 PB-29-02-SS01 4.5 - 5.0 Grab 6/9/2021	PB-29-02 PB-29-02R-6.0-6.5 6.0 - 6.5 Grab 2/7/2022	PB-29-03 PB-29-03-SS01 4.5 - 5.0 Grab 6/9/2021	PB-29-03 PB-29-03R-6.0-6.5 6.0 - 6.5 Grab 2/7/2022	PB-29-03 PB-29-03R-14.0-14.5 14.0 - 14.5 Grab 2/7/2022	PB-29-03 TG02-MW-03-24.5-25.0 24.5 - 25.0 Grab 12/5/2022	PB-29-04 PB-29-04-SS01 4.5 - 5.0 Grab 6/9/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**8.6 (0.28)**	NA	**93 (0.61)**	**110 (0.65)**	**3 (0.026)**	**130 (0.69)**	**1.1 (0.028)**
Cumene	10000	10000	2500	2500	4.5 (0.56)	NA	19 (1.2)	26 (1.3)	0.11 (0.051)	22 (1.4)	1.8 (0.056)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.28)	NA	ND (0.61)	ND (0.65)	ND (0.026)	ND (0.69)	ND (0.028)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.56)	NA	ND (1.2)	NA	NA	NA	ND (0.056)
Ethyl Benzene	880	1000	70	46	62 (0.56)	NA	**220 (1.2)**	**240 (1.3)**	1.7 (0.051)	**260 (1.4)**	14 (0.056)
Methyl tert-butyl ether	8500	9800	2	1.4	0.37 J (1.1)	NA	**22 (2.4)**	**4.6 (2.6)**	0.46 (0.1)	**6.8 (2.8)**	0.015 J (0.11)
Toluene	10000	10000	100	44	**110 (0.56)**	NA	**540 (3)**	**200 (1.3)**	0.11 (0.051)	41 (1.4)	0.39 (0.056)
1,2,4-Trimethylbenzene	4700	5400	300	300	190 (2.2)	NA	**500 (6.1)**	**540 (10)**	3.1 (0.1)	**580 (11)**	19 (0.45)
1,3,5-Trimethylbenzene	4700	5400	93	93	60 (1.1)	NA	**170 (2.4)**	**200 (2.6)**	0.94 (0.1)	**170 (2.8)**	6.4 (0.11)
Xylenes (total)	7900	9100	1000	990	380 J (1.1)	NA	**1150 J (6.1)**	**1270 J (10)**	6.35 J (0.1)	**1420 J (11)**	83 J (0.45)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.083 J (0.41)	NA	0.047 J (0.39)	NA	NA	NA	ND (0.041)
Benzo(a)anthracene	130	190000	340	--	0.068 J (0.41)	NA	0.063 J (0.39)	NA	NA	NA	0.0066 J (0.041)
Benzo(a)pyrene	91	190000	46	--	ND (0.41)	NA	ND (0.39)	NA	NA	NA	ND (0.041)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.41)	NA	0.041 J (0.39)	NA	NA	NA	0.0051 J (0.041)
Benzo(g,h,i)perylene	190000	190000	180	--	0.056 J (0.41)	NA	ND (0.39)	NA	NA	NA	ND (0.041)
Chrysene	760	190000	230	--	0.048 J (0.41)	NA	0.036 J (0.39)	NA	NA	NA	0.0031 J (0.041)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.36 J (0.41)	NA	0.12 J (0.39)	NA	NA	NA	0.0076 J (0.041)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	**41 (0.41)**	NA	**27 (0.39)**	**79 (5.2)**	0.73 (0.2)	NA	4.1 (0.041)
Phenanthrene	190000	190000	10000	--	0.49 (0.41)	NA	0.24 J (0.39)	NA	NA	NA	0.012 J (0.041)
Pyrene	96000	190000	2200	--	0.19 J (0.41)	NA	0.12 J (0.39)	NA	NA	NA	0.0064 J (0.041)
Metals											
Lead	1000	190000	450	--	**1180 (2.4)**	9.53 J (12.2)	7.53 (2.39)	NA	NA	NA	8.2 (2.37)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-05 PB-29-05-SS01 4.5 - 5.0 Grab 6/9/2021	PB-29-06 PB-29-06-SS01 3.0 - 3.5 Grab 6/9/2021	PB-29-07 PB-29-07-SS01 3.0 - 3.5 Grab 6/9/2021	PB-29-08 PB-29-08-SS01 1.0 - 1.5 Grab 6/9/2021	PB-29-08 PB-29-08R-6.0-6.5 6.0 - 6.5 Grab 2/8/2022	PB-29-09 PB-29-09-SS01 4.5 - 5.0 Grab 6/9/2021	PB-29-10 PB-29-10-SS01 1.0 - 1.5 Grab 6/9/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**8.9 (0.58)**	**5.5 (0.06)**	**12 (0.03)**	**22 (0.91)**	0.37 (0.00062)	0.1 J (0.31)	**24 (0.12)**
Cumene	10000	10000	2500	2500	17 (1.2)	1.3 (0.12)	3 (0.06)	30 (1.8)	0.067 (0.0012)	18 (0.62)	8.5 (0.24)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.58)	ND (0.06)	ND (0.03)	ND (0.91)	ND (0.00062)	ND (0.31)	ND (0.12)
1,2-Dichloroethane	85	98	0.5	0.1	ND (1.2)	ND (0.12)	ND (0.06)	ND (1.8)	NA	ND (0.62)	ND (0.24)
Ethyl Benzene	880	1000	70	46	**190 (1.2)**	19 (0.12)	10 (0.06)	**290 (1.8)**	0.21 (0.0012)	**150 (0.62)**	**77 (0.6)**
Methyl tert-butyl ether	8500	9800	2	1.4	ND (2.3)	0.042 J (0.24)	**2.2 (0.12)**	ND (3.6)	ND (0.0025)	ND (1.2)	ND (0.48)
Toluene	10000	10000	100	44	0.67 J (1.2)	37 (0.24)	7.7 (0.06)	5 (1.8)	0.012 (0.0012)	0.78 (0.62)	1.5 (0.24)
1,2,4-Trimethylbenzene	4700	5400	300	300	**540 (5.8)**	37 (0.48)	24 (0.48)	**680 (7.3)**	0.0071 (0.0025)	**320 (4.9)**	82 (1.2)
1,3,5-Trimethylbenzene	4700	5400	93	93	**110 (2.3)**	13 (0.24)	7.9 (0.12)	**260 (3.6)**	0.019 (0.0025)	**110 (1.2)**	26 (0.48)
Xylenes (total)	7900	9100	1000	990	405.1 J (2.3)	100 J (0.48)	46 J (0.12)	**1550 J (7.3)**	0.0455 J (0.0025)	800 J (4.9)	182.8 J (1.2)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.06 J (0.31)	0.0081 J (0.041)	0.014 J (0.04)	0.2 J (2.1)	NA	ND (0.38)	0.029 J (0.16)
Benzo(a)anthracene	130	190000	340	--	0.077 J (0.31)	0.0086 J (0.041)	0.014 J (0.04)	0.25 J (2.1)	NA	ND (0.38)	0.034 J (0.16)
Benzo(a)pyrene	91	190000	46	--	0.072 J (0.31)	0.0049 J (0.041)	0.0083 J (0.04)	ND (2.1)	NA	ND (0.38)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	--	0.087 J (0.31)	0.0063 J (0.041)	0.0099 J (0.04)	ND (2.1)	NA	ND (0.38)	0.018 J (0.16)
Benzo(g,h,i)perylene	190000	190000	180	--	0.083 J (0.31)	0.0035 J (0.041)	0.0038 J (0.04)	ND (2.1)	NA	ND (0.38)	ND (0.16)
Chrysene	760	190000	230	--	0.054 J (0.31)	0.0049 J (0.041)	0.01 J (0.04)	ND (2.1)	NA	ND (0.38)	0.018 J (0.16)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.2 J (0.31)	0.017 J (0.041)	0.018 J (0.04)	0.72 J (2.1)	NA	0.075 J (0.38)	0.084 J (0.16)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	24 (0.31)	2.4 (0.041)	2.5 (0.04)	**79 (2.1)**	0.032 J (0.21)	25 (0.38)	16 (0.16)
Phenanthrene	190000	190000	10000	--	0.35 (0.31)	0.032 J (0.041)	0.058 (0.04)	1.2 J (2.1)	NA	0.11 J (0.38)	0.14 J (0.16)
Pyrene	96000	190000	2200	--	0.18 J (0.31)	0.015 J (0.041)	0.03 J (0.04)	0.52 J (2.1)	NA	0.048 J (0.38)	0.067 J (0.16)
Metals											
Lead	1000	190000	450	--	282 (2.33)	8.52 (2.32)	8.23 (2.38)	98.7 (2.48)	NA	17.2 (2.33)	9.69 (2.3)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-11 PB-29-11-SS01 1.0 - 1.5 Grab 6/10/2021	PB-29-11 DUP-05 1.0 - 1.5 Grab 6/10/2021	PB-29-12 PB-29-12-SS01 3.0 - 3.5 Grab 6/10/2021	PB-29-13 PB-29-13-SS01 3.0 - 3.5 Grab 6/10/2021	PB-29-14 PB-29-14-SS01 3.0 - 3.5 Grab 6/10/2021	PB-29-15 PB-29-15R-0.0-0.5 0.0 - 0.5 Grab 2/8/2022	PB-29-15 PB-29-15-SS01 3.0 - 3.5 Grab 6/10/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**1.2 (0.03)**	**3.6 (0.027)**	**6.6 (0.031)**	**0.84 (0.039)**	ND (0.00058)	NA	0.00029 J (0.00046)
Cumene	10000	10000	2500	2500	0.17 (0.059)	0.028 J (0.054)	0.3 (0.062)	0.78 (0.078)	ND (0.0012)	NA	0.00022 J (0.00091)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.03)	ND (0.00046)	ND (0.031)	ND (0.039)	ND (0.00058)	NA	ND (0.00046)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.059)	ND (0.00092)	ND (0.062)	ND (0.078)	ND (0.0012)	NA	0.00025 J (0.00091)
Ethyl Benzene	880	1000	70	46	1.3 (0.059)	0.52 (0.054)	0.75 (0.062)	6.3 (0.078)	ND (0.0012)	NA	ND (0.00091)
Methyl tert-butyl ether	8500	9800	2	1.4	0.92 (0.12)	2 (0.11)	**12 (0.12)**	0.02 J (0.16)	ND (0.0023)	NA	ND (0.0018)
Toluene	10000	10000	100	44	0.53 (0.059)	0.16 (0.054)	0.1 (0.062)	0.14 (0.078)	ND (0.0012)	NA	ND (0.00091)
1,2,4-Trimethylbenzene	4700	5400	300	300	8.6 (0.12)	0.44 (0.11)	0.64 (0.12)	13 (0.16)	ND (0.0023)	NA	0.00033 J (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	93	2.7 (0.12)	0.16 (0.11)	0.19 (0.12)	4 (0.16)	ND (0.0023)	NA	ND (0.0018)
Xylenes (total)	7900	9100	1000	990	6.4 J (0.12)	0.94 J (0.11)	1.76 J (0.12)	27.8 J (0.16)	ND (0.0023)	NA	ND (0.0018)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.014 J (0.04)	0.002 J (0.0075)	ND (0.0081)	ND (0.0084)	0.043 (0.0079)	NA	0.0013 J (0.0081)
Benzo(a)anthracene	130	190000	340	--	0.031 J (0.04)	0.0036 J (0.0075)	0.00085 J (0.0081)	ND (0.0084)	0.17 (0.0079)	NA	0.012 (0.0081)
Benzo(a)pyrene	91	190000	46	--	0.018 J (0.04)	0.0029 J (0.0075)	ND (0.0081)	ND (0.0084)	0.2 (0.0079)	NA	0.019 (0.0081)
Benzo(b)fluoranthene	76	190000	170	--	0.022 J (0.04)	0.004 J (0.0075)	0.00089 J (0.0081)	ND (0.0084)	0.25 (0.0079)	NA	0.023 (0.0081)
Benzo(g,h,i)perylene	190000	190000	180	--	0.016 J (0.04)	0.0035 J (0.0075)	ND (0.0081)	ND (0.0084)	0.12 (0.0079)	NA	0.015 (0.0081)
Chrysene	760	190000	230	--	0.018 J (0.04)	0.0029 J (0.0075)	ND (0.0081)	ND (0.0084)	0.14 (0.0079)	NA	0.0095 (0.0081)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.04 (0.04)	0.0056 J (0.0075)	ND (0.0081)	0.0013 J (0.0084)	0.016 (0.0079)	NA	ND (0.0081)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	2.6 (0.04)	0.44 (0.0075)	0.02 (0.0081)	0.16 (0.0084)	0.011 (0.0079)	NA	0.0062 J (0.0081)
Phenanthrene	190000	190000	10000	--	0.073 (0.04)	0.011 (0.0075)	0.0011 J (0.0081)	0.0018 J (0.0084)	0.19 (0.0079)	NA	0.0043 J (0.0081)
Pyrene	96000	190000	2200	--	0.044 (0.04)	0.0055 J (0.0075)	0.001 J (0.0081)	0.0008 J (0.0084)	0.22 (0.0079)	NA	0.0079 J (0.0081)
Metals											
Lead	1000	190000	450	--	5.15 (2.35)	8.85 (2.23)	7.89 (2.4)	9.68 (2.45)	84.5 (2.38)	4.57 J (11.3)	**2110 (2.32)**

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-15 PB-29-15R-6.0-6.5 6.0 - 6.5 Grab 2/8/2022	PB-29-16 PB-29-16-SS01 3.5 - 4.0 Grab 6/10/2021	PB-29-17 PB-29-17-SS01 4.5 - 5.0 Grab 6/10/2021	PB-29-18 PB-29-18-SS01 4.0 - 4.5 Grab 6/10/2021	PB-29-19 PB-29-19-SS01 4.0 - 4.5 Grab 6/10/2021	PB-29-20 PB-29-20-SS01 1.5 - 2.0 Grab 6/10/2021	PB-29-21 PB-29-21-SS01 4.0 - 4.5 Grab 6/10/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	**8.3 (0.031)**	ND (0.035)	0.00094 (0.00055)	**23 (0.16)**	**1.4 (0.022)**	**29 (0.28)**
Cumene	10000	10000	2500	2500	NA	2.2 (0.062)	0.026 J (0.07)	0.0006 J (0.0011)	5.9 (0.32)	0.11 (0.045)	9.9 (0.55)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	ND (0.031)	ND (0.035)	ND (0.00055)	ND (0.16)	ND (0.00046)	ND (0.28)
1,2-Dichloroethane	85	98	0.5	0.1	NA	ND (0.062)	ND (0.07)	ND (0.0011)	ND (0.32)	ND (0.00093)	ND (0.55)
Ethyl Benzene	880	1000	70	46	NA	14 (0.062)	0.032 J (0.07)	ND (0.0011)	**82 (0.32)**	1.1 (0.045)	**100 (0.55)**
Methyl tert-butyl ether	8500	9800	2	1.4	NA	ND (0.12)	0.014 J (0.14)	ND (0.0022)	ND (0.63)	0.57 (0.09)	ND (1.1)
Toluene	10000	10000	100	44	NA	0.42 (0.062)	ND (0.07)	ND (0.0011)	22 (0.32)	0.088 (0.045)	**150 (0.55)**
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	0.28 (0.12)	0.025 J (0.14)	ND (0.0022)	190 (2.5)	2.6 (0.09)	210 (5.5)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	0.28 (0.12)	ND (0.14)	ND (0.0022)	66 (0.63)	0.7 (0.09)	79 (1.1)
Xylenes (total)	7900	9100	1000	990	NA	3.89 J (0.12)	ND (0.14)	ND (0.0022)	383 J (2.5)	0.924 J (0.09)	460 J (5.5)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	0.00088 J (0.008)	0.0026 J (0.0084)	0.017 J (0.038)	ND (0.0084)	0.0038 J (0.015)	0.016 J (0.16)
Benzo(a)anthracene	130	190000	340	--	NA	0.0013 J (0.008)	0.029 (0.0084)	0.076 (0.038)	0.0016 J (0.0084)	0.011 J (0.015)	0.046 J (0.16)
Benzo(a)pyrene	91	190000	46	--	NA	ND (0.008)	0.05 (0.0084)	0.2 (0.038)	ND (0.0084)	0.01 J (0.015)	ND (0.16)
Benzo(b)fluoranthene	76	190000	170	--	NA	ND (0.008)	0.061 (0.0084)	0.28 (0.038)	ND (0.0084)	0.011 J (0.015)	ND (0.16)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	ND (0.008)	0.041 (0.0084)	0.22 (0.038)	ND (0.0084)	0.013 J (0.015)	ND (0.16)
Chrysene	760	190000	230	--	NA	0.00072 J (0.008)	0.019 (0.0084)	0.08 (0.038)	ND (0.0084)	0.0056 J (0.015)	ND (0.16)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	0.0024 J (0.008)	ND (0.0084)	ND (0.038)	0.0021 J (0.0084)	0.0084 J (0.015)	0.064 J (0.16)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	0.27 (0.008)	0.0027 J (0.0084)	0.012 J (0.038)	0.38 (0.0084)	0.9 (0.015)	13 (0.16)
Phenanthrene	190000	190000	10000	--	NA	0.0032 J (0.008)	0.0064 J (0.0084)	0.044 (0.038)	0.0037 J (0.0084)	0.018 (0.015)	0.098 J (0.16)
Pyrene	96000	190000	2200	--	NA	0.002 J (0.008)	0.013 (0.0084)	0.076 (0.038)	0.0012 J (0.0084)	0.011 J (0.015)	0.044 J (0.16)
Metals											
Lead	1000	190000	450	--	4.39 (2.37)	6.72 (2.34)	105 (2.49)	96.2 (2.28)	10.8 (2.4)	37.3 (2.18)	11.9 (2.29)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-22	PB-29-23	PB-29-24	PB-29-25	PB-29-26	PB-29-26	PB-29-27
Field Sample ID					PB-29-22-SS01	PB-29-23-SS01	PB-29-24-SS01	PB-29-25-SS01	PB-29-26R-0.0-0.5	PB-29-26-SS01	PB-29-27-SS01
Collection Depth (ft bgs)					4.5 - 5.0	3.5 - 4.0	4.5 - 5.0	4.5 - 5.0	0.0 - 0.5	4.5 - 5.0	4.0 - 4.5
Sample Method					Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date					6/10/2021	6/10/2021	6/10/2021	6/10/2021	2/8/2022	6/10/2021	6/10/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**25 (0.16)**	**30 (0.17)**	**76 (0.32)**	**2 (0.038)**	NA	**11 (0.037)**	ND (0.033)
Cumene	10000	10000	2500	2500	7 (0.32)	7.4 (0.33)	18 (0.65)	5.2 (0.077)	NA	5.1 (0.074)	1.8 (0.066)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.16)	ND (0.17)	ND (0.32)	ND (0.038)	NA	ND (0.037)	ND (0.033)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.32)	ND (0.33)	ND (0.65)	ND (0.077)	NA	ND (0.074)	ND (0.066)
Ethyl Benzene	880	1000	70	46	**72 (0.32)**	**110 (0.67)**	**220 (3.2)**	0.71 (0.077)	NA	1.6 (0.074)	0.012 J (0.066)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.64)	ND (0.67)	ND (1.3)	ND (0.15)	NA	0.43 (0.15)	ND (0.13)
Toluene	10000	10000	100	44	3.6 (0.32)	58 (0.33)	6.3 (0.65)	0.49 (0.077)	NA	1.5 (0.074)	ND (0.066)
1,2,4-Trimethylbenzene	4700	5400	300	300	140 (1.3)	190 (1.3)	**380 (6.5)**	0.63 (0.15)	NA	2.1 (0.15)	1.7 (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	93	50 (0.64)	70 (0.67)	**150 (1.3)**	0.11 J (0.15)	NA	0.52 (0.15)	0.68 (0.13)
Xylenes (total)	7900	9100	1000	990	312 J (1.3)	450 J (1.3)	830 J (6.5)	0.86 J (0.15)	NA	10.7 J (0.15)	0.072 J (0.13)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.041)	0.0014 J (0.017)	0.0022 J (0.016)	0.0043 J (0.0082)	NA	0.044 (0.0083)	ND (0.0082)
Benzo(a)anthracene	130	190000	340	--	ND (0.041)	0.0037 J (0.017)	0.0077 J (0.016)	0.0082 (0.0082)	NA	0.0092 (0.0083)	0.00082 J (0.0082)
Benzo(a)pyrene	91	190000	46	--	ND (0.041)	ND (0.017)	0.0049 J (0.016)	0.0071 J (0.0082)	NA	0.0043 J (0.0083)	ND (0.0082)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.041)	ND (0.017)	0.0074 J (0.016)	0.0095 (0.0082)	NA	0.0064 J (0.0083)	ND (0.0082)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.041)	ND (0.017)	0.004 J (0.016)	0.0072 J (0.0082)	NA	0.002 J (0.0083)	ND (0.0082)
Chrysene	760	190000	230	--	ND (0.041)	ND (0.017)	0.0052 J (0.016)	0.007 J (0.0082)	NA	0.0079 J (0.0083)	ND (0.0082)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.041)	0.0056 J (0.017)	0.0074 J (0.016)	0.014 (0.0082)	NA	0.088 (0.0083)	0.002 J (0.0082)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.6 (0.041)	1.3 (0.017)	1 (0.016)	0.21 (0.0082)	0.026 J (0.18)	0.12 (0.0083)	0.012 (0.0082)
Phenanthrene	190000	190000	10000	--	0.011 J (0.041)	0.0074 J (0.017)	0.011 J (0.016)	0.02 (0.0082)	NA	0.18 (0.0083)	0.0022 J (0.0082)
Pyrene	96000	190000	2200	--	0.0069 J (0.041)	0.003 J (0.017)	0.0056 J (0.016)	0.014 (0.0082)	NA	0.028 (0.0083)	ND (0.0082)
Metals											
Lead	1000	190000	450	--	10.7 (2.33)	7.46 (2.53)	18 (2.39)	63.6 (2.42)	274 (2.06)	6.93 (2.4)	7.15 (2.4)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-29-28 PB-29-28-0.0-0.5 0.0 - 0.5 Grab 2/8/2022	PB-29-28 PB-29-28-6.0-6.5 6.0 - 6.5 Grab 2/8/2022	PB-29-28 PB-29-28-14.0-14.5 14.0 - 14.5 Grab 2/8/2022	PB-33-01 PB-33-01-SS01 4.5 - 5.0 Grab 6/10/2021	PB-33-02 PB-33-02-SS01 3.0 - 3.5 Grab 6/10/2021	PB-33-03 PB-33-03-SS01 2.0 - 2.5 Grab 6/10/2021	PB-33-04 PB-33-04-SS01 1.0 - 1.5 Grab 6/10/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.0027 (0.00073)	**7 (0.035)**	**6 (0.032)**	**1.2 (0.061)**	**6.6 (0.062)**	0.038 (0.034)	**12 (0.14)**
Cumene	10000	10000	2500	2500	0.00073 J (0.0015)	3.5 (0.07)	NA	2.6 (0.12)	2.7 (0.12)	1.6 (0.069)	13 (0.28)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00073)	ND (0.035)	NA	ND (0.061)	ND (0.062)	ND (0.034)	ND (0.14)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	ND (0.12)	ND (0.12)	ND (0.069)	ND (0.28)
Ethyl Benzene	880	1000	70	46	0.0016 (0.0015)	8.7 (0.07)	4.8 (0.064)	0.17 (0.12)	29 (0.12)	0.22 (0.069)	**91 (0.57)**
Methyl tert-butyl ether	8500	9800	2	1.4	0.0042 (0.0029)	1 (0.14)	NA	0.093 J (0.24)	ND (0.25)	0.018 J (0.14)	ND (0.57)
Toluene	10000	10000	100	44	0.0015 (0.0015)	8.1 (0.07)	16 (0.064)	ND (0.12)	0.53 (0.12)	ND (0.069)	0.52 (0.28)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0074 (0.0029)	9.4 (0.14)	NA	0.061 J (0.24)	51 (1.2)	5.7 (0.14)	130 (1.1)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.0023 J (0.0029)	3.2 (0.14)	NA	ND (0.24)	16 (0.25)	2.2 (0.14)	43 (0.57)
Xylenes (total)	7900	9100	1000	990	0.005 J (0.0029)	29.1 J (0.14)	17.6 J (0.13)	0.26 J (0.24)	71.7 J (0.25)	1.12 J (0.14)	329 J (1.1)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0059)	2.3 (0.28)	1.1 (0.26)	0.34 J (0.49)	7 (0.49)	0.28 (0.28)	8.6 (1.1)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	92.3 (11.9)	NA	NA	5.89 (2.42)	9.41 (2.44)	6.57 (2.56)	13 (2.3)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Method / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-33-05 / PB-33-05-SS01 / 2.0 - 2.5 / Grab / 6/11/2021	PB-33-05 / DUP-06 / 2.0 - 2.5 / Grab / 6/11/2021 / Field Duplicate	PB-33-05 / PB-33-05R-6.0-6.5 / 6.0 - 6.5 / Grab / 2/7/2022	PB-33-05 / PB-33-05R-14.0-14.5 / 14.0 - 14.5 / Grab / 2/7/2022	PB-33-06 / PB-33-06-SS01 / 1.0 - 1.5 / Grab / 6/11/2021	PB-33-07 / PB-33-07-SS01 / 3.0 - 3.5 / Grab / 6/11/2021	PB-33-08 / PB-33-08-SS01 / 3.0 - 3.5 / Grab / 6/11/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**46 (0.16)**	**30 (0.14)**	**5.2 (0.053)**	**6.6 (0.06)**	ND (0.026)	0.14 (0.00045)	0.15 (0.026)
Cumene	10000	10000	2500	2500	12 (0.32)	7.7 (0.27)	4.1 (0.11)	0.76 (0.12)	0.31 (0.051)	0.01 (0.0009)	2.7 (0.052)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.16)	ND (0.14)	ND (0.053)	ND (0.06)	ND (0.026)	ND (0.00045)	ND (0.026)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.32)	ND (0.27)	NA	NA	ND (0.051)	ND (0.0009)	ND (0.052)
Ethyl Benzene	880	1000	70	46	**83 (0.32)**	55 (0.27)	21 (0.11)	5.8 (0.12)	ND (0.051)	0.056 (0.0009)	0.56 (0.052)
Methyl tert-butyl ether	8500	9800	2	1.4	0.53 J (0.63)	0.39 J (0.54)	ND (0.21)	0.62 (0.24)	ND (0.1)	0.0074 (0.0018)	ND (0.1)
Toluene	10000	10000	100	44	**180 (1.3)**	**150 (1.4)**	0.19 (0.11)	0.27 (0.12)	ND (0.051)	ND (0.0009)	ND (0.052)
1,2,4-Trimethylbenzene	4700	5400	300	300	180 (2.5)	150 (2.7)	44 (1.1)	9.5 (0.24)	ND (0.1)	0.0018 (0.0018)	0.044 J (0.1)
1,3,5-Trimethylbenzene	4700	5400	93	93	53 (0.63)	36 (0.54)	17 (0.21)	2.8 (0.24)	ND (0.1)	0.01 (0.0018)	ND (0.1)
Xylenes (total)	7900	9100	1000	990	410 J (2.5)	310 J (2.7)	36.12 J (0.21)	26.6 J (0.24)	ND (0.1)	0.06045 J (0.0018)	0.08 J (0.1)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	15 (1.3)	9.8 (1.1)	4.2 (0.42)	1 (0.48)	0.078 J (0.2)	0.0019 J (0.0036)	0.14 J (0.21)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	13 (2.37)	8.92 (2.36)	NA	NA	6.69 (2.29)	8.06 (2.21)	8.52 (2.22)

Notes:
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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**7.9 (0.13)**	ND (0.028)	**12 (0.028)**	**2.7 (0.027)**	0.00053 (0.00043)	0.0011 (0.00047)	ND (0.0005)
Cumene	10000	10000	2500	2500	6.6 (0.27)	0.015 J (0.056)	1.6 (0.055)	0.67 (0.053)	0.0069 (0.00086)	0.086 (0.00095)	0.016 (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.13)	ND (0.028)	ND (0.028)	ND (0.027)	ND (0.00043)	ND (0.00047)	ND (0.0005)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.27)	ND (0.056)	ND (0.055)	ND (0.053)	ND (0.00086)	ND (0.00095)	ND (0.001)
Ethyl Benzene	880	1000	70	46	53 (0.27)	ND (0.056)	3.6 (0.055)	2.4 (0.053)	0.00021 J (0.00086)	0.00019 J (0.00095)	0.0055 (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.53)	ND (0.11)	**2.6 (0.11)**	0.56 (0.11)	0.0023 (0.0017)	0.00066 J (0.0019)	ND (0.002)
Toluene	10000	10000	100	44	2.7 (0.27)	ND (0.056)	7 (0.055)	0.036 J (0.053)	ND (0.00086)	0.00084 J (0.00095)	0.00083 J (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	67 (0.53)	ND (0.11)	34 (0.55)	4.9 (0.11)	ND (0.0017)	ND (0.0019)	0.015 (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	93	26 (0.53)	ND (0.11)	12 (0.11)	1.6 (0.11)	ND (0.0017)	0.00029 J (0.0019)	0.0048 (0.002)
Xylenes (total)	7900	9100	1000	990	208.3 J (1.1)	ND (0.11)	22.5 J (0.11)	1.936 J (0.11)	ND (0.0017)	0.00168 J (0.0019)	0.0235 J (0.002)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	7.4 (1.1)	0.056 J (0.22)	4.3 (0.22)	0.72 (0.21)	0.0007 J (0.0034)	0.01 (0.0038)	0.0043 (0.004)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	10.2 (2.33)	13 (2.25)	7.51 (2.36)	9.05 (2.28)	6.33 (2.31)	8.41 (2.41)	10 (2.31)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-33-16 PB-33-16-SS01 3.0 - 3.5 Grab 6/11/2021	PB-33-17 PB-33-17-SS01 1.5 - 2.0 Grab 6/11/2021	PB-33-18 PB-33-18-SS01 3.5 - 4.0 Grab 6/11/2021	PB-33-19 PB-33-19-SS01 1.5 - 2.0 Grab 6/11/2021	PB-33-20 PB-33-20-SS01 3.0 - 3.5 Grab 6/11/2021	PB-33-21 PB-33-21-SS01 4.5 - 5.0 Grab 6/11/2021	PB-33-22 PB-33-22-SS01 2.5 - 3.0 Grab 6/11/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.13 (0.034)	ND (0.00045)	**18 (0.27)**	0.1 (0.033)	0.0006 (0.0006)	0.00019 J (0.00045)	0.0005 J (0.00058)
Cumene	10000	10000	2500	2500	0.1 (0.068)	0.00042 J (0.0009)	8.5 (0.54)	0.079 (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.034)	ND (0.00045)	ND (0.27)	ND (0.033)	ND (0.0006)	ND (0.00045)	ND (0.00058)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.068)	ND (0.0009)	ND (0.54)	ND (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)
Ethyl Benzene	880	1000	70	46	0.028 J (0.068)	ND (0.0009)	7.2 (0.54)	0.32 (0.067)	ND (0.0012)	ND (0.0009)	0.00022 J (0.0012)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.14)	0.00041 J (0.0018)	ND (1.1)	ND (0.13)	ND (0.0024)	ND (0.0018)	0.00025 J (0.0023)
Toluene	10000	10000	100	44	ND (0.068)	ND (0.0009)	ND (0.54)	1.7 (0.067)	ND (0.0012)	ND (0.0009)	ND (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.14)	ND (0.0018)	29 (1.1)	3.7 (0.13)	ND (0.0024)	0.00036 J (0.0018)	ND (0.0023)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.021 J (0.14)	ND (0.0018)	1.7 (1.1)	1.1 (0.13)	ND (0.0024)	ND (0.0018)	ND (0.0023)
Xylenes (total)	7900	9100	1000	990	0.099 J (0.14)	ND (0.0018)	2.37 J (1.1)	11.2 J (0.13)	ND (0.0024)	ND (0.0018)	ND (0.0023)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.047 J (0.27)	ND (0.0036)	8 (2.2)	0.087 J (0.27)	ND (0.0048)	0.0007 J (0.0036)	ND (0.0046)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	46.7 (2.18)	10 (2.18)	9.81 (2.32)	61.3 (2.21)	372 (2.32)	36.6 (2.24)	8.82 (2.17)

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-33-23 PB-33-23-SS01 4.5 - 5.0 Grab 6/11/2021	PB-33-24 TG02-MW-02-14.5-15.0 14.5 - 15.0 Grab 12/2/2022	PB-34-01 PB-34-01-SS01 3.5 - 4.0 Grab 6/21/2021	PB-34-02 PB-34-02-SS01 4.0 - 4.5 Grab 6/21/2021	PB-34-03 PB-34-03R-0.0-0.5 0.0 - 0.5 Grab 2/11/2022	PB-34-03 PB-34-03-SS01 2.0 - 2.5 Grab 6/21/2021	PB-34-03 PB-34-03R-6.0-6.5 6.0 - 6.5 Grab 2/11/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.2 (0.071)	**4.3 (0.03)**	0.004 (0.00093)	0.31 (0.029)	NA	0.088 (0.026)	NA
Cumene	10000	10000	2500	2500	4 (0.14)	0.053 J (0.059)	ND (0.0018)	0.61 (0.059)	NA	1.3 (0.052)	NA
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.071)	ND (0.03)	ND (0.00093)	ND (0.029)	NA	ND (0.026)	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.14)	NA	ND (0.0018)	ND (0.059)	NA	ND (0.052)	NA
Ethyl Benzene	880	1000	70	46	0.87 (0.14)	0.1 (0.059)	0.00068 J (0.0018)	4.1 (0.059)	NA	0.24 (0.052)	NA
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.28)	0.11 J (0.12)	ND (0.0037)	ND (0.12)	NA	ND (0.1)	NA
Toluene	10000	10000	100	44	ND (0.14)	0.5 (0.059)	0.0013 J (0.0018)	0.12 (0.059)	NA	0.052 (0.052)	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	62 (1.1)	0.062 J (0.12)	ND (0.0037)	8.8 (0.12)	NA	3.3 (0.1)	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	2.4 (0.28)	0.014 J (0.12)	ND (0.0037)	1.1 (0.12)	NA	2.6 (0.1)	NA
Xylenes (total)	7900	9100	1000	990	10.07 J (0.28)	0.258 J (0.12)	ND (0.0037)	3.49 J (0.12)	NA	0.149 J (0.1)	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	7.3 (0.57)	NA	ND (0.0074)	1.7 (0.23)	NA	0.42 (0.21)	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	8.86 (2.31)	NA	177 (2.55)	20 (2.31)	**488 (12.7)**	**1330 (2.25)**	47.2 (2.28)

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-34-04 PB-34-04-SS01 3.0 - 3.5 Grab 2/11/2022	PB-34-05 PB-34-05-SS01 4.0 - 4.5 Grab 6/21/2021	PB-34-06 PB-34-06-SS01 3.0 - 3.5 Grab 6/21/2021	PB-34-07 PB-34-07-SS01 3.0 - 3.5 Grab 6/21/2021	PB-34-08 PB-34-08-SS01 2.5 - 3.0 Grab 2/11/2022	PB-34-09 PB-34-09-SS01 3.0 - 3.5 Grab 2/11/2022	PB-34-10 PB-34-10-SS01 2.0 - 2.5 Grab 2/11/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.39 (0.057)	0.2 (0.034)	ND (0.029)	ND (0.037)	ND (0.065)	ND (0.033)	ND (0.15)
Cumene	10000	10000	2500	2500	0.99 (0.11)	1.8 (0.068)	0.013 J (0.059)	0.74 (0.075)	2.8 (0.13)	0.079 (0.066)	0.089 J (0.3)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.057)	ND (0.034)	ND (0.029)	ND (0.037)	ND (0.065)	ND (0.033)	ND (0.15)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.11)	ND (0.068)	ND (0.059)	ND (0.075)	ND (0.13)	ND (0.066)	ND (0.3)
Ethyl Benzene	880	1000	70	46	0.033 J (0.11)	0.19 (0.068)	ND (0.059)	0.018 J (0.075)	0.042 J (0.13)	0.011 J (0.066)	0.048 J (0.3)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.23)	ND (0.14)	ND (0.12)	ND (0.15)	ND (0.26)	ND (0.13)	ND (0.6)
Toluene	10000	10000	100	44	ND (0.11)	0.18 (0.068)	ND (0.059)	ND (0.075)	ND (0.13)	ND (0.066)	ND (0.3)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.063 J (0.23)	0.28 (0.14)	ND (0.12)	0.05 J (0.15)	0.057 J (0.26)	ND (0.13)	ND (0.6)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.03 J (0.23)	0.078 J (0.14)	ND (0.12)	0.014 J (0.15)	ND (0.26)	ND (0.13)	ND (0.6)
Xylenes (total)	7900	9100	1000	990	ND (0.23)	0.676 J (0.14)	ND (0.12)	ND (0.15)	ND (0.26)	ND (0.13)	ND (0.6)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.037 J (0.2)	1.3 (0.27)	0.12 J (0.24)	0.71 (0.3)	0.14 J (0.2)	0.032 J (0.21)	0.048 J (0.19)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	8 (2.41)	244 (2.27)	6.84 (2.24)	124 (2.7)	5.27 (2.34)	6.87 J (12.6)	8.27 J (11.3)

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-34-11 PB-34-11-SS01 4.0 - 4.5 Grab 6/21/2021	PB-34-11 PB-34-11R-6.0-6.5 6.0 - 6.5 Grab 2/11/2022	PB-34-11 PB-34-11R-14.0-14.5 14.0 - 14.5 Grab 2/11/2022	PB-34-11 TG02-MW-06-19.5-20.0 19.5 - 20.0 Grab 11/23/2022	PB-34-12 PB-34-12-SS01 2.0 - 2.5 Grab 6/21/2021	PB-34-13 PB-34-13-SS01 4.5 - 5.0 Grab 2/11/2022	PB-34-14 PB-34-14-SS01 2.0 - 2.5 Grab 6/21/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**4.1 (0.034)**	**1.4 (0.039)**	**180 (1.5)**	**11 (0.033)**	**1.4 (0.074)**	0.016 (0.00045)	0.0011 (0.00046)
Cumene	10000	10000	2500	2500	0.24 (0.068)	0.56 (0.078)	20 (3)	0.019 J (0.066)	3.6 (0.15)	0.046 (0.0009)	0.00014 J (0.00092)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.034)	ND (0.039)	ND (1.5)	ND (0.033)	ND (0.074)	ND (0.00045)	ND (0.00046)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.068)	NA	NA	NA	ND (0.15)	ND (0.0009)	ND (0.00092)
Ethyl Benzene	880	1000	70	46	13 (0.068)	7.3 (0.078)	**160 (3)**	0.17 (0.066)	0.28 (0.15)	0.042 (0.0009)	ND (0.00092)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.14)	ND (0.16)	ND (6)	ND (0.13)	ND (0.29)	0.0013 J (0.0018)	0.00058 J (0.0018)
Toluene	10000	10000	100	44	2.3 (0.068)	2.3 (0.078)	4.7 (3)	0.061 J (0.066)	0.76 (0.15)	0.0039 (0.0009)	ND (0.00092)
1,2,4-Trimethylbenzene	4700	5400	300	300	13 (0.14)	35 E (0.16)	**340 (6)**	0.25 (0.13)	0.84 (0.29)	0.08 (0.0018)	ND (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	93	4.5 (0.14)	15 (0.16)	**100 (6)**	0.047 J (0.13)	0.17 J (0.29)	0.0074 (0.0018)	ND (0.0018)
Xylenes (total)	7900	9100	1000	990	59.4 J (0.27)	31.8 J (0.16)	485.7 J (6)	0.163 J (0.13)	1.9 J (0.29)	0.03 J (0.0018)	ND (0.0018)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	3.3 (0.27)	5.6 (0.31)	**<u>120 (12)</u>**	0.081 J (0.21)	2 (0.59)	0.29 (0.19)	0.00062 J (0.0037)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	34.8 (2.51)	NA	NA	NA	66.2 (2.51)	44.3 (10.9)	144 (2.17)

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.035 J (0.06)	ND (0.03)	ND (0.00052)	0.41 (0.029)	ND (0.032)	**0.89 (0.04)**	0.032 J (0.035)
Cumene	10000	10000	2500	2500	2.3 (0.12)	0.54 (0.06)	ND (0.001)	0.8 (0.059)	1.3 (0.064)	0.37 (0.079)	0.25 (0.07)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.06)	ND (0.03)	ND (0.00052)	ND (0.029)	ND (0.032)	ND (0.04)	ND (0.035)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.12)	ND (0.06)	ND (0.001)	ND (0.059)	ND (0.064)	ND (0.079)	ND (0.07)
Ethyl Benzene	880	1000	70	46	0.042 J (0.12)	ND (0.06)	ND (0.001)	7.9 (0.059)	ND (0.064)	1.8 (0.079)	0.65 (0.07)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.24)	ND (0.12)	ND (0.0021)	ND (0.12)	ND (0.13)	0.082 J (0.16)	ND (0.14)
Toluene	10000	10000	100	44	ND (0.12)	ND (0.06)	ND (0.001)	0.89 (0.059)	0.043 J (0.064)	0.07 J (0.079)	ND (0.07)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.057 J (0.24)	0.036 J (0.12)	ND (0.0021)	28 (0.59)	0.049 J (0.13)	0.095 J (0.16)	ND (0.14)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.24)	ND (0.12)	ND (0.0021)	10 (0.12)	0.014 J (0.13)	0.028 J (0.16)	ND (0.14)
Xylenes (total)	7900	9100	1000	990	0.26 J (0.24)	ND (0.12)	ND (0.0021)	39.8 J (0.12)	0.62 J (0.13)	0.237 J (0.16)	ND (0.14)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.18 J (0.48)	0.094 J (0.24)	ND (0.0041)	5.2 (0.23)	0.98 (0.26)	0.48 (0.19)	0.045 J (0.28)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	68.8 (2.46)	6.32 (2.45)	417 (2.16)	8.32 (2.41)	84.4 (2.26)	79.2 (2.31)	7.54 (2.36)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-35-08 PB-35-08-SS01 3.5 - 4.0 Grab 6/21/2021	PB-35-08 PB-35-08R-6.0-6.5 6.0 - 6.5 Grab 2/10/2022	PB-35-08 PB-35-08R-14.0-14.5 14.0 - 14.5 Grab 2/10/2022	PB-35-09 PB-35-09-SS01 3.0 - 3.5 Grab 2/10/2022	PB-35-10 PB-35-10-SS01 3.0 - 3.5 Grab 2/10/2022	PB-35-11 PB-35-11-SS01 3.0 - 3.5 Grab 2/10/2022	PB-35-11 DUP-26 3.0 - 3.5 Grab 2/10/2022 Field Duplicate
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**0.89 (0.07)**	**2.5 (0.15)**	0.24 (0.051)	0.31 (0.025)	**1.2 (0.036)**	**0.73 (0.026)**	**2.6 (0.043)**
Cumene	10000	10000	2500	2500	1.2 (0.14)	1.2 (0.12)	NA	0.035 J (0.051)	0.3 (0.072)	0.03 J (0.053)	1.2 (0.086)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.07)	ND (0.061)	NA	ND (0.025)	ND (0.036)	ND (0.026)	ND (0.043)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.14)	NA	NA	ND (0.051)	ND (0.072)	ND (0.053)	ND (0.086)
Ethyl Benzene	880	1000	70	46	12 (0.14)	20 (0.12)	0.16 (0.1)	0.1 (0.051)	0.9 (0.072)	0.15 (0.053)	19 (0.086)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.28)	ND (0.24)	NA	0.077 J (0.1)	0.035 J (0.14)	0.066 J (0.1)	ND (0.17)
Toluene	10000	10000	100	44	10 (0.14)	42 (0.31)	ND (0.1)	ND (0.051)	0.06 J (0.072)	ND (0.053)	42 (0.86)
1,2,4-Trimethylbenzene	4700	5400	300	300	50 (0.56)	40 (0.61)	NA	0.62 (0.1)	0.09 J (0.14)	0.052 J (0.1)	37 (1.7)
1,3,5-Trimethylbenzene	4700	5400	93	93	15 (0.28)	13 (0.24)	NA	0.28 (0.1)	0.028 J (0.14)	ND (0.1)	13 (0.17)
Xylenes (total)	7900	9100	1000	990	54.4 J (0.28)	111 J (0.61)	0.153 J (0.2)	0.35 J (0.1)	0.12 J (0.14)	ND (0.1)	110 J (1.7)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	7.2 (0.56)	8.1 (0.49)	1 (0.41)	5.9 (0.2)	ND (0.2)	0.62 (0.19)	0.13 J (0.19)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	7.41 (2.36)	NA	NA	**1520 (11.5)**	57.6 (2.33)	173 (2.29)	**1500 (11.5)**

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-35-12 PB-35-12-SS01 4.0 - 4.5 Grab 6/21/2021	PB-35-13 PB-35-13-SS01 2.5 - 3.0 Grab 2/10/2022	PB-35-14 PB-35-14-SS01 3.0 - 3.5 Grab 2/10/2022	PB-35-15 PB-35-15-SS01 3.0 - 3.5 Grab 6/21/2021	PB-36-01 PB-36-01-SS01 4.5 - 5.0 Grab 10/5/2021	PB-36-02 PB-36-02-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-03 PB-36-03-SS01 3.0 - 3.5 Grab 10/5/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**0.71 (0.061)**	**0.89 (0.029)**	**0.54 (0.033)**	ND (0.029)	**0.77 (0.04)**	0.066 (0.034)	**35 (0.63)**
Cumene	10000	10000	2500	2500	4.8 (0.12)	0.29 (0.058)	0.24 (0.066)	2 (0.058)	13 (0.081)	2.4 (0.069)	21 (1.3)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.061)	ND (0.029)	ND (0.033)	ND (0.029)	ND (0.04)	ND (0.034)	ND (0.63)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.12)	ND (0.058)	ND (0.066)	ND (0.058)	ND (0.081)	ND (0.069)	ND (1.3)
Ethyl Benzene	880	1000	70	46	0.1 J (0.12)	2 (0.058)	0.037 J (0.066)	0.03 J (0.058)	0.89 (0.081)	4.4 (0.069)	**160 (1.3)**
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.24)	ND (0.12)	ND (0.13)	ND (0.12)	ND (0.16)	ND (0.14)	ND (2.5)
Toluene	10000	10000	100	44	0.085 J (0.12)	0.074 (0.058)	0.05 J (0.066)	0.039 J (0.058)	0.2 (0.081)	0.052 J (0.069)	**180 (1.3)**
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.24)	0.3 (0.12)	ND (0.13)	0.11 J (0.12)	0.38 (0.16)	3.7 (0.14)	**670 (13)**
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.24)	0.03 J (0.12)	ND (0.13)	0.052 J (0.12)	0.42 (0.16)	0.27 (0.14)	**180 (2.5)**
Xylenes (total)	7900	9100	1000	990	0.31 J (0.24)	0.344 J (0.12)	0.079 J (0.13)	0.27 J (0.12)	0.76 J (0.16)	0.26 J (0.14)	1000 J (2.5)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.88 (0.48)	6.9 (0.19)	0.062 J (0.2)	0.4 (0.23)	1.4 (0.32)	ND (0.28)	**66 (5)**
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	6.73 (2.4)	63.2 (2.27)	7.51 J (11.6)	7.62 (2.31)	60.4 (2.36)	7.86 (2.36)	8.5 (2.44)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-36-03 PB-36-03R-6.0-6.5 6.0 - 6.5 Grab 2/10/2022	PB-36-04 PB-36-04-SS01 3.0 - 3.5 Grab 2/10/2022	PB-36-05 PB-36-05-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-06 PB-36-06-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-07 PB-36-07R-0.0-0.5 0.0 - 0.5 Grab 2/10/2022	PB-36-07 PB-36-07-SS01 4.0 - 4.5 Grab 10/5/2021	PB-36-07 PB-36-07R-6.0-6.5 6.0 - 6.5 Grab 2/10/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.00074 (0.00061)	**1.2 (0.032)**	ND (0.00048)	0.1 (0.036)	NA	**2.7 (0.84)**	0.32 (0.07)
Cumene	10000	10000	2500	2500	ND (0.0012)	0.58 (0.065)	0.00071 J (0.00097)	11 (0.072)	NA	16 (1.7)	1.9 (0.14)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00061)	ND (0.032)	ND (0.00048)	ND (0.036)	NA	ND (0.84)	ND (0.07)
1,2-Dichloroethane	85	98	0.5	0.1	NA	ND (0.065)	ND (0.00097)	ND (0.072)	NA	ND (1.7)	NA
Ethyl Benzene	880	1000	70	46	0.00021 J (0.0012)	1.4 (0.065)	ND (0.00097)	0.6 (0.072)	NA	**260 (1.7)**	2.9 (0.14)
Methyl tert-butyl ether	8500	9800	2	1.4	0.0012 J (0.0024)	0.59 (0.13)	ND (0.0019)	ND (0.14)	NA	ND (3.4)	ND (0.28)
Toluene	10000	10000	100	44	ND (0.0012)	ND (0.065)	ND (0.00097)	0.19 (0.072)	NA	2.1 (1.7)	ND (0.14)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.00041 J (0.0024)	6.1 (0.13)	ND (0.0019)	1.2 (0.14)	NA	**640 (6.7)**	17 (0.28)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0024)	2.1 (0.13)	ND (0.0019)	0.27 (0.14)	NA	**260 (3.4)**	2 (0.28)
Xylenes (total)	7900	9100	1000	990	ND (0.0024)	0.52 J (0.13)	ND (0.0019)	1.18 J (0.14)	NA	**1080 J (6.7)**	4.71 J (0.28)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.00083 J (0.0049)	4.9 (0.2)	0.0033 J (0.0039)	0.62 (0.29)	ND (0.2)	**87 (6.7)**	2.2 (0.17)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	13.3 (4.9)	8.8 (2.38)	10.8 (2.41)	NA	10 (2.48)	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	**Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)**	**Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)**	**Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs**	**Non-Residential Soil Vapor Intrusion Screening Values**	**PB-36-08 PB-36-08-SS01 3.0 - 3.5 Grab 10/5/2021**	**PB-36-08 DUP-19 3.0 - 3.5 Grab 10/5/2021 Field Duplicate**	**PB-36-09 PB-36-09-SS01 3.5 - 4.0 Grab 2/10/2022**	**PB-36-10 PB-36-10-SS01 4.0 - 4.5 Grab 10/5/2021**	**PB-36-11 PB-36-11-SS01 3.0 - 3.5 Grab 2/10/2022**	**PB-36-12 PB-36-12-SS01 2.0 - 2.5 Grab 10/5/2021**	**PB-36-13 PB-36-13-SS01 3.0 - 3.5 Grab 10/5/2021**
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.0014 (0.00051)	ND (0.00046)	**35 (0.08)**	**0.52 (0.15)**	0.019 J (0.031)	0.015 (0.00044)	ND (0.00047)
Cumene	10000	10000	2500	2500	0.19 (0.001)	ND (0.00092)	5.7 (0.16)	1.1 (0.3)	0.95 (0.061)	0.0036 (0.00089)	ND (0.00094)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00051)	ND (0.00046)	ND (0.08)	ND (0.15)	ND (0.031)	ND (0.00044)	ND (0.00047)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.001)	ND (0.00092)	ND (0.16)	ND (0.3)	ND (0.061)	ND (0.00089)	ND (0.00094)
Ethyl Benzene	880	1000	70	46	0.00057 J (0.001)	ND (0.00092)	12 (0.16)	2.9 (0.3)	0.67 (0.061)	0.0016 (0.00089)	ND (0.00094)
Methyl tert-butyl ether	8500	9800	2	1.4	0.0004 J (0.002)	ND (0.0018)	0.4 (0.32)	ND (0.61)	0.03 J (0.12)	0.0025 (0.0018)	ND (0.0019)
Toluene	10000	10000	100	44	0.0027 (0.001)	ND (0.00092)	ND (0.16)	0.22 J (0.3)	ND (0.061)	0.0013 (0.00089)	ND (0.00094)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.002)	ND (0.0018)	100 (13)	0.14 J (0.61)	19 (1.2)	0.019 (0.0018)	ND (0.0019)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.00044 J (0.002)	ND (0.0018)	29 (0.32)	0.091 J (0.61)	8.8 (0.12)	0.0047 (0.0018)	ND (0.0019)
Xylenes (total)	7900	9100	1000	990	0.0058 J (0.002)	ND (0.0018)	14.87 J (0.32)	1.25 J (0.61)	1.331 J (0.12)	0.0072 J (0.0018)	0.0016 J (0.0019)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0027 J (0.0041)	ND (0.0037)	4.7 (0.2)	1.1 J (1.2)	1.4 (0.2)	0.0039 (0.0036)	ND (0.0038)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	8.03 (2.47)	26.8 (2.35)	9.84 (2.32)	8.22 (2.42)	8.57 (2.36)	45.4 (11.6)	15.8 (2.29)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-36-14 PB-36-14-SS01 3.0 - 3.5 Grab 2/10/2022	PB-36-15 PB-36-15-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-16 PB-36-16-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-17 PB-36-17-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-18 PB-36-18-SS01 3.0 - 3.5 Grab 10/5/2021	PB-36-19 TG02-MW-08-12.5-13.0 12.5 - 13.0 Grab 11/28/2022	PB-36-19 TG02-MW-08-25.5-26.0 25.5 - 26.0 Grab 11/28/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.14 (0.036)	ND (0.00048)	0.03 J (0.032)	ND (0.00056)	ND (0.032)	**1.1 (0.3)**	0.091 (0.054)
Cumene	10000	10000	2500	2500	0.16 (0.072)	0.00036 J (0.00096)	0.044 J (0.065)	ND (0.0011)	0.0071 J (0.064)	15 (0.61)	1.4 (0.11)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00046)	ND (0.00048)	ND (0.032)	ND (0.00056)	ND (0.032)	ND (0.3)	ND (0.054)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00091)	ND (0.00096)	ND (0.065)	ND (0.0011)	ND (0.064)	NA	NA
Ethyl Benzene	880	1000	70	46	2 (0.072)	ND (0.00096)	0.022 J (0.065)	ND (0.0011)	0.017 J (0.064)	0.26 J (0.61)	8.9 (0.11)
Methyl tert-butyl ether	8500	9800	2	1.4	0.0088 (0.0018)	ND (0.0019)	ND (0.13)	ND (0.0022)	ND (0.13)	ND (1.2)	0.036 J (0.22)
Toluene	10000	10000	100	44	0.072 (0.072)	ND (0.00096)	ND (0.065)	ND (0.0011)	ND (0.064)	ND (0.61)	3.3 (0.11)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.83 (0.14)	ND (0.0019)	0.051 J (0.13)	ND (0.0022)	0.061 J (0.13)	150 (1.2)	46 (1.1)
1,3,5-Trimethylbenzene	4700	5400	93	93	1.7 (0.14)	ND (0.0019)	ND (0.13)	ND (0.0022)	0.021 J (0.13)	7.5 (1.2)	13 (0.22)
Xylenes (total)	7900	9100	1000	990	1.576 J (0.14)	0.00169 J (0.0019)	0.118 J (0.13)	0.00192 J (0.0022)	0.104 J (0.13)	ND (1.2)	55 J (0.22)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.073 J (0.19)	0.00085 J (0.0038)	0.12 J (0.26)	ND (0.0045)	0.081 J (0.26)	18 (2)	**36 (1.7)**
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	218 (2.22)	7.32 (2.3)	87.5 (2.29)	10.7 (2.4)	112 (2.36)	NA	NA

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	**Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)**	**Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)**	**Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs**	**Non-Residential Soil Vapor Intrusion Screening Values**	**PB-37-01 PB-37-01-SS01 3.0 - 3.5 Grab 7/27/2021**	**PB-37-02 PB-37-02-SS01 3.0 - 3.5 Grab 7/27/2021**	**PB-37-03 PB-37-03-SS01 1.0 - 1.5 Grab 7/27/2021**	**PB-37-04 PB-37-04-SS01 3.0 - 3.5 Grab 2/9/2022**	**PB-37-05 PB-37-05-SS01 3.0 - 3.5 Grab 7/27/2021**	**PB-37-05 PB-37-05R-6.0-6.5 6.0 - 6.5 Grab 2/9/2022**	**PB-37-05 PB-37-05R-14.0-14.5 14.0 - 14.5 Grab 2/9/2022**
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00056)	ND (0.035)	**0.8 (0.047)**	0.00024 J (0.00046)	**1.3 (0.036)**	**11 (1.7)**	0.008 (0.0005)
Cumene	10000	10000	2500	2500	0.0036 (0.0011)	0.071 (0.069)	1.4 (0.094)	ND (0.00092)	0.32 (0.072)	12 (3.5)	0.24 (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00056)	ND (0.035)	ND (0.047)	ND (0.00046)	ND (0.036)	ND (1.7)	ND (0.0005)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0011)	ND (0.069)	ND (0.094)	ND (0.00092)	ND (0.072)	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0011)	0.24 (0.069)	15 (0.094)	0.00016 J (0.00092)	3.8 (0.072)	**94 (3.5)**	0.2 (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0022)	ND (0.14)	ND (0.19)	0.0029 (0.0018)	ND (0.14)	ND (7)	ND (0.002)
Toluene	10000	10000	100	44	ND (0.0011)	ND (0.069)	65 (0.47)	ND (0.00092)	9.8 (0.072)	7.3 (3.5)	0.01 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.00068 J (0.0022)	1 (0.14)	32 (0.94)	0.0004 J (0.0018)	10 (0.14)	300 (7)	1.1 E (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0022)	0.14 (0.14)	10 (0.19)	ND (0.0018)	2.8 (0.14)	93 (7)	0.46 E (0.002)
Xylenes (total)	7900	9100	1000	990	0.00206 J (0.0022)	0.4045 J (0.14)	85 J (0.94)	ND (0.0018)	18.7 J (0.14)	386 J (7)	0.41 J (0.002)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0024 J (0.0044)	0.28 (0.28)	1.8 (0.37)	ND (0.17)	1.9 (0.29)	**52 (14)**	0.24 (0.004)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	449 (2.4)	131 (1.6)	61.2 (2.2)	12.4 (2.04)	85 (2.4)	NA	NA

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-37-06	PB-37-07	PB-37-08	PB-37-09	PB-37-10	PB-37-11	PB-37-11
Field Sample ID					PB-37-06-SS01	PB-37-07-SS01	PB-37-08-SS01	PB-37-09-SS01	PB-37-10-SS01	PB-37-11R-0.0-0.5	PB-37-11-SS01
Collection Depth (ft bgs)					2.0 - 2.5	3.5 - 4.0	3.0 - 3.5	3.0 - 3.5	2.5 - 3.0	0.0 - 0.5	3.0 - 3.5
Sample Method					Grab	Grab	Grab	Grab	Grab	Grab	Grab
Sample Date					7/27/2021	2/9/2022	2/9/2022	7/27/2021	7/27/2021	2/9/2022	7/27/2021
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.0085 (0.00059)	0.021 (0.00044)	0.00019 J (0.0005)	0.0015 (0.00061)	ND (0.028)	NA	ND (0.0006)
Cumene	10000	10000	2500	2500	0.018 (0.0012)	0.031 (0.00089)	ND (0.001)	0.0092 (0.0012)	0.88 (0.056)	NA	0.0005 J (0.0012)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00059)	ND (0.00044)	ND (0.0005)	ND (0.00061)	ND (0.028)	NA	ND (0.0006)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0012)	ND (0.00089)	ND (0.001)	ND (0.0012)	ND (0.056)	NA	ND (0.0012)
Ethyl Benzene	880	1000	70	46	0.004 (0.0012)	0.081 (0.00089)	0.00015 J (0.001)	0.00056 J (0.0012)	0.16 (0.056)	NA	ND (0.0012)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0024)	0.012 (0.0018)	0.00072 J (0.002)	ND (0.0024)	ND (0.11)	NA	ND (0.0024)
Toluene	10000	10000	100	44	0.0067 (0.0012)	0.012 (0.00089)	ND (0.001)	0.0047 (0.0012)	0.074 (0.056)	NA	ND (0.0012)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0091 (0.0024)	0.15 (0.0018)	ND (0.002)	0.0035 (0.0024)	0.059 J (0.11)	NA	ND (0.0024)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.027 (0.0024)	0.074 (0.0018)	ND (0.002)	0.0042 (0.0024)	0.27 (0.11)	NA	ND (0.0024)
Xylenes (total)	7900	9100	1000	990	0.0688 J (0.0024)	0.138 J (0.0018)	ND (0.002)	0.00432 J (0.0024)	0.137 J (0.11)	NA	ND (0.0024)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0047)	ND (0.18)	ND (0.18)	ND (0.0049)	2.1 (0.22)	NA	ND (0.0048)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	9.4 (2.3)	5.19 (2.03)	15.9 (2.12)	8.7 (2.2)	5.8 (2.3)	161 (2.3)	**2740 (12)**

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-37-11 PB-37-11R-6.0-6.5 6.0 - 6.5 Grab 2/9/2022	PB-37-11 PB-37-11R-14.0-14.5 14.0 - 14.5 Grab 2/9/2022	PB-37-12 PB-37-12-SS01 3.0 - 3.5 Grab 7/27/2021	PB-37-13 PB-37-13-SS01 3.0 - 3.5 Grab 2/9/2022	PB-37-14 PB-37-14-SS01 4.5 - 5.0 Grab 2/9/2022	PB-37-15 PB-37-15-SS01 2.5 - 3.0 Grab 7/27/2021	PB-37-16 PB-37-16-SS01 3.0 - 3.5 Grab 7/27/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	NA	0.26 (0.036)	0.017 J (0.025)	**1.7 (0.28)**	0.0053 (0.00063)	0.043 J (0.12)
Cumene	10000	10000	2500	2500	NA	NA	0.033 J (0.072)	0.27 (0.05)	3.8 (0.56)	0.042 (0.0013)	6 (0.25)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	ND (0.036)	ND (0.025)	ND (0.28)	ND (0.00063)	ND (0.12)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	ND (0.072)	ND (0.05)	ND (0.56)	ND (0.0013)	ND (0.25)
Ethyl Benzene	880	1000	70	46	NA	NA	0.23 (0.072)	0.19 (0.05)	0.56 (0.56)	0.046 J (0.084)	0.18 J (0.25)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	NA	ND (0.14)	ND (0.1)	0.92 J (1.1)	0.00086 J (0.0025)	ND (0.5)
Toluene	10000	10000	100	44	NA	NA	2 (0.072)	0.034 J (0.05)	ND (0.56)	0.0037 (0.0013)	ND (0.25)
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	NA	0.47 (0.14)	0.13 (0.1)	ND (1.1)	0.2 (0.17)	ND (0.5)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	NA	0.16 (0.14)	0.042 J (0.1)	ND (1.1)	0.029 (0.0025)	ND (0.5)
Xylenes (total)	7900	9100	1000	990	NA	NA	1.26 J (0.14)	0.219 J (0.1)	ND (1.1)	0.09 J (0.17)	ND (0.5)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	NA	0.19 J (0.29)	ND (0.17)	ND (0.18)	0.22 (0.005)	0.21 J (0.99)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	**854 (2.26)**	52.2 (2.38)	119 (2.6)	58.5 (2.03)	7.42 (2.03)	**647 (2.8)**	14.3 (2.4)

Notes:
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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.0004 J (0.00051)	0.1 (0.00061)	ND (0.00062)	0.00076 (0.00051)	**7.2 (0.054)**	**10 (0.029)**	0.00054 (0.00052)
Cumene	10000	10000	2500	2500	0.0084 (0.001)	0.028 (0.0012)	ND (0.0012)	0.0038 (0.001)	0.5 (0.11)	5.5 (0.059)	0.00035 J (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00051)	ND (0.00061)	ND (0.00062)	ND (0.00051)	ND (0.054)	ND (0.029)	ND (0.00052)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.001)	ND (0.0012)	ND (0.0012)	ND (0.001)	ND (0.11)	ND (0.059)	ND (0.001)
Ethyl Benzene	880	1000	70	46	0.0028 (0.001)	0.005 (0.0012)	ND (0.0012)	ND (0.001)	1.8 (0.11)	15 (0.059)	0.001 (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.002)	0.0024 (0.0024)	ND (0.0025)	0.0024 (0.002)	ND (0.21)	ND (0.12)	ND (0.0021)
Toluene	10000	10000	100	44	0.00078 J (0.001)	0.015 (0.0012)	ND (0.0012)	0.0008 J (0.001)	3.3 (0.11)	1.2 (0.059)	0.0042 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.086 (0.002)	0.0061 (0.0024)	ND (0.0025)	0.00078 J (0.002)	0.97 (0.21)	5.4 (0.12)	0.009 (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.001 J (0.002)	0.0062 (0.0024)	ND (0.0025)	0.00088 J (0.002)	0.13 J (0.21)	4.3 (0.12)	0.0032 (0.0021)
Xylenes (total)	7900	9100	1000	990	0.016 J (0.002)	0.0429 J (0.0024)	ND (0.0025)	0.0073 J (0.002)	6.9 J (0.21)	21.9 J (0.12)	0.053 J (0.0021)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0017 J (0.004)	ND (0.0049)	ND (0.005)	ND (0.0041)	2 (0.43)	10 (0.23)	ND (0.0042)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	**1850 (12)**	110 (2.6)	179 (2.2)	22.9 (2.4)	96.7 (2.4)	188 (2.4)	13.6 (2.4)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-38-06 PB-38-06-SS01 3.5 - 4.0 Grab 7/16/2021	PB-38-07 PB-38-07-SS01 3.5 - 4.0 Grab 7/16/2021	PB-38-08 PB-38-08-SS01 3.0 - 3.5 Grab 7/16/2021	PB-38-09 PB-38-09-SS01 3.0 - 3.5 Grab 7/16/2021	PB-38-10 PB-38-10-SS01 3.0 - 3.5 Grab 7/16/2021	PB-38-11 PB-38-11R-0.0-0.5 0.0 - 0.5 Grab 2/9/2022	PB-38-11 PB-38-11-SS01 3.0 - 3.5 Grab 7/16/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.038 (0.00054)	0.00055 (0.00048)	**8.4 (0.15)**	0.0002 J (0.00051)	**1.1 (0.031)**	NA	0.0014 (0.00056)
Cumene	10000	10000	2500	2500	0.00073 J (0.0011)	0.00044 J (0.00096)	8 (0.3)	ND (0.001)	0.02 J (0.063)	NA	0.003 (0.0011)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00054)	ND (0.00048)	ND (0.15)	ND (0.00051)	ND (0.031)	NA	ND (0.00056)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0011)	ND (0.00096)	ND (0.3)	ND (0.001)	0.064 (0.063)	NA	ND (0.0011)
Ethyl Benzene	880	1000	70	46	0.00074 J (0.0011)	0.00043 J (0.00096)	39 (0.3)	ND (0.001)	0.4 (0.063)	NA	0.0043 (0.0011)
Methyl tert-butyl ether	8500	9800	2	1.4	0.11 (0.0022)	0.00044 J (0.0019)	ND (0.6)	0.00073 J (0.002)	0.022 J (0.12)	NA	0.002 J (0.0022)
Toluene	10000	10000	100	44	0.0011 (0.0011)	ND (0.00096)	20 (0.3)	ND (0.001)	3.9 (0.063)	NA	0.02 (0.0011)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0013 J (0.0022)	ND (0.0019)	150 (1.2)	ND (0.002)	1 (0.12)	NA	0.0075 (0.0022)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.0012 J (0.0022)	ND (0.0019)	49 (0.6)	ND (0.002)	0.28 (0.12)	NA	0.0026 (0.0022)
Xylenes (total)	7900	9100	1000	990	0.0036 J (0.0022)	0.0012 J (0.0019)	76 J (0.6)	ND (0.002)	4.95 J (0.12)	NA	0.041 J (0.0022)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.00093 J (0.0043)	0.001 J (0.0038)	24 (1.2)	ND (0.0041)	0.24 J (0.25)	NA	ND (0.0045)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	17.8 (2.5)	81.7 (2.4)	30.3 (2.3)	188 (2.4)	**464 (2.5)**	18.7 (2.15)	**780 (2.4)**

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-38-11 PB-38-11R-6.0-6.5 6.0 - 6.5 Grab 2/9/2022	PB-38-12 PB-38-12-SS01 4.5 - 5.0 Grab 7/16/2021	PB-38-13 PB-38-13-SS01 3.0 - 3.5 Grab 7/16/2021	PB-38-13 PB-38-13R-6.0-6.5 6.0 - 6.5 Grab 2/9/2022	PB-38-13 PB-38-13R-14.0-14.5 14.0 - 14.5 Grab 2/9/2022	PB-38-14 PB-38-14-SS01 3.0 - 3.5 Grab 7/16/2021	PB-39-01 PB-39-01-SS01 3.0 - 3.5 Grab 7/15/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	NA	0.04 J (0.064)	**19 (0.12)**	**3 (0.024)**	0.16 (0.035)	0.054 (0.04)	0.0012 (0.00069)
Cumene	10000	10000	2500	2500	NA	0.42 (0.13)	5.2 (0.25)	0.16 (0.047)	NA	0.1 (0.08)	0.00022 J (0.0014)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	ND (0.064)	ND (0.12)	ND (0.024)	NA	ND (0.04)	ND (0.00069)
1,2-Dichloroethane	85	98	0.5	0.1	NA	ND (0.13)	0.078 J (0.25)	NA	NA	ND (0.08)	ND (0.0014)
Ethyl Benzene	880	1000	70	46	NA	0.032 J (0.13)	28 (0.25)	0.98 (0.047)	NA	0.05 J (0.08)	ND (0.0014)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	0.059 J (0.26)	ND (0.5)	1 (0.095)	NA	ND (0.16)	ND (0.0028)
Toluene	10000	10000	100	44	NA	ND (0.13)	0.75 (0.25)	0.27 (0.047)	NA	0.082 (0.08)	ND (0.0014)
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	0.18 J (0.26)	98 (1.2)	0.73 (0.095)	NA	0.18 (0.16)	ND (0.0028)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	0.078 J (0.26)	31 (0.5)	0.19 (0.095)	NA	0.046 J (0.16)	ND (0.0028)
Xylenes (total)	7900	9100	1000	990	NA	0.279 J (0.26)	41.7 J (0.5)	2.12 J (0.095)	NA	0.306 J (0.16)	ND (0.0028)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	NA	0.34 J (0.51)	12 (1)	0.071 J (0.19)	NA	0.71 (0.32)	ND (0.0055)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	22.6 (2.21)	31.6 (3.3)	12.7 (2.4)	NA	NA	36.6 (2.8)	153 (2.3)

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-39-02 PB-39-02-SS01 4.0 - 4.5 Grab 7/15/2021	PB-39-03 PB-39-03-SS01 3.0 - 3.5 Grab 7/15/2021	PB-39-04 PB-39-04-SS01 2.0 - 2.5 Grab 7/15/2021	PB-39-05 PB-39-05-SS01 3.0 - 3.5 Grab 7/15/2021	PB-39-06 PB-39-06-SS01 4.0 - 4.5 Grab 7/15/2021	PB-39-07 PB-39-07-SS01 3.0 - 3.5 Grab 7/15/2021	PB-39-08 PB-39-08-SS01 3.0 - 3.5 Grab 7/15/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.00018 J (0.00049)	ND (0.00082)	**0.65 (0.028)**	0.015 (0.00084)	**0.92 (0.05)**	ND (0.00051)	**0.72 (0.03)**
Cumene	10000	10000	2500	2500	0.011 (0.00099)	ND (0.0016)	0.33 (0.056)	0.07 (0.0017)	0.72 (0.099)	ND (0.001)	16 (0.06)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00049)	ND (0.00082)	ND (0.028)	ND (0.00084)	ND (0.05)	ND (0.00051)	ND (0.03)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00099)	ND (0.0016)	ND (0.056)	ND (0.0017)	ND (0.099)	ND (0.001)	ND (0.06)
Ethyl Benzene	880	1000	70	46	0.00039 J (0.00099)	ND (0.0016)	5.3 (0.056)	0.0051 (0.0017)	0.26 (0.099)	ND (0.001)	1.2 (0.06)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.002)	ND (0.0033)	0.015 J (0.11)	0.0037 (0.0034)	ND (0.2)	0.0047 (0.002)	0.015 J (0.12)
Toluene	10000	10000	100	44	ND (0.00099)	ND (0.0016)	0.16 (0.056)	0.0077 (0.0017)	0.37 (0.099)	ND (0.001)	0.2 (0.06)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.003 (0.002)	ND (0.0033)	13 (0.11)	0.0041 (0.0034)	0.34 (0.2)	ND (0.002)	3.1 (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.00038 J (0.002)	ND (0.0033)	2.7 (0.11)	0.0024 J (0.0034)	0.1 J (0.2)	ND (0.002)	1.8 (0.12)
Xylenes (total)	7900	9100	1000	990	0.00319 J (0.002)	ND (0.0033)	19.38 J (0.11)	0.0196 J (0.0034)	1.3 J (0.2)	ND (0.002)	0.55 J (0.12)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.0067 (0.004)	ND (0.0066)	5.4 (0.22)	0.0011 J (0.0068)	0.26 J (0.4)	ND (0.004)	10 (0.24)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	26.1 (2.3)	19.4 (2.4)	137 (2.6)	268 (1.5)	72.5 (2.4)	59.4 (1.4)	28.8 (2.3)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**1.4 (0.061)**	0.00028 J (0.00064)	0.002 (0.00073)	**73 (0.78)**	**1.7 (0.031)**	**45 (0.7)**	**47 (0.65)**
Cumene	10000	10000	2500	2500	7.6 (0.12)	ND (0.0013)	0.0011 J (0.0015)	11 (1.6)	0.45 (0.062)	NA	10 (1.3)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.061)	ND (0.00064)	ND (0.00073)	ND (0.78)	ND (0.031)	NA	ND (0.65)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.12)	ND (0.0013)	ND (0.0015)	ND (1.6)	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.33 (0.12)	ND (0.0013)	0.001 J (0.0015)	**180 (1.6)**	0.35 (0.062)	**80 (1.4)**	**150 (1.3)**
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.24)	0.0019 J (0.0025)	0.00081 J (0.0029)	0.37 J (3.1)	ND (0.12)	NA	ND (2.6)
Toluene	10000	10000	100	44	0.68 (0.12)	ND (0.0013)	ND (0.0015)	**350 (3.1)**	7.1 (0.062)	**360 (1.4)**	**510 (5.2)**
1,2,4-Trimethylbenzene	4700	5400	300	300	0.5 (0.24)	ND (0.0025)	ND (0.0029)	**390 (3.1)**	0.46 (0.12)	NA	270 (2.6)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.14 J (0.24)	ND (0.0025)	ND (0.0029)	**98 (3.1)**	0.094 J (0.12)	NA	89 (2.6)
Xylenes (total)	7900	9100	1000	990	1.42 J (0.24)	ND (0.0025)	0.002 J (0.0029)	920 J (6.3)	1.93 J (0.12)	510 J (2.8)	870 J (2.6)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.97 (0.49)	ND (0.0051)	0.016 (0.0058)	**40 (6.3)**	0.71 (0.25)	20 (5.6)	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	130 (1.5)	419 (2.6)	32.5 (2.3)	31.5 (2.5)	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-39-13 PB-39-13-SS01 3.0 - 3.5 Grab 7/15/2021	PB-40-01 PB-40-01-SS01 2.5 - 3.0 Grab 6/22/2021	PB-40-02 PB-40-02-SS01 4.5 - 5.0 Grab 6/22/2021	PB-40-03 PB-40-03-SS01 3.0 - 3.5 Grab 6/22/2021	PB-40-04 PB-40-04-SS01 3.5 - 4.0 Grab 6/22/2021	PB-40-05 PB-40-05-SS01 3.0 - 3.5 Grab 6/21/2021	PB-40-06 PB-40-06-SS01 3.0 - 3.5 Grab 6/21/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.16 (0.032)	0.04 J (0.043)	ND (0.062)	0.039 J (0.065)	0.014 J (0.03)	ND (0.00048)	0.0027 (0.00041)
Cumene	10000	10000	2500	2500	0.6 (0.063)	3.9 (0.087)	12 (0.12)	3.2 (0.13)	0.49 (0.06)	0.0024 (0.00095)	0.0002 J (0.00082)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.032)	ND (0.043)	ND (0.062)	ND (0.065)	ND (0.03)	ND (0.00048)	ND (0.00041)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.063)	ND (0.087)	ND (0.12)	ND (0.13)	ND (0.06)	ND (0.00095)	ND (0.00082)
Ethyl Benzene	880	1000	70	46	0.12 (0.063)	0.061 J (0.087)	0.044 J (0.12)	0.14 (0.13)	0.069 (0.06)	ND (0.00095)	0.0002 J (0.00082)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.13)	ND (0.17)	ND (0.25)	ND (0.26)	ND (0.12)	ND (0.0019)	ND (0.0016)
Toluene	10000	10000	100	44	0.046 J (0.063)	0.062 J (0.087)	ND (0.12)	0.1 J (0.13)	0.036 J (0.06)	ND (0.00095)	ND (0.00082)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.087 J (0.13)	0.18 (0.17)	0.058 J (0.25)	0.38 (0.26)	0.086 J (0.12)	ND (0.0019)	0.0003 J (0.0016)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.03 J (0.13)	0.027 J (0.17)	ND (0.25)	0.059 J (0.26)	0.03 J (0.12)	ND (0.0019)	ND (0.0016)
Xylenes (total)	7900	9100	1000	990	0.17 J (0.13)	0.265 J (0.17)	0.245 J (0.25)	0.46 J (0.26)	0.25 J (0.12)	ND (0.0019)	0.0011 J (0.0016)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.041 (0.0046)	1.2 (0.35)	1.8 (0.5)	1.9 (0.52)	0.15 J (0.24)	ND (0.0038)	0.00053 J (0.0033)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	84.8 (1.5)	272 (2.9)	6.14 (2.39)	297 (2.64)	36.3 (2.27)	355 (2.19)	247 (2.32)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-40-06 DUP-07 3.0 - 3.5 Grab 6/21/2021 Field Duplicate	PB-40-07 PB-40-07-SS01 3.5 - 4.0 Grab 6/22/2021	PB-40-08 PB-40-08-SS01 4.0 - 4.5 Grab 6/22/2021	PB-40-09 PB-40-09-SS01 3.0 - 3.5 Grab 6/22/2021	PB-40-10 PB-40-10-SS01 4.0 - 4.5 Grab 6/22/2021	PB-40-11 PB-40-11-SS01 3.0 - 3.5 Grab 6/22/2021	PB-40-12 PB-40-12R-0.0-0.5 0.0 - 0.5 Grab 2/11/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.43 (0.029)	ND (0.026)	ND (0.055)	0.0049 (0.00052)	ND (0.056)	0.023 (0.00054)	NA
Cumene	10000	10000	2500	2500	0.22 (0.058)	0.064 (0.052)	1.1 (0.11)	0.0014 (0.001)	4 (0.11)	0.021 (0.0011)	NA
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.029)	ND (0.026)	ND (0.055)	ND (0.00052)	ND (0.056)	ND (0.00054)	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.058)	ND (0.052)	ND (0.11)	ND (0.001)	ND (0.11)	ND (0.0011)	NA
Ethyl Benzene	880	1000	70	46	1.3 (0.058)	0.026 J (0.052)	0.029 J (0.11)	0.0012 (0.001)	0.24 (0.11)	0.027 (0.0011)	NA
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.12)	ND (0.1)	ND (0.22)	ND (0.0021)	ND (0.22)	ND (0.0022)	NA
Toluene	10000	10000	100	44	0.037 J (0.058)	ND (0.052)	ND (0.11)	ND (0.001)	ND (0.11)	0.03 (0.0011)	NA
1,2,4-Trimethylbenzene	4700	5400	300	300	2.6 (0.12)	0.74 (0.1)	ND (0.22)	ND (0.0021)	0.17 J (0.22)	0.11 (0.0022)	NA
1,3,5-Trimethylbenzene	4700	5400	93	93	0.22 (0.12)	0.23 (0.1)	ND (0.22)	ND (0.0021)	ND (0.22)	0.037 (0.0022)	NA
Xylenes (total)	7900	9100	1000	990	1.647 J (0.12)	0.077 J (0.1)	0.179 J (0.22)	ND (0.0021)	0.21 J (0.22)	0.125 J (0.0022)	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.9 (0.23)	0.12 J (0.21)	0.63 (0.44)	0.0024 J (0.0042)	0.5 (0.45)	0.035 (0.0043)	NA
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	29.8 (2.2)	**463 (2.3)**	41.1 (2.04)	15.5 (2.08)	58.2 (2.2)	258 (2.3)	7.08 (2.47)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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ND - Not Detected
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location / Field Sample ID / Collection Depth (ft bgs) / Sample Method / Sample Date / Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-40-12 / PB-40-12-SS01 / 3.0 - 3.5 / Grab / 6/22/2021	PB-40-12 / PB-40-12R-6.0-6.5 / 6.0 - 6.5 / Grab / 2/11/2022	PB-40-13 / PB-40-13-SS01 / 4.0 - 4.5 / Grab / 6/22/2021	PB-40-14 / PB-40-14-SS01 / 3.0 - 3.5 / Grab / 6/22/2021	PB-40-15 / PB-40-15-SS01 / 4.0 - 4.5 / Grab / 6/22/2021	PB-40-16 / PB-40-16-SS01 / 4.0 - 4.5 / Grab / 6/22/2021	PB-42-01 / PB-42-01-SS01 / 2.5 - 3.0 / Grab / 6/24/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**0.59 (0.033)**	0.0037 (0.00049)	0.00095 (0.00066)	0.12 (0.00051)	0.0018 (0.00051)	0.0007 (0.00049)	0.001 (0.00057)
Cumene	10000	10000	2500	2500	1.4 (0.065)	0.022 (0.00098)	0.038 (0.0013)	0.017 (0.001)	0.0032 (0.001)	0.046 (0.00098)	0.042 (0.0011)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.033)	ND (0.00049)	ND (0.00066)	ND (0.00051)	ND (0.00051)	ND (0.00049)	NA
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.065)	NA	ND (0.0013)	ND (0.001)	ND (0.001)	ND (0.00098)	NA
Ethyl Benzene	880	1000	70	46	0.83 (0.065)	0.00051 J (0.00098)	0.00042 J (0.0013)	0.01 (0.001)	0.0078 (0.001)	0.0025 (0.00098)	0.00032 J (0.0011)
Methyl tert-butyl ether	8500	9800	2	1.4	0.014 J (0.13)	0.031 (0.002)	ND (0.0026)	ND (0.002)	ND (0.002)	ND (0.002)	ND (0.0023)
Toluene	10000	10000	100	44	0.17 (0.065)	0.0011 (0.00098)	0.0025 (0.0013)	0.0094 (0.001)	0.0033 (0.001)	0.0027 (0.00098)	ND (0.0011)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.3 (0.13)	0.031 (0.002)	0.00067 J (0.0026)	0.073 (0.002)	0.032 (0.002)	0.046 (0.002)	0.0082 (0.0023)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.04 J (0.13)	0.0038 (0.002)	ND (0.0026)	0.023 (0.002)	0.012 (0.002)	0.019 (0.002)	0.00086 J (0.0023)
Xylenes (total)	7900	9100	1000	990	1.054 J (0.13)	0.0035 J (0.002)	0.0032 J (0.0026)	0.029 J (0.002)	0.0168 J (0.002)	0.0312 J (0.002)	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.79 (0.26)	0.0025 J (0.0039)	0.0058 (0.0053)	0.033 (0.0041)	0.016 (0.004)	0.0028 J (0.0039)	0.0085 (0.0046)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	**1070 (2.42)**	31.2 (11.5)	8.13 (2.35)	248 (2.28)	34.4 (2.1)	40.1 (2.33)	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-42-02 PB-42-02-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-03 PB-42-03-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-04 PB-42-04-SS01 1.5 - 2.0 Grab 6/24/2021	PB-42-05 PB-42-05-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-06 PB-42-06-SS01 1.0 - 1.5 Grab 6/24/2021	PB-42-07 PB-42-07-SS01 1.0 - 1.5 Grab 6/24/2021	PB-42-08 PB-42-08-SS01 2.5 - 3.0 Grab 6/24/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.037)	ND (0.03)	ND (0.21)	ND (0.033)	0.00033 J (0.00052)	ND (0.072)	0.028 J (0.056)
Cumene	10000	10000	2500	2500	2.1 (0.075)	0.65 (0.061)	10 (0.42)	1 (0.065)	0.066 (0.001)	0.59 (0.14)	3 (0.11)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.075)	ND (0.061)	0.12 J (0.42)	ND (0.065)	0.00019 J (0.001)	0.067 J (0.14)	1.2 (0.11)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.15)	ND (0.12)	ND (0.84)	ND (0.13)	0.00026 J (0.0021)	ND (0.29)	ND (0.22)
Toluene	10000	10000	100	44	ND (0.075)	ND (0.061)	ND (0.42)	0.047 J (0.065)	ND (0.001)	ND (0.14)	0.072 J (0.11)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.15)	0.17 (0.12)	0.55 J (0.84)	0.036 J (0.13)	0.00089 J (0.0021)	0.2 J (0.29)	1.3 (0.22)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.15)	0.048 J (0.12)	ND (0.84)	ND (0.13)	0.00021 J (0.0021)	0.034 J (0.29)	0.024 J (0.22)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.75 (0.3)	0.26 (0.24)	ND (1.7)	0.18 J (0.26)	0.012 (0.0041)	0.52 J (0.58)	0.88 (0.45)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-42-09 PB-42-09-SS01 4.0 - 4.5 Grab 6/24/2021	PB-42-09 PB-42-09R-6.0-6.5 6.0 - 6.5 Grab 2/14/2022	PB-42-10 PB-42-10-SS01 3.5 - 4.0 Grab 6/24/2021	PB-42-11 PB-42-11-SS01 1.0 - 1.5 Grab 6/24/2021	PB-42-12 PB-42-12-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-13 PB-42-13-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-14 PB-42-14-SS01 3.0 - 3.5 Grab 6/24/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**0.78 (0.037)**	0.18 (0.00057)	0.03 J (0.034)	ND (0.057)	ND (0.00051)	0.062 (0.061)	0.068 (0.038)
Cumene	10000	10000	2500	2500	0.52 (0.073)	0.0016 (0.0011)	1.1 (0.068)	1.8 (0.11)	ND (0.001)	2.2 (0.12)	0.073 J (0.075)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	ND (0.00057)	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.21 (0.073)	ND (0.0011)	0.049 J (0.068)	0.042 J (0.11)	ND (0.001)	0.069 J (0.12)	0.22 (0.075)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.15)	ND (0.0023)	ND (0.14)	ND (0.23)	0.00032 J (0.002)	ND (0.24)	ND (0.15)
Toluene	10000	10000	100	44	0.078 (0.073)	ND (0.0011)	0.064 J (0.068)	0.068 J (0.11)	ND (0.001)	ND (0.12)	ND (0.075)
1,2,4-Trimethylbenzene	4700	5400	300	300	2.7 (0.15)	0.0038 (0.0023)	0.15 (0.14)	0.2 J (0.23)	ND (0.002)	0.098 J (0.24)	0.79 (0.15)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.24 (0.15)	0.0019 J (0.0023)	0.033 J (0.14)	0.028 J (0.23)	ND (0.002)	0.026 J (0.24)	0.2 (0.15)
Xylenes (total)	7900	9100	1000	990	NA	0.00435 J (0.0023)	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.74 (0.29)	0.0012 J (0.0046)	0.18 J (0.27)	2.1 (0.46)	ND (0.0041)	0.3 J (0.49)	0.24 J (0.3)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-42-14 DUP-10 3.0 - 3.5 Grab 6/24/2021 Field Duplicate	PB-42-15 PB-42-15-SS01 3.0 - 3.5 Grab 6/24/2021	PB-42-16 PB-42-16-SS01 4.5 - 5.0 Grab 6/24/2021	PB-43-01 PB-43-01-SS01 3.0 - 3.5 Grab 2/14/2022	PB-43-02 PB-43-02-SS01 3.0 - 3.5 Grab 2/14/2022	PB-43-03 PB-43-03-SS01 3.5 - 4.0 Grab 2/14/2022	PB-43-04 PB-43-04-SS01 3.5 - 4.0 Grab 6/25/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.34 (0.036)	ND (0.043)	0.0004 J (0.00045)	0.00052 J (0.00068)	0.012 J (0.03)	ND (0.00047)	0.035 (0.00047)
Cumene	10000	10000	2500	2500	0.45 (0.072)	0.3 (0.086)	0.012 (0.0009)	0.00022 J (0.0014)	0.38 (0.061)	0.028 (0.00094)	0.001 (0.00095)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	1 (0.072)	ND (0.086)	0.00016 J (0.0009)	ND (0.0014)	0.0016 (0.0013)	0.00016 J (0.00094)	ND (0.00095)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.14)	ND (0.17)	ND (0.0018)	0.0097 (0.0027)	ND (0.0026)	ND (0.0019)	0.0088 (0.0019)
Toluene	10000	10000	100	44	0.087 (0.072)	0.064 J (0.086)	ND (0.0009)	ND (0.0014)	0.033 J (0.061)	0.00088 J (0.00094)	0.0013 (0.00095)
1,2,4-Trimethylbenzene	4700	5400	300	300	4.4 (0.14)	ND (0.17)	0.001 J (0.0018)	ND (0.0027)	0.024 J (0.12)	0.00084 J (0.0019)	ND (0.0019)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.99 (0.14)	ND (0.17)	0.00029 J (0.0018)	ND (0.0027)	0.02 J (0.12)	0.00021 J (0.0019)	ND (0.0019)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.1 (0.29)	0.66 (0.34)	0.0063 (0.0036)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.0038)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
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B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-43-05 PB-43-05-SS01 3.0 - 3.5 Grab 2/14/2022	PB-43-06 PB-43-06-SS01 4.0 - 4.5 Grab 2/14/2022	PB-43-07 PB-43-07-SS01 3.5 - 4.0 Grab 2/14/2022	PB-43-08 PB-43-08-SS01 3.5 - 4.0 Grab 2/14/2022	PB-43-09 PB-43-09-SS01 3.0 - 3.5 Grab 6/25/2021	PB-43-10 PB-43-10-SS01 3.5 - 4.0 Grab 2/14/2022	PB-43-11 PB-43-11-SS01 3.0 - 3.5 Grab 2/14/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.0006)	0.0007 (0.00042)	ND (0.036)	ND (0.00047)	ND (0.00048)	ND (0.033)	ND (0.044)
Cumene	10000	10000	2500	2500	0.00041 J (0.0012)	0.014 (0.00085)	0.35 (0.072)	0.1 (0.00094)	ND (0.00096)	2.6 (0.065)	0.5 (0.088)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0012)	0.00014 J (0.00085)	ND (0.072)	ND (0.00094)	ND (0.00096)	0.16 (0.065)	0.62 (0.088)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0024)	ND (0.0017)	ND (0.14)	0.00024 J (0.0019)	ND (0.0019)	ND (0.13)	ND (0.18)
Toluene	10000	10000	100	44	ND (0.0012)	ND (0.00085)	ND (0.072)	0.00075 J (0.00094)	ND (0.00096)	0.042 J (0.065)	ND (0.088)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0024)	ND (0.0017)	ND (0.14)	ND (0.0019)	ND (0.0019)	0.16 (0.13)	0.15 J (0.18)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0024)	ND (0.0017)	ND (0.14)	0.0004 J (0.0019)	ND (0.0019)	0.066 J (0.13)	0.051 J (0.18)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.19)	ND (0.2)	ND (0.2)	0.34 (0.19)	ND (0.0038)	ND (0.2)	0.24 (0.2)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-43-12 PB-43-12-SS01 3.0 - 3.5 Grab 6/25/2021	PB-43-13 PB-43-13-SS01 2.0 - 2.5 Grab 6/25/2021	PB-43-14 PB-43-14-SS01 3.0 - 3.5 Grab 6/25/2021	PB-43-15 PB-43-15-SS01 1.5 - 2.0 Grab 6/25/2021	PB-43-16 PB-43-16-SS01 3.0 - 3.5 Grab 6/25/2021	PB-83-01 PB-83-01-SS01 4.0 - 4.5 Grab 6/25/2021	PB-83-01 PB-83-01R-6.0-6.5 6.0 - 6.5 Grab 2/14/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.03)	ND (0.03)	ND (0.00046)	ND (0.00071)	0.0038 (0.00048)	**5 (0.064)**	**1.6 (0.039)**
Cumene	10000	10000	2500	2500	0.059 J (0.06)	0.076 (0.059)	ND (0.00091)	ND (0.0014)	0.00087 J (0.00097)	9 (0.13)	0.025 J (0.079)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	ND (0.039)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.06)	ND (0.059)	ND (0.00091)	ND (0.0014)	0.00022 J (0.00097)	38 (0.64)	0.02 J (0.079)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.12)	ND (0.12)	ND (0.0018)	ND (0.0028)	ND (0.0019)	ND (0.25)	0.03 J (0.16)
Toluene	10000	10000	100	44	ND (0.06)	ND (0.059)	ND (0.00091)	ND (0.0014)	ND (0.00097)	0.53 (0.13)	ND (0.079)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.12)	0.02 J (0.12)	ND (0.0018)	ND (0.0028)	0.0009 J (0.0019)	51 (1.3)	ND (0.16)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.12)	ND (0.12)	ND (0.0018)	ND (0.0028)	ND (0.0019)	19 (0.25)	ND (0.16)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	0.112 J (0.16)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.17 J (0.24)	0.2 J (0.24)	ND (0.0036)	ND (0.0057)	ND (0.0039)	14 (0.51)	ND (0.31)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-83-01 PB-83-01R-14.0-14.5 14.0 - 14.5 Grab 2/14/2022	PB-83-02 PB-83-02-SS01 3.0 - 3.5 Grab 6/25/2021	PB-83-03 PB-83-03-SS01 3.0 - 3.5 Grab 6/25/2021	PB-83-04 PB-83-04-SS01 3.0 - 3.5 Grab 2/14/2022	PB-83-05 PB-83-05-SS01 2.5 - 3.0 Grab 2/14/2022	PB-83-06 PB-83-06-SS01 4.5 - 5.0 Grab 2/14/2022	PB-83-07 PB-83-07-SS01 3.0 - 3.5 Grab 6/25/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**0.9 (0.037)**	**0.64 (0.032)**	ND (0.03)	0.46 (0.032)	0.0035 (0.00052)	0.0037 (0.00053)	ND (0.00063)
Cumene	10000	10000	2500	2500	NA	3 (0.064)	0.012 J (0.061)	4.4 (0.064)	0.12 (0.001)	0.038 (0.001)	ND (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.015 J (0.075)	12 (0.064)	0.016 J (0.061)	1 (0.064)	0.0073 (0.001)	0.0013 (0.001)	ND (0.0013)
Methyl tert-butyl ether	8500	9800	2	1.4	NA	ND (0.13)	ND (0.12)	ND (0.13)	ND (0.0021)	ND (0.0021)	ND (0.0025)
Toluene	10000	10000	100	44	ND (0.075)	0.24 (0.064)	0.036 J (0.061)	0.082 (0.064)	0.013 (0.001)	0.0043 (0.001)	ND (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	300	NA	4.8 (0.13)	0.051 J (0.12)	0.21 (0.13)	0.014 (0.0021)	0.0062 (0.0021)	ND (0.0025)
1,3,5-Trimethylbenzene	4700	5400	93	93	NA	3.3 (0.13)	0.015 J (0.12)	1.1 (0.13)	0.01 (0.0021)	0.0019 J (0.0021)	ND (0.0025)
Xylenes (total)	7900	9100	1000	990	ND (0.15)	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.072 J (0.3)	1.3 (0.25)	0.044 J (0.24)	ND (0.19)	0.8 (0.2)	ND (1.3)	ND (0.0051)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00046)	ND (0.0005)	ND (0.00072)	ND (0.00055)	ND (0.00098)	ND (0.064)	0.027 (0.027)
Cumene	10000	10000	2500	2500	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	3.5 (0.13)	2.5 (0.055)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	ND (0.13)	0.042 J (0.055)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0019)	ND (0.002)	ND (0.0029)	ND (0.0022)	ND (0.0039)	ND (0.26)	ND (0.11)
Toluene	10000	10000	100	44	ND (0.00093)	ND (0.001)	ND (0.0014)	ND (0.0011)	ND (0.002)	ND (0.13)	0.041 J (0.055)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0019)	ND (0.002)	ND (0.0029)	0.00078 J (0.0022)	ND (0.0039)	23 (0.26)	0.97 (0.11)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0019)	ND (0.002)	0.00048 J (0.0029)	0.00021 J (0.0022)	ND (0.0039)	0.49 (0.26)	0.024 J (0.11)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0037)	ND (0.004)	ND (0.0058)	1.9 (0.19)	ND (0.0079)	1 (0.51)	0.81 (0.22)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.

2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).

3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.

4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-84-03 PB-84-03-SS01 4.0 - 4.5 Grab 6/23/2021	PB-84-04 PB-84-04R-0.0-0.5 0.0 - 0.5 Grab 2/15/2022	PB-84-04 PB-84-04-SS01 3.0 - 3.5 Grab 6/23/2021	PB-84-04 PB-84-04R-6.0-6.5 6.0 - 6.5 Grab 2/15/2022	PB-84-04 TG02-MW-14-8.5-9.0 8.5 - 9.0 Grab 11/18/2022	PB-84-05 PB-84-05-SS01 4.0 - 4.5 Grab 6/23/2021	PB-84-06 PB-84-06-SS01 3.5 - 4.0 Grab 6/23/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.07)	NA	**2.1 (0.13)**	0.28 (0.031)	0.1 (0.028)	ND (0.036)	0.047 (0.025)
Cumene	10000	10000	2500	2500	1.9 (0.14)	NA	5.1 (0.26)	6 (0.062)	2.6 (0.056)	0.63 (0.072)	1.3 (0.049)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	ND (0.031)	ND (0.028)	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.14)	NA	15 (0.26)	0.43 (0.062)	2.2 (0.056)	0.011 J (0.072)	0.014 J (0.049)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.28)	NA	ND (0.52)	ND (0.12)	ND (0.11)	ND (0.14)	ND (0.099)
Toluene	10000	10000	100	44	ND (0.14)	NA	3 (0.26)	ND (0.062)	ND (0.056)	ND (0.072)	ND (0.049)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.79 (0.28)	NA	110 (1)	61 E (0.12)	29 (0.56)	0.039 J (0.14)	ND (0.099)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.28)	NA	29 (0.52)	6.4 (0.12)	7.3 (0.11)	ND (0.14)	ND (0.099)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	0.395 J (0.12)	5.79 J (0.11)	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.55 J (0.56)	ND (0.2)	**74 (1)**	ND (0.2)	20 (1.9)	0.4 (0.29)	0.26 (0.2)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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ND - Not Detected
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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-84-07 PB-84-07-SS01 4.5 - 5.0 Grab 6/23/2021	PB-84-08 PB-84-08-SS01 3.0 - 3.5 Grab 6/23/2021	PB-84-09 PB-84-09-SS01 0.0 - 0.5 Grab 6/24/2021	PB-84-09 DUP-09 0.0 - 0.5 Grab 6/24/2021	PB-84-10 PB-84-10-SS01 1.5 - 2.0 Grab 6/24/2021	PB-84-11 PB-84-11-SS01 3.0 - 3.5 Grab 2/15/2022	PB-84-12 PB-84-12-SS01 3.0 - 3.5 Grab 6/24/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.16)	ND (0.00046)	ND (0.15)	ND (0.17)	ND (0.00047)	0.00024 J (0.00052)	ND (0.03)
Cumene	10000	10000	2500	2500	4.9 (0.32)	0.027 (0.00091)	0.61 (0.31)	0.67 (0.34)	ND (0.00094)	0.078 (0.001)	0.13 (0.06)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.69 (0.32)	0.00019 J (0.00091)	0.42 (0.31)	0.45 (0.34)	ND (0.00094)	ND (0.001)	ND (0.06)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.64)	ND (0.0018)	ND (0.62)	ND (0.67)	ND (0.0019)	ND (0.0021)	ND (0.12)
Toluene	10000	10000	100	44	ND (0.32)	ND (0.00091)	ND (0.31)	ND (0.34)	ND (0.00094)	0.001 (0.001)	ND (0.06)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.64)	0.028 (0.0018)	120 (1.2)	100 (1.3)	ND (0.0019)	0.078 (0.0021)	0.084 J (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.64)	0.0021 (0.0018)	37 (0.62)	37 (0.67)	ND (0.0019)	0.0009 J (0.0021)	ND (0.12)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	1.2 J (1.3)	0.049 (0.0036)	13 (1.2)	14 (1.3)	ND (0.0038)	ND (0.2)	0.23 J (0.24)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
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Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-84-13 PB-84-13-SS01 3.5 - 4.0 Grab 2/15/2022	PB-84-14 PB-84-14-SS01 3.0 - 3.5 Grab 2/15/2022	PB-84-14 PB-84-14R-3.0-3.5 3.0 - 3.5 Grab 11/22/2022	PB-84-14 PB-84-14R-9.0-9.5 9.0 - 9.5 Grab 11/22/2022	PB-84-15 PB-84-15-SS01 2.5 - 3.0 Grab 6/24/2021	PB-84-16 PB-84-16-SS01 1.0 - 1.5 Grab 6/24/2021	PB-84-17 PB-84-17-SS01 3.5 - 4.0 Grab 2/15/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.00068 (0.00063)	ND (0.0007)	ND (0.00052)	0.052 (0.031)	ND (0.032)	ND (0.035)	0.00028 J (0.0005)
Cumene	10000	10000	2500	2500	0.0024 (0.0013)	0.022 (0.0014)	ND (0.001)	7 (0.062)	0.13 (0.064)	0.024 J (0.07)	0.017 (0.001)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	ND (0.00052)	ND (0.031)	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.0013)	ND (0.0014)	ND (0.001)	0.21 (0.062)	ND (0.064)	0.06 J (0.07)	ND (0.001)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0025)	ND (0.0028)	ND (0.0021)	ND (0.12)	ND (0.13)	ND (0.14)	ND (0.002)
Toluene	10000	10000	100	44	0.0014 (0.0013)	ND (0.0014)	ND (0.001)	0.09 (0.062)	ND (0.064)	ND (0.07)	0.0015 (0.001)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0025)	ND (0.0028)	ND (0.0021)	0.6 (0.12)	4.1 (0.13)	2.6 (0.14)	0.001 J (0.002)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0025)	ND (0.0028)	ND (0.0021)	ND (0.12)	ND (0.13)	1.6 (0.14)	ND (0.002)
Xylenes (total)	7900	9100	1000	990	NA	NA	ND (0.0021)	0.152 J (0.12)	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.17 J (0.23)	ND (0.2)	ND (0.2)	0.14 J (0.19)	4.2 (0.26)	0.62 (0.28)	ND (0.2)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-84-18 PB-84-18-SS01 2.5 - 3.0 Grab 6/24/2021	PB-84-19 PB-84-19-SS01 3.0 - 3.5 Grab 6/24/2021	PB-85-01 PB-85-01-SS01 3.5 - 4.0 Grab 7/12/2021	PB-85-02 PB-85-02-SS01 3.5 - 4.0 Grab 7/12/2021	PB-85-03 PB-85-03-SS01 4.5 - 5.0 Grab 7/12/2021	PB-85-04 PB-85-04-SS01 4.0 - 4.5 Grab 7/12/2021	PB-85-05 PB-85-05-SS01 3.0 - 3.5 Grab 7/12/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00047)	ND (0.0005)	0.018 (0.00077)	ND (0.00041)	ND (0.031)	ND (0.031)	ND (0.00045)
Cumene	10000	10000	2500	2500	ND (0.00094)	0.0025 (0.001)	0.0016 (0.0015)	ND (0.00082)	0.59 (0.063)	0.073 (0.062)	0.00024 J (0.00091)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	ND (0.00094)	ND (0.001)	0.00061 J (0.0015)	ND (0.00082)	ND (0.063)	ND (0.062)	ND (0.00091)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0019)	ND (0.002)	ND (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)
Toluene	10000	10000	100	44	0.00061 J (0.00094)	ND (0.001)	ND (0.0015)	ND (0.00082)	ND (0.063)	ND (0.062)	ND (0.00091)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0019)	0.00034 J (0.002)	ND (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0019)	ND (0.002)	0.00046 J (0.0031)	ND (0.0016)	ND (0.12)	ND (0.12)	ND (0.0018)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.0038)	ND (0.004)	ND (0.0062)	ND (0.0033)	1.6 (0.25)	0.3 (0.25)	0.0024 J (0.0036)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	**3.1 (0.15)**	**18 (0.52)**	0.0031 (0.00047)	0.014 J (0.035)	ND (0.031)	**1.7 (0.033)**	0.038 J (0.04)
Cumene	10000	10000	2500	2500	0.12 J (0.3)	1.9 (0.1)	NA	2.4 (0.069)	0.028 J (0.062)	2.6 (0.067)	1.8 (0.08)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	ND (0.052)	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	2.6 (0.3)	28 (0.1)	0.005 (0.00093)	ND (0.069)	ND (0.062)	2.8 (0.067)	ND (0.08)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.6)	0.12 J (0.21)	ND (0.0019)	ND (0.14)	ND (0.12)	ND (0.13)	ND (0.16)
Toluene	10000	10000	100	44	34 (0.3)	**110 (1)**	0.031 (0.00093)	0.08 (0.069)	ND (0.062)	0.7 (0.067)	0.059 J (0.08)
1,2,4-Trimethylbenzene	4700	5400	300	300	1.2 (0.6)	53 (2.1)	NA	0.086 J (0.14)	ND (0.12)	0.48 (0.13)	0.11 J (0.16)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.32 J (0.6)	17 (0.21)	NA	0.022 J (0.14)	ND (0.12)	0.62 (0.13)	0.036 J (0.16)
Xylenes (total)	7900	9100	1000	990	NA	180 J (2.1)	0.0308 J (0.0019)	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (1.2)	6.4 (0.42)	0.015 (0.0037)	0.34 (0.28)	0.6 (0.25)	0.14 J (0.19)	0.33 (0.32)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
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Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-85-11 PB-85-11-SS01 4.0 - 4.5 Grab 7/15/2021	PB-85-12 PB-85-12-SS01 3.0 - 3.5 Grab 7/16/2021	PB-85-13 PB-85-13-SS01 3.0 - 3.5 Grab 7/12/2021	PB-85-14 PB-85-14-SS01 4.0 - 4.5 Grab 7/12/2021	PB-85-15 PB-85-15-SS01 3.0 - 3.5 Grab 7/26/2021	PB-85-16 PB-85-16-SS01 3.0 - 3.5 Grab 7/12/2021	PB-85-17 PB-85-17-SS01 3.0 - 3.5 Grab 7/26/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.027)	ND (0.0005)	0.1 (0.043)	0.074 (0.026)	ND (0.17)	ND (0.033)	ND (0.039)
Cumene	10000	10000	2500	2500	8.6 (0.054)	0.00033 J (0.001)	0.21 (0.086)	0.71 (0.052)	12 (0.33)	1.5 (0.066)	0.28 (0.078)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	NA	NA	NA	NA	NA	NA	NA
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	NA	NA	NA	NA
Ethyl Benzene	880	1000	70	46	0.026 J (0.054)	ND (0.001)	0.14 (0.086)	0.15 (0.052)	ND (0.33)	ND (0.066)	ND (0.078)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.11)	0.00042 J (0.002)	0.019 J (0.17)	0.014 J (0.1)	ND (0.67)	ND (0.13)	ND (0.16)
Toluene	10000	10000	100	44	0.083 (0.054)	ND (0.001)	ND (0.086)	ND (0.052)	ND (0.33)	ND (0.066)	ND (0.078)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.11)	0.00043 J (0.002)	ND (0.17)	ND (0.1)	ND (0.67)	ND (0.13)	0.036 J (0.16)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.11)	ND (0.002)	ND (0.17)	ND (0.1)	ND (0.67)	ND (0.13)	ND (0.16)
Xylenes (total)	7900	9100	1000	990	NA	NA	NA	NA	NA	NA	NA
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.12 J (0.22)	ND (0.004)	0.21 J (0.34)	0.41 (0.21)	0.95 J (1.3)	0.38 (0.26)	0.28 J (0.31)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	NA	NA	NA	NA	NA	NA	NA

Notes:

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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Tank Group 02
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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.15 (0.043)	0.38 (0.044)	ND (0.0011)	**1.3 (0.045)**	NA	**1.4 (0.053)**	**1.2 (0.049)**
Cumene	10000	10000	2500	2500	2.6 (0.085)	0.47 (0.089)	0.0048 (0.0022)	3.5 (0.091)	NA	1.5 (0.1)	1.9 (0.098)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.043)	ND (0.044)	ND (0.0011)	ND (0.045)	NA	ND (0.053)	ND (0.049)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.085)	ND (0.089)	ND (0.0022)	ND (0.091)	NA	ND (0.1)	ND (0.098)
Ethyl Benzene	880	1000	70	46	0.24 (0.085)	0.53 (0.089)	ND (0.0022)	0.16 (0.091)	NA	0.54 (0.1)	0.52 (0.098)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.17)	ND (0.18)	ND (0.0043)	ND (0.18)	NA	ND (0.21)	ND (0.2)
Toluene	10000	10000	100	44	0.27 (0.085)	0.18 (0.089)	ND (0.0022)	0.32 (0.091)	NA	1.3 (0.1)	1 (0.098)
1,2,4-Trimethylbenzene	4700	5400	300	300	42 (0.43)	0.32 (0.18)	ND (0.0043)	0.2 (0.18)	NA	3.9 (0.21)	8.4 (0.2)
1,3,5-Trimethylbenzene	4700	5400	93	93	2.1 (0.17)	0.069 J (0.18)	ND (0.0043)	0.051 J (0.18)	NA	1.5 (0.21)	3.6 (0.2)
Xylenes (total)	7900	9100	1000	990	17.088 J (0.17)	0.63 J (0.18)	0.0026 J (0.0043)	0.89 J (0.18)	NA	6.23 J (0.21)	6.74 J (0.2)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	3.1 (0.34)	1.2 (0.36)	ND (0.0087)	0.44 (0.36)	NA	1 (0.42)	1.6 (0.39)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	**1980 (2.46)**	361 (2.55)	9.84 (2.6)	310 (2.32)	6.38 (2.01)	**1070 (2.57)**	**1470 (2.55)**

Notes:
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4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-128-05 PB-128-05R-6.0-6.5 6.0 - 6.5 Grab 2/15/2022	PB-128-05 TG02-MW-17-7.5-8.0 7.5 - 8.0 Grab 11/18/2022	PB-128-05 PB-128-05R-14.0-14.5 14.0 - 14.5 Grab 2/15/2022	PB-128-06 PB-128-06-SS01 3.0 - 3.5 Grab 2/16/2022	PB-128-07 PB-128-07-SS01 3.0 - 3.5 Grab 2/16/2022	PB-128-08 PB-128-08-SS01 4.5 - 5.0 Grab 6/23/2021	PB-128-09 PB-128-09-SS01 3.5 - 4.0 Grab 2/16/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.11 (0.051)	**0.63 (0.065)**	NA	ND (0.00059)	ND (0.00048)	ND (0.00081)	ND (0.00089)
Cumene	10000	10000	2500	2500	0.96 (0.1)	20 (0.13)	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	0.00038 J (0.0018)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.051)	ND (0.065)	NA	ND (0.00059)	ND (0.00048)	ND (0.00081)	ND (0.00089)
1,2-Dichloroethane	85	98	0.5	0.1	NA	NA	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	ND (0.0018)
Ethyl Benzene	880	1000	70	46	0.21 (0.1)	1.2 (0.13)	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	ND (0.0018)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.2)	ND (0.26)	NA	ND (0.0024)	ND (0.0019)	ND (0.0032)	ND (0.0036)
Toluene	10000	10000	100	44	0.14 (0.1)	0.42 (0.13)	NA	ND (0.0012)	ND (0.00095)	ND (0.0016)	0.0016 J (0.0018)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.35 (0.2)	13 (0.26)	NA	0.0008 J (0.0024)	0.00094 J (0.0019)	0.0006 J (0.0032)	0.22 (0.0036)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.18 J (0.2)	4.2 (0.26)	NA	0.00067 J (0.0024)	0.0031 (0.0019)	ND (0.0032)	0.13 (0.0036)
Xylenes (total)	7900	9100	1000	990	0.82 J (0.2)	17.4 J (0.26)	NA	0.00129 J (0.0024)	ND (0.0019)	0.00174 J (0.0032)	0.29 J (0.0036)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	0.44 (0.41)	2.4 J (3.7)	NA	0.23 (0.18)	0.26 (0.17)	0.0019 J (0.0065)	0.09 J (0.17)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	**1780 (2.6)**	NA	38.1 (3.8)	3.93 (2.09)	4.59 (2.01)	**844 (2.66)**	3.72 (2.01)

Notes:
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3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00083)	0.00022 J (0.00062)	ND (0.00091)	0.00041 J (0.00044)	ND (0.00079)	0.0037 (0.00081)	ND (0.00064)
Cumene	10000	10000	2500	2500	ND (0.0017)	0.00062 J (0.0012)	ND (0.0018)	ND (0.00087)	ND (0.0016)	ND (0.0016)	ND (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00083)	ND (0.00062)	ND (0.00091)	ND (0.00044)	ND (0.00079)	ND (0.00081)	ND (0.00064)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0017)	ND (0.0012)	ND (0.0018)	ND (0.00087)	ND (0.0016)	ND (0.0016)	ND (0.0013)
Ethyl Benzene	880	1000	70	46	ND (0.0017)	ND (0.0012)	ND (0.0018)	0.00048 J (0.00087)	ND (0.0016)	0.00033 J (0.0016)	ND (0.0013)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0033)	ND (0.0025)	ND (0.0036)	ND (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)
Toluene	10000	10000	100	44	0.0016 J (0.0017)	0.013 (0.0012)	ND (0.0018)	0.00049 J (0.00087)	ND (0.0016)	0.012 (0.0016)	ND (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.0008 J (0.0033)	1.4 (0.18)	ND (0.0036)	0.0022 (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.00039 J (0.0033)	0.58 (0.18)	ND (0.0036)	0.0025 (0.0017)	ND (0.0032)	ND (0.0032)	ND (0.0026)
Xylenes (total)	7900	9100	1000	990	0.002 J (0.0033)	1.68 J (0.18)	ND (0.0036)	0.0043 J (0.0017)	ND (0.0032)	0.00493 J (0.0032)	ND (0.0026)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)anthracene	130	190000	340	--	NA	NA	NA	NA	NA	NA	NA
Benzo(a)pyrene	91	190000	46	--	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	NA	NA	NA	NA	NA
Chrysene	760	190000	230	--	NA	NA	NA	NA	NA	NA	NA
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	NA	NA	NA	NA	NA
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.17)	0.75 (0.17)	ND (0.17)	ND (0.0035)	ND (0.17)	ND (0.17)	ND (0.17)
Phenanthrene	190000	190000	10000	--	NA	NA	NA	NA	NA	NA	NA
Pyrene	96000	190000	2200	--	NA	NA	NA	NA	NA	NA	NA
Metals											
Lead	1000	190000	450	--	3.28 (1.99)	5.49 (2.06)	5.7 (1.99)	3.88 (2.08)	5.42 (2.06)	13.5 (2.04)	7.64 (2.05)

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Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.00028 J (0.00049)	NA	0.17 J (0.2)	NA	**0.6 (0.054)**	**0.96 (0.048)**	0.0084 (0.00045)
Cumene	10000	10000	2500	2500	ND (0.00099)	NA	0.54 (0.4)	NA	0.042 J (0.11)	7.1 (0.096)	0.0032 (0.0009)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00049)	NA	ND (0.2)	NA	ND (0.054)	ND (0.048)	ND (0.00045)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00099)	NA	ND (0.4)	NA	ND (0.11)	ND (0.096)	ND (0.0009)
Ethyl Benzene	880	1000	70	46	ND (0.00099)	NA	ND (0.4)	NA	0.075 J (0.11)	3.6 (0.096)	0.00036 J (0.0009)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.002)	NA	ND (0.79)	NA	ND (0.22)	0.019 J (0.19)	ND (0.0018)
Toluene	10000	10000	100	44	0.0006 J (0.00099)	NA	0.33 J (0.4)	NA	0.14 (0.11)	0.45 (0.096)	ND (0.0009)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.002)	NA	5.4 (0.79)	NA	0.16 J (0.22)	44 (0.38)	0.38 (0.093)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.002)	NA	1.4 (0.79)	NA	0.082 J (0.22)	21 (0.19)	0.14 (0.0018)
Xylenes (total)	7900	9100	1000	990	0.00134 J (0.002)	NA	345.7 J (1.6)	NA	0.26 J (0.22)	6.1 J (0.19)	0.00225 J (0.0018)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	NA	NA	0.42 J (0.84)	NA	ND (1.2)	2.7 J (3.3)	ND (0.1)
Benzo(a)anthracene	130	190000	340	--	NA	NA	2.6 (0.84)	NA	0.4 J (1.2)	4.7 (3.3)	ND (0.1)
Benzo(a)pyrene	91	190000	46	--	NA	NA	4.2 (1.1)	NA	ND (1.7)	2.9 J (4.4)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	--	NA	NA	4.6 (0.84)	NA	ND (1.2)	4.4 (3.3)	ND (0.1)
Benzo(g,h,i)perylene	190000	190000	180	--	NA	NA	3.5 (1.1)	NA	1.2 J (1.7)	1.8 J (4.4)	ND (0.14)
Chrysene	760	190000	230	--	NA	NA	2.9 (0.84)	NA	0.48 J (1.2)	9 (3.3)	ND (0.1)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	NA	NA	0.34 J (1.4)	NA	ND (2.1)	2.4 J (5.5)	ND (0.17)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.004)	NA	0.5 J (1.4)	NA	0.77 J (2.1)	7.2 (5.5)	0.37 (0.17)
Phenanthrene	190000	190000	10000	--	NA	NA	1 (0.84)	NA	0.6 J (1.2)	12 (3.3)	0.022 J (0.1)
Pyrene	96000	190000	2200	--	NA	NA	2.7 (0.84)	NA	0.78 J (1.2)	9.8 (3.3)	ND (0.1)
Metals											
Lead	1000	190000	450	--	182 (2.04)	231 (2.69)	**3920 (6.81)**	202 (2.52)	175 (2.49)	119 (2.34)	2.92 (2.04)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
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J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-129-05 PB-129-05-SS01 3.0 - 3.5 Grab 6/23/2021	PB-129-06 PB-129-06-SS01 4.5 - 5.0 Grab 6/23/2021	PB-129-06 TG02-MW-18-10.0-10.5 10.0 - 10.5 Grab 11/21/2022	PB-129-06 TG02-MW-18-10.0-10.5D 10.0 - 10.5 Grab 11/21/2022 Field Duplicate	PB-129-06 TG02-MW-18-15.5-16.0 15.5 - 16.0 Grab 1/4/2023	PB-129-07 PB-129-07-SS01 3.0 - 3.5 Grab 2/16/2022	PB-129-08 PB-129-08-SS01 3.0 - 3.5 Grab 2/16/2022
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.32 (0.023)	ND (0.59)	ND (0.26)	0.11 (0.07)	0.034 J (0.037)	ND (0.00056)	ND (0.00067)
Cumene	10000	10000	2500	2500	0.0094 J (0.046)	14 (1.2)	6 (0.52)	16 (0.14)	0.42 (0.074)	ND (0.0011)	ND (0.0013)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00056)	ND (0.59)	ND (0.26)	ND (0.07)	ND (0.037)	ND (0.00056)	ND (0.00067)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0011)	ND (1.2)	NA	NA	NA	ND (0.0011)	ND (0.0013)
Ethyl Benzene	880	1000	70	46	0.041 (0.0011)	**230 (1.2)**	32 (0.52)	53 (1.4)	3.4 (0.074)	ND (0.0011)	ND (0.0013)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0022)	ND (2.4)	ND (1)	ND (0.28)	NA	ND (0.0022)	ND (0.0027)
Toluene	10000	10000	100	44	0.45 (0.046)	**250 (4.8)**	13 (0.52)	34 (0.14)	0.3 (0.074)	ND (0.0011)	ND (0.0013)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.17 (0.093)	**390 (9.5)**	280 (5.2)	**330 (2.8)**	11 (0.15)	ND (0.0022)	ND (0.0027)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.02 J (0.093)	**170 (2.4)**	72 (1)	**110 (2.8)**	3.8 (0.15)	ND (0.0022)	ND (0.0027)
Xylenes (total)	7900	9100	1000	990	0.153 J (0.093)	**1360 J (9.5)**	228 J (1)	380 J (2.8)	19.3 J (0.15)	ND (0.0022)	ND (0.0027)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.1)	0.039 J (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Benzo(a)anthracene	130	190000	340	--	ND (0.1)	0.022 J (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Benzo(a)pyrene	91	190000	46	--	ND (0.14)	ND (0.14)	NA	NA	NA	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.1)	ND (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.14)	ND (0.14)	NA	NA	NA	ND (0.14)	ND (0.14)
Chrysene	760	190000	230	--	ND (0.1)	0.019 J (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.17)	0.12 J (0.17)	NA	NA	NA	ND (0.17)	ND (0.17)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.17)	9.4 (0.87)	12 (0.52)	10 (0.52)	1.4 (0.045)	ND (0.17)	ND (0.17)
Phenanthrene	190000	190000	10000	--	ND (0.1)	0.27 (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Pyrene	96000	190000	2200	--	ND (0.1)	0.093 J (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)
Metals											
Lead	1000	190000	450	--	4.81 (2.06)	4.44 (2.03)	6.03 (3.98)	9.64 (4.17)	83.5 (2.63)	3.99 (2.04)	4.34 (2.04)

Notes:

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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-129-09 PB-129-09-SS01 3.0 - 3.5 Grab 2/16/2022	PB-129-10 PB-129-10-SS01 3.5 - 4.0 Grab 2/16/2022	PB-129-11 PB-129-11-SS01 3.0 - 3.5 Grab 2/16/2022	PB-129-12 PB-129-12-SS01 4.5 - 5.0 Grab 2/16/2022	PB-129-13 PB-129-13-SS01 3.0 - 3.5 Grab 2/16/2022	PB-129-14 PB-129-14-SS01 3.0 - 3.5 Grab 6/23/2021	PB-129-15 PB-129-15-SS01 3.0 - 3.5 Grab 6/23/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00047)	ND (1.5)	0.0028 (0.00079)	ND (0.00054)	ND (0.0005)	ND (0.023)	ND (0.00053)
Cumene	10000	10000	2500	2500	ND (0.00095)	26 (3)	ND (0.0016)	ND (0.0011)	ND (0.00099)	0.36 (0.047)	ND (0.0011)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00047)	ND (1.5)	ND (0.00079)	ND (0.00054)	ND (0.0005)	ND (0.023)	ND (0.00053)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.00095)	ND (3)	ND (0.0016)	ND (0.0011)	ND (0.00099)	ND (0.047)	ND (0.0011)
Ethyl Benzene	880	1000	70	46	ND (0.00095)	**170 (3)**	ND (0.0016)	ND (0.0011)	ND (0.00099)	0.042 J (0.047)	ND (0.0011)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0019)	ND (6)	ND (0.0032)	ND (0.0021)	ND (0.002)	ND (0.093)	ND (0.0021)
Toluene	10000	10000	100	44	ND (0.00095)	23 (3)	ND (0.0016)	ND (0.0011)	ND (0.00099)	ND (0.047)	ND (0.0011)
1,2,4-Trimethylbenzene	4700	5400	300	300	ND (0.0019)	**1000 (15)**	0.0007 J (0.0032)	ND (0.0021)	ND (0.002)	12 (0.093)	ND (0.0021)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0019)	**310 (6)**	ND (0.0032)	ND (0.0021)	ND (0.002)	3 (0.093)	ND (0.0021)
Xylenes (total)	7900	9100	1000	990	ND (0.0019)	**1640 J (6)**	ND (0.0032)	ND (0.0021)	ND (0.002)	0.166 J (0.093)	ND (0.0021)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)
Benzo(a)anthracene	130	190000	340	--	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)
Benzo(a)pyrene	91	190000	46	--	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Chrysene	760	190000	230	--	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.18)	0.027 J (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	0.019 J (0.18)	ND (0.18)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	NA	NA	NA
Naphthalene	66	77	25	25	ND (0.18)	1.4 (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	1.4 (0.18)	ND (0.18)
Phenanthrene	190000	190000	10000	--	ND (0.1)	0.055 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.025 J (0.1)	ND (0.11)
Pyrene	96000	190000	2200	--	ND (0.1)	0.021 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.11)
Metals											
Lead	1000	190000	450	--	3.6 (2.03)	3.98 (2.04)	4.77 (2.03)	3.99 (2.04)	2.65 (1.97)	5.74 (2.02)	5.84 (2.03)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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Table H1
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-129-16	PB-129-17	PB-129-18	PB-204-01	PB-204-01	PB-204-01	PB-204-02
Field Sample ID					**PB-129-16-SS01**	**PB-129-17-SS01**	**PB-129-18-6.0-6.5**	**PB-204-01R-0.0-0.5**	**PB-204-01-SS01**	**PB-204-01R-6.0-6.5**	**PB-204-02-SS01**
Collection Depth (ft bgs)					**3.0 - 3.5**	**3.0 - 3.5**	**6.0 - 6.5**	**0.0 - 0.5**	**4.5 - 5.0**	**6.0 - 6.5**	**3.0 - 3.5**
Sample Method					**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**
Sample Date					**2/16/2022**	**6/23/2021**	**2/15/2022**	**2/7/2022**	**10/4/2021**	**2/7/2022**	**10/4/2021**
Comments											
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	ND (0.00064)	ND (0.00059)	0.048 (0.031)	NA	0.46 (0.14)	NA	ND (0.033)
Cumene	10000	10000	2500	2500	ND (0.0013)	ND (0.0012)	0.71 (0.062)	NA	38 (0.28)	NA	3.1 (0.067)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.00064)	ND (0.00059)	ND (0.031)	NA	ND (0.14)	NA	ND (0.033)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.0013)	ND (0.0012)	NA	NA	ND (0.28)	NA	ND (0.067)
Ethyl Benzene	880	1000	70	46	ND (0.0013)	ND (0.0012)	0.29 (0.062)	NA	0.52 (0.28)	NA	ND (0.067)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.0026)	ND (0.0024)	ND (0.12)	NA	0.089 J (0.55)	NA	ND (0.13)
Toluene	10000	10000	100	44	ND (0.0013)	ND (0.0012)	0.082 (0.062)	NA	0.39 (0.28)	NA	ND (0.067)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.00063 J (0.0026)	ND (0.0024)	3.9 (0.12)	NA	0.83 (0.55)	NA	0.046 J (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	93	ND (0.0026)	ND (0.0024)	0.78 (0.12)	NA	0.11 J (0.55)	NA	ND (0.13)
Xylenes (total)	7900	9100	1000	990	ND (0.0026)	ND (0.0024)	1 J (0.12)	NA	1 J (0.55)	NA	ND (0.13)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	ND (0.1)	ND (0.1)	NA	NA	0.067 J (0.081)	NA	0.0051 J (0.0082)
Benzo(a)anthracene	130	190000	340	--	ND (0.1)	ND (0.1)	NA	NA	0.098 (0.081)	NA	0.0068 J (0.0082)
Benzo(a)pyrene	91	190000	46	--	ND (0.14)	ND (0.14)	NA	NA	0.097 (0.081)	NA	0.004 J (0.0082)
Benzo(b)fluoranthene	76	190000	170	--	ND (0.1)	ND (0.1)	NA	NA	0.14 (0.081)	NA	0.0056 J (0.0082)
Benzo(g,h,i)perylene	190000	190000	180	--	ND (0.14)	ND (0.14)	NA	NA	0.1 (0.081)	NA	0.0025 J (0.0082)
Chrysene	760	190000	230	--	ND (0.1)	ND (0.1)	NA	NA	0.11 (0.081)	NA	0.0053 J (0.0082)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	ND (0.17)	ND (0.17)	NA	NA	0.58 (0.081)	NA	0.018 (0.0082)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	NA	NA	NA	NA	0.096 (0.081)	NA	0.0027 J (0.0082)
Naphthalene	66	77	25	25	ND (0.17)	ND (0.17)	0.9 (0.25)	NA	0.52 (0.081)	NA	0.024 (0.0082)
Phenanthrene	190000	190000	10000	--	ND (0.1)	ND (0.1)	NA	NA	0.88 (0.081)	NA	0.021 (0.0082)
Pyrene	96000	190000	2200	--	ND (0.1)	ND (0.1)	NA	NA	0.18 (0.081)	NA	0.012 (0.0082)
Metals											
Lead	1000	190000	450	--	3.41 (1.99)	36.1 (2.11)	NA	61.6 (2.32)	**540 (12.2)**	9.16 J (11.9)	8.75 (2.39)

Notes:
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2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

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NA - Not Analyzed
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Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-204-03 PB-204-03-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-04 PB-204-04-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-05 PB-204-05-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-06 PB-204-06R-0.0-0.5 0.0 - 0.5 Grab 2/7/2022	PB-204-06 PB-204-06-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-06 PB-204-06R-6.0-6.5 6.0 - 6.5 Grab 2/7/2022	PB-204-07 PB-204-07-SS01 3.0 - 3.5 Grab 10/4/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.12 (0.12)	0.12 (0.031)	**0.75 (0.034)**	NA	**2.3 (0.066)**	0.036 (0.00048)	ND (0.03)
Cumene	10000	10000	2500	2500	7.2 (0.25)	2.8 (0.063)	5.6 (0.069)	NA	6.7 (0.13)	0.039 (0.00096)	0.19 (0.06)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.12)	ND (0.031)	ND (0.034)	NA	**0.043 J (0.066)**	ND (0.00048)	ND (0.03)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.25)	0.043 J (0.063)	ND (0.069)	NA	ND (0.13)	NA	ND (0.06)
Ethyl Benzene	880	1000	70	46	0.13 J (0.25)	0.21 (0.063)	0.75 (0.069)	NA	9.6 (0.13)	0.039 (0.00096)	ND (0.06)
Methyl tert-butyl ether	8500	9800	2	1.4	ND (0.5)	ND (0.12)	ND (0.14)	NA	0.1 J (0.26)	0.017 (0.0019)	ND (0.12)
Toluene	10000	10000	100	44	0.24 J (0.25)	0.065 (0.063)	0.59 (0.069)	NA	ND (0.13)	0.0091 (0.00096)	ND (0.06)
1,2,4-Trimethylbenzene	4700	5400	300	300	0.12 J (0.5)	0.084 J (0.12)	2.4 (0.14)	NA	47 (0.53)	0.18 (0.0019)	0.022 J (0.12)
1,3,5-Trimethylbenzene	4700	5400	93	93	0.13 J (0.5)	0.76 (0.12)	7.7 (0.14)	NA	0.67 (0.26)	0.069 (0.0019)	ND (0.12)
Xylenes (total)	7900	9100	1000	990	0.297 J (0.5)	0.238 J (0.12)	4.41 J (0.14)	NA	4.18 J (0.26)	0.158 J (0.0019)	ND (0.12)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.027 (0.0081)	0.0048 J (0.0078)	0.0019 J (0.0081)	NA	0.083 J (0.42)	NA	0.0024 J (0.0079)
Benzo(a)anthracene	130	190000	340	--	0.03 (0.0081)	0.0028 J (0.0078)	0.0014 J (0.0081)	NA	0.074 J (0.42)	NA	0.0043 J (0.0079)
Benzo(a)pyrene	91	190000	46	--	0.029 (0.0081)	0.0014 J (0.0078)	ND (0.0081)	NA	0.062 J (0.42)	NA	0.0046 J (0.0079)
Benzo(b)fluoranthene	76	190000	170	--	0.036 (0.0081)	0.0024 J (0.0078)	0.00098 J (0.0081)	NA	0.083 J (0.42)	NA	0.0057 J (0.0079)
Benzo(g,h,i)perylene	190000	190000	180	--	0.024 (0.0081)	0.0023 J (0.0078)	0.00069 J (0.0081)	NA	0.089 J (0.42)	NA	0.004 J (0.0079)
Chrysene	760	190000	230	--	0.026 (0.0081)	0.0029 J (0.0078)	0.00098 J (0.0081)	NA	0.055 J (0.42)	NA	0.0034 J (0.0079)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.092 (0.0081)	0.019 (0.0078)	0.0079 J (0.0081)	NA	0.34 J (0.42)	NA	0.0078 J (0.0079)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	0.022 (0.0081)	0.0015 J (0.0078)	ND (0.0081)	NA	0.085 J (0.42)	NA	0.0044 J (0.0079)
Naphthalene	66	77	25	25	0.18 (0.0081)	0.067 (0.0078)	0.068 (0.0081)	ND (0.21)	**31 (0.42)**	ND (0.2)	0.043 (0.0079)
Phenanthrene	190000	190000	10000	--	0.13 (0.0081)	0.021 (0.0078)	0.013 (0.0081)	NA	0.64 (0.42)	NA	0.011 (0.0079)
Pyrene	96000	190000	2200	--	0.056 (0.0081)	0.0093 (0.0078)	0.0031 J (0.0081)	NA	0.19 J (0.42)	NA	0.007 J (0.0079)
Metals											
Lead	1000	190000	450	--	10.6 (2.42)	7.64 (2.35)	8.38 (4.71)	NA	94.9 (2.42)	NA	33.4 (2.36)

Notes:

1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:

ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H1
Summary of BDH Soil Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Collection Depth (ft bgs) Sample Method Sample Date Comments	Non-Residential Direct Contact MSCs for Surface Soil (0-2 ft)	Non-Residential Direct Contact MSCs for Subsurface Soil (2-15 ft)	Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs	Non-Residential Soil Vapor Intrusion Screening Values	PB-204-08 PB-204-08-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-09 PB-204-09-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-10 PB-204-10-SS01 3.0 - 3.5 Grab 10/4/2021	PB-204-11 PB-204-11-SS01 4.5 - 5.0 Grab 10/4/2021	PB-204-11 PB-204-11R-6.0-6.5 6.0 - 6.5 Grab 2/7/2022	PB-204-12 PB-204-12-SS01 4.5 - 5.0 Grab 10/4/2021	PB-204-13 PB-204-13-SS01 3.0 - 3.5 Grab 10/4/2021
Volatile Organic Compounds											
Benzene	280	330	0.5	0.13	0.16 (0.028)	0.058 (0.03)	0.24 (0.00047)	0.23 (0.13)	0.19 (0.034)	**1.8 (0.24)**	0.019 J (0.034)
Cumene	10000	10000	2500	2500	2.6 (0.057)	2.4 (0.06)	0.043 (0.00093)	5.1 (0.26)	9.4 (0.069)	19 (0.47)	2.7 (0.067)
1,2-Dibromoethane	3.7	4.2	0.005	0.0013	ND (0.028)	ND (0.03)	ND (0.00047)	**0.08 J (0.13)**	ND (0.034)	ND (0.24)	ND (0.034)
1,2-Dichloroethane	85	98	0.5	0.1	ND (0.057)	ND (0.06)	ND (0.00093)	ND (0.26)	NA	ND (0.47)	ND (0.067)
Ethyl Benzene	880	1000	70	46	0.42 (0.057)	0.11 (0.06)	0.085 (0.00093)	0.16 J (0.26)	0.25 (0.069)	1.7 (0.47)	0.19 (0.067)
Methyl tert-butyl ether	8500	9800	2	1.4	1 (0.11)	0.018 J (0.12)	0.069 (0.0019)	1.6 (0.52)	0.018 J (0.14)	0.4 J (0.95)	ND (0.13)
Toluene	10000	10000	100	44	0.063 (0.057)	0.046 J (0.06)	0.097 (0.00093)	0.2 J (0.26)	0.068 J (0.069)	4 (0.47)	0.061 J (0.067)
1,2,4-Trimethylbenzene	4700	5400	300	300	5.3 (0.11)	0.024 J (0.12)	0.061 (0.0019)	0.31 J (0.52)	0.29 (0.14)	2 (0.95)	0.37 (0.13)
1,3,5-Trimethylbenzene	4700	5400	93	93	7.6 (0.11)	0.14 (0.12)	0.1 (0.0019)	0.065 J (0.52)	0.86 (0.14)	0.76 J (0.95)	1.4 (0.13)
Xylenes (total)	7900	9100	1000	990	0.438 J (0.11)	0.08 J (0.12)	0.588 J (0.0019)	0.38 J (0.52)	2.65 J (0.14)	5.17 J (0.95)	0.518 J (0.13)
Semivolatile Organic Compounds											
Anthracene	190000	190000	350	--	0.0034 J (0.0081)	0.0047 J (0.0079)	0.0015 J (0.0081)	0.083 (0.0082)	NA	0.016 (0.0085)	0.0039 J (0.0082)
Benzo(a)anthracene	130	190000	340	--	0.0033 J (0.0081)	0.0046 J (0.0079)	0.0063 J (0.0081)	0.15 (0.0082)	NA	0.01 (0.0085)	0.0012 J (0.0082)
Benzo(a)pyrene	91	190000	46	--	0.0024 J (0.0081)	0.0021 J (0.0079)	0.01 (0.0081)	0.13 (0.0082)	NA	0.0064 J (0.0085)	ND (0.0082)
Benzo(b)fluoranthene	76	190000	170	--	0.003 J (0.0081)	0.0026 J (0.0079)	0.011 (0.0081)	0.17 (0.0082)	NA	0.0096 (0.0085)	ND (0.0082)
Benzo(g,h,i)perylene	190000	190000	180	--	0.0018 J (0.0081)	0.0012 J (0.0079)	0.0083 (0.0081)	0.079 (0.0082)	NA	0.012 (0.0085)	ND (0.0082)
Chrysene	760	190000	230	--	0.0028 J (0.0081)	0.0034 J (0.0079)	0.0049 J (0.0081)	0.12 (0.0082)	NA	0.013 (0.0085)	0.00074 J (0.0082)
Ethanol	--	--	--	--	NA	NA	NA	NA	NA	NA	NA
Fluorene	130000	190000	3800	--	0.018 (0.0081)	0.019 (0.0079)	0.0022 J (0.0081)	0.1 (0.0082)	NA	0.093 (0.0085)	0.036 (0.0082)
Indeno(1,2,3-cd)pyrene	76	190000	18000	--	0.0018 J (0.0081)	0.0012 J (0.0079)	0.0099 (0.0081)	0.092 (0.0082)	NA	0.0053 J (0.0085)	ND (0.0082)
Naphthalene	66	77	25	25	0.012 (0.0081)	0.026 (0.0079)	0.0046 J (0.0081)	0.092 (0.0082)	0.96 (0.27)	0.62 (0.0085)	0.02 (0.0082)
Phenanthrene	190000	190000	10000	--	0.024 (0.0081)	0.029 (0.0079)	0.0056 J (0.0081)	0.3 (0.0082)	NA	0.087 (0.0085)	0.057 (0.0082)
Pyrene	96000	190000	2200	--	0.0071 J (0.0081)	0.01 (0.0079)	0.0059 J (0.0081)	0.26 (0.0082)	NA	0.039 (0.0085)	0.0043 J (0.0082)
Metals											
Lead	1000	190000	450	--	7.27 (2.35)	7.42 (4.79)	6.7 (2.42)	91.2 (2.38)	NA	103 (2.61)	5.54 (2.48)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Underlined concentrations indicate that either a surface sample exceeds the NonRes DC Surface MSC (0-2 ft) or a subsurface sample exceeds the NonRes DC Subsurface MSC (2-15 ft).
3 Boldfaced concentrations exceed the Non-Residential Used Aquifer (TDS ≤ 2500) Soil-to-Groundwater MSCs.
4 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration
B - The analyte was detected above the reporting limit in the associated method blank

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	**FB-210607-1**	**FB-210607-2**	**TB-210607**	**FB-210608-1**	**FB-210608-2**	**TB-210608**	**FB-210609-1**	**FB-210609-2**	**FB-210610-1**	**FB-210610-2**	**TB-210610**	**FB-210611-1**	**FB-210611-2**	**TB-210611**
Sample Date	**6/7/2021**	**6/7/2021**	**6/7/2021**	**6/8/2021**	**6/8/2021**	**6/8/2021**	**6/9/2021**	**6/9/2021**	**6/10/2021**	**6/10/2021**	**6/10/2021**	**6/11/2021**	**6/11/2021**	**6/11/2021**
Comments	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	NA	NA	0.02 J (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	0.03 J (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	0.02 J (0.05)	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	0.04 J (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	0.03 J (0.1)	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA
Naphthalene	ND (1)	ND (1)	ND (1)	0.24 J (1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)
Phenanthrene	NA	NA	NA	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	NA	NA	NA	NA
Metals														
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA

Notes:
1 All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	**FB-210621-1**	**FB-210621-2**	**TB-210621**	**FB-210622-1**	**FB-210622-2**	**TB-210522**	**FB-210623-1**	**FB-210623-2**	**TB-210623**	**FB-210624-1**	**FB-210624-2**	**TB-210624**	**FB-210625**	**TB-210625**
Sample Date	**6/21/2021**	**6/21/2021**	**6/21/2021**	**6/22/2021**	**6/22/2021**	**6/22/2021**	**6/23/2021**	**6/23/2021**	**6/23/2021**	**6/24/2021**	**6/24/2021**	**6/24/2021**	**6/25/2021**	**6/25/2021**
Comments	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	NA	ND (0.05)	0.02 J (0.05)	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	NA	ND (0.1)	0.03 J (0.1)	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA
Naphthalene	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (0.1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)
Phenanthrene	NA	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA
Metals														
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	NA	NA	NA	NA	NA

Notes:
1 All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	**FB-210712**	**TB-210712**	**FB-210715-1**	**FB-210715-2**	**TB-210715**	**FB-210716-1**	**FB-210716-2**	**TB-210716**	**FB-210726**	**TB-210726**	**FB-210727**	**TB-210727**	**FB-211004**	**TB-211004**
Sample Date	**7/12/2021**	**7/12/2021**	**7/15/2021**	**7/15/2021**	**7/15/2021**	**7/16/2021**	**7/16/2021**	**7/16/2021**	**7/26/2021**	**7/26/2021**	**7/27/2021**	**7/27/2021**	**10/4/2021**	**10/4/2021**
Comments	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Benzo(b)fluoranthene	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	NA
Benzo(g,h,i)perylene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Fluorene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Naphthalene	ND (1)	ND (1)	ND (0.1)	ND (0.1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	0.07 J (0.1)	NA
Phenanthrene	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.05)	NA
Pyrene	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA	NA	ND (0.1)	NA
Metals														
Lead	NA	NA	ND (3)	ND (3)	NA	ND (3)	ND (3)	NA	NA	NA	ND (3)	NA	ND (1)	NA

Notes:
1 All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	**FB-211005-1**	**FB-211005-2**	**TB-211005**	**FB-220207-1**	**FB-220207-2**	**TB-220207**	**FB-220208-1**	**FB-220208-2**	**TB-220208**	**FB-220209**	**TB-220209**	**FB-220210**	**TB-220210**	**FB-220211**
Sample Date	**10/5/2021**	**10/5/2021**	**10/5/2021**	**2/7/2022**	**2/7/2022**	**2/7/2022**	**2/8/2022**	**2/8/2022**	**2/8/2022**	**2/9/2022**	**2/9/2022**	**2/10/2022**	**2/10/2022**	**2/11/2022**
Comments	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	NA	NA	NA	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	NA	NA	NA
Benzo(b)fluoranthene	ND (0.05)	0.01 J (0.05)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	NA	NA	NA
Benzo(g,h,i)perylene	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.5)	ND (0.5)	NA	ND (0.5)	NA	NA	NA	NA
Fluorene	ND (0.1)	ND (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	NA	NA	NA
Naphthalene	ND (0.1)	0.05 J (0.1)	NA	0.05 J (0.1)	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	ND (0.1)	NA	ND (0.1)
Phenanthrene	ND (0.05)	0.05 J (0.05)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	NA	NA	NA
Pyrene	ND (0.1)	0.02 J (0.1)	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	ND (0.1)	NA	NA	NA	NA
Metals														
Lead	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	ND (1)	NA	ND (1)	NA	ND (1)	NA	0.6813 J (1)

Notes:
1 All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	**TB-220211**	**FB-220214**	**TB-220214**	**FB-220215**	**TB-220215**	**FB-220216-1**	**FB-220216-2**	**TB-220216**	**TB-221123**	**TB-221129**	**TB-221201**	**TB-221201-1**	**TB-221202**	**TB-221206**
Sample Date	**2/11/2022**	**2/14/2022**	**2/14/2022**	**2/15/2022**	**2/15/2022**	**2/16/2022**	**2/16/2022**	**2/16/2022**	**11/23/2022**	**11/29/2022**	**12/1/2022**	**12/1/2022**	**12/2/2022**	**12/6/2022**
Comments	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Trip Blank**	**Trip Blank**	**Trip Blank**	**Trip Blank**	**Trip Blank**	**Trip Blank**
Volatile Organic Compounds														
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds														
Benzo(a)pyrene	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Benzo(b)fluoranthene	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Fluorene	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	ND (0.1)	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Phenanthrene	NA	NA	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA	NA	NA	NA	NA	NA
Pyrene	NA	NA	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA	NA	NA	NA	NA	NA
Metals														
Lead	NA	NA	NA	NA	NA	ND (1)	ND (1)	NA	NA	NA	NA	NA	NA	NA

Notes:
1. All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.
2. Only compounds with at least one detection are shown.

Abbreviations:
ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H2
Summary of BDH Soil QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**	**QAQC**
Field Sample ID	**TB-221206-1**	**FB-221207-2**	**TB-221207**	**FB-221208-1**	**FB-221208-2**	**TB-221208**	**TB-221208-1**	**FB-230104-2**	**TB-230104-1**	**TB-230104-2**
Sample Date	**12/6/2022**	**12/7/2022**	**12/7/2022**	**12/8/2022**	**12/8/2022**	**12/8/2022**	**12/8/2022**	**1/4/2023**	**1/4/2023**	**1/4/2023**
Comments	**Trip Blank**	**Field Blank**	**Trip Blank**	**Field Blank**	**Field Blank**	**Trip Blank**	**Trip Blank**	**Field Blank**	**Trip Blank**	**Trip Blank**
Volatile Organic Compounds										
1,2,4-Trimethylbenzene	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)
Semi-Volatile Organic Compounds										
Benzo(a)pyrene	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	ND (0.1)	NA	NA
Benzo(b)fluoranthene	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	ND (0.05)	NA	NA
Benzo(g,h,i)perylene	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	ND (0.1)	NA	NA
Fluorene	NA	ND (0.1)	NA	ND (0.1)	0.01 J (0.1)	NA	NA	ND (0.1)	NA	NA
Naphthalene	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	0.09 J (0.1)	NA	NA
Phenanthrene	NA	ND (0.05)	NA	ND (0.05)	ND (0.05)	NA	NA	ND (0.05)	NA	NA
Pyrene	NA	ND (0.1)	NA	ND (0.1)	ND (0.1)	NA	NA	ND (0.1)	NA	NA
Metals										
Lead	NA	0.9214 J (1)	NA	ND (1)	ND (1)	NA	NA	NA	NA	NA

Notes:

1 All concentrations are presented in ug/L (ppb). Detection limts are in parentheses.

2 Only compounds with at least one detection are shown.

Abbreviations:

ND -- Not Detected.
NA -- Not Analyzed.
J -- Estimated Concentration.

Table H3
Summary of BDH Groundwater Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS ≤ 2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	S-200 S-200-221221 12/21/2022	S-200 S-200-230124 1/24/2023	S-206 S-206-221222 12/22/2022	S-206 S-206-230124 1/24/2023	S-207 S-207-221222 12/22/2022	S-207 S-207-230124 1/24/2023	S-271 S-271-221222 12/22/2022	S-271 S-271-230123 1/23/2023	S-77P S-77P-221221 12/21/2022
Volatile Organic Compounds											
Benzene	5	350	5200 (25)	4600 (12)	1.1 (0.5)	1 (0.5)	ND (0.5)	ND (0.5)	140 (25)	130 (50)	270 (2)
Cumene	3500	24000	40 (25)	130 (12)	18 (0.5)	8.1 (0.5)	22 (0.5)	16 (0.5)	100 (25)	66 (50)	120 (2)
1,2-Dibromoethane	0.05	44	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
1,2-Dichloroethane	5	510	ND (25)	ND (12)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (25)	ND (50)	ND (2)
Ethyl Benzene	700	860	400 (25)	1100 (12)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	8.6 J (25)	ND (50)	7.4 (2)
Methyl tert-butyl ether	20	96000	140 (50)	200 (25)	3.9 (1)	2.2 (1)	0.97 J (1)	0.76 J (1)	10000 (250)	11000 (100)	520 (4)
Toluene	1000	430000	60 (38)	150 (19)	0.33 J (0.75)	0.36 J (0.75)	ND (0.75)	0.23 J (0.75)	59 (38)	51 J (75)	24 (3)
1,2,4-Trimethylbenzene	530	6400	590 (120)	1200 (62)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (120)	ND (250)	2 J (10)
1,3,5-Trimethylbenzene	530	4500	300 (120)	470 (62)	ND (2.5)	ND (2.5)	ND (2.5)	ND (2.5)	ND (120)	ND (250)	1.6 J (10)
Xylenes (total)	10000	12000	570 J (50)	2740 J (25)	2.2 J (1)	1.57 J (1)	0.87 J (1)	ND (1)	64 J (50)	98 J (100)	56.9 J (4)
Semivolatile Organic Compounds											
Anthracene	66	--	9 (0.1)	260 (10)	0.07 J (0.1)	0.02 J (0.1)	0.19 (0.1)	0.08 J (0.1)	1.9 (0.1)	1.2 (0.1)	1.7 (0.1)
Benzo(a)anthracene	3.9	--	1.4 (0.05)	150 (5)	0.02 J (0.05)	0.04 J (0.05)	ND (0.05)	ND (0.05)	0.08 (0.05)	0.06 (0.05)	0.07 (0.05)
Benzo(a)pyrene	0.2	--	0.86 (0.1)	95 (10)	ND (0.1)	0.03 J (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)	0.03 J (0.1)	0.03 J (0.1)
Benzo(b)fluoranthene	1.2	--	1.1 (0.05)	120 (5)	ND (0.05)	0.06 (0.05)	ND (0.05)	ND (0.05)	0.02 J (0.05)	0.03 J (0.05)	0.03 J (0.05)
Benzo(g,h,i)perylene	0.26	--	0.42 (0.1)	39 (0.1)	ND (0.1)	0.03 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)
Chrysene	1.9	--	1.3 (0.1)	150 (10)	ND (0.1)	0.04 J (0.1)	ND (0.1)	ND (0.1)	0.06 J (0.1)	0.07 J (0.1)	0.05 J (0.1)
Fluorene	1900	--	40 (0.1)	470 (10)	1.6 (0.1)	0.7 (0.1)	1.4 (0.1)	0.85 (0.1)	15 (0.1)	8.6 (0.1)	16 (0.1)
Indeno(1,2,3-cd)pyrene	2.3	--	0.41 (0.1)	38 (0.1)	ND (0.1)	0.04 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)
Naphthalene	100	1300	1400 (5)	6600 (10)	0.23 (0.1)	ND (0.1)	0.36 (0.1)	ND (0.1)	0.7 (0.1)	0.7 (0.1)	6.2 (0.1)
Phenanthrene	1100	--	46 (0.05)	1100 (5)	1.1 (0.05)	0.46 (0.05)	0.72 (0.05)	0.4 (0.05)	11 (0.05)	8 (0.05)	11 (0.05)
Pyrene	130	--	6.5 (0.1)	430 (10)	0.05 J (0.1)	0.02 J (0.1)	0.06 J (0.1)	0.03 J (0.1)	0.75 (0.1)	0.6 (0.1)	0.49 (0.1)
Metals											
Lead	5	--	0.6155 J (1)	0.8838 J (1)	ND (1)	ND (1)	ND (1)	ND (1)	9.27 (1)	8.246 (1)	ND (1)

Notes:
1. All concentrations reported in ug/L (ppb); detection limits in parentheses.
2. Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS ≤ 2500).
3. Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table H3
Summary of BDH Groundwater Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	Non-Residential Groundwater Used Aquifer	Non-Residential Groundwater Vapor Intrusion	S-77P	TG02-MW-01	TG02-MW-01	TG02-MW-01	TG02-MW-02	TG02-MW-02	TG02-MW-02	TG02-MW-07	TG02-MW-07
Field Sample ID			S-77P-230124	TG02-MW-01-221220	TG02-MW-01-230123	TG02-MW-01-230123D	TG02-MW-02-221220	TG02-MW-02-221220D	TG02-MW-02-230123	TG02-MW-07-221220	TG02-MW-07-230125
Sample Date			1/24/2023	12/20/2022	1/23/2023	1/23/2023	12/20/2022	12/20/2022	1/23/2023	12/20/2022	1/25/2023
Comments	(TDS ≤ 2500)	Screening Values				Field Duplicate		Field Duplicate			
Volatile Organic Compounds											
Benzene	5	350	290 (1.2)	12000 (50)	10000 (50)	9100 (50)	2000 (10)	2100 (10)	5600 (20)	100 (0.5)	180 (2.5)
Cumene	3500	24000	100 (1.2)	84 (50)	57 (50)	50 (50)	40 (10)	44 (10)	ND (20)	46 (0.5)	32 (2.5)
1,2-Dibromoethane	0.05	44	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
1,2-Dichloroethane	5	510	ND (1.2)	ND (50)	ND (50)	ND (50)	ND (10)	ND (10)	ND (20)	ND (0.5)	ND (2.5)
Ethyl Benzene	700	860	6.4 (1.2)	520 (50)	360 (50)	330 (50)	230 (10)	240 (10)	50 (20)	22 (0.5)	25 (2.5)
Methyl tert-butyl ether	20	96000	330 (2.5)	1600 (100)	1400 (100)	1300 (100)	64 (20)	65 (20)	69 (40)	210 (5)	300 (5)
Toluene	1000	430000	24 (1.9)	200 (75)	150 (75)	130 (75)	230 (15)	240 (15)	560 (30)	62 (0.75)	76 (3.8)
1,2,4-Trimethylbenzene	530	6400	2 J (6.2)	370 (250)	260 (250)	250 (250)	960 (50)	1000 (50)	330 (100)	35 (2.5)	27 (12)
1,3,5-Trimethylbenzene	530	4500	1.7 J (6.2)	99 J (250)	70 J (250)	62 J (250)	250 (50)	270 (50)	150 (100)	8.6 (2.5)	7.5 J (12)
Xylenes (total)	10000	12000	53.8 J (2.5)	1660 J (100)	1080 J (100)	1040 J (100)	4600 J (20)	4800 J (20)	2720 J (40)	90 J (1)	83 J (5)
Semivolatile Organic Compounds											
Anthracene	66	--	1 (0.1)	0.13 (0.1)	0.21 (0.1)	0.18 (0.1)	0.08 J (0.1)	0.11 (0.1)	ND (0.1)	0.09 J (0.1)	0.11 (0.1)
Benzo(a)anthracene	3.9	--	0.04 J (0.05)	0.04 J (0.05)	0.04 J (0.05)	0.05 (0.05)	0.04 J (0.05)	0.05 J (0.05)	0.03 J (0.05)	0.03 J (0.05)	0.03 J (0.05)
Benzo(a)pyrene	0.2	--	0.02 J (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(b)fluoranthene	1.2	--	0.02 J (0.05)	ND (0.05)	ND (0.05)	0.03 J (0.05)	ND (0.05)	ND (0.05)	0.01 J (0.05)	ND (0.05)	ND (0.05)
Benzo(g,h,i)perylene	0.26	--	ND (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Chrysene	1.9	--	0.04 J (0.1)	ND (0.1)	0.03 J (0.1)	0.05 J (0.1)	0.03 J (0.1)	ND (0.1)	0.02 J (0.1)	ND (0.1)	0.02 J (0.1)
Fluorene	1900	--	11 (0.1)	1.2 (0.1)	1.4 (0.1)	1.4 (0.1)	1.2 (0.1)	1.7 (0.1)	0.28 (0.1)	2.8 (0.1)	1.5 (0.1)
Indeno(1,2,3-cd)pyrene	2.3	--	ND (0.1)	ND (0.1)	ND (0.1)	0.02 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Naphthalene	100	1300	4.5 (0.1)	140 (0.5)	170 (0.5)	170 (0.5)	150 (0.5)	180 (0.5)	7.1 (0.1)	9.6 (0.1)	10 (0.1)
Phenanthrene	1100	--	7.4 (0.05)	1.2 (0.05)	1.9 (0.05)	1.8 (0.05)	1.2 (0.05)	1.6 (0.05)	0.06 (0.05)	0.93 (0.05)	0.9 (0.05)
Pyrene	130	--	0.33 (0.1)	0.05 J (0.1)	0.13 (0.1)	0.14 (0.1)	0.03 J (0.1)	0.04 J (0.1)	0.04 J (0.1)	0.04 J (0.1)	0.06 J (0.1)
Metals											
Lead	5	--	ND (1)	ND (1)	ND (1)	ND (1)	3.571 (1)	3.434 (1)	3.93 (1)	1.118 (1)	1.048 (1)

Notes:
1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
2 Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS ≤ 2500).
3 Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table H3
Summary of BDH Groundwater Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Field Sample ID Sample Date Comments	Non-Residential Groundwater Used Aquifer (TDS ≤ 2500)	Non-Residential Groundwater Vapor Intrusion Screening Values	TG02-MW-13 TG02-MW-13-221221 12/21/2022	TG02-MW-13 TG02-MW-13-230124 1/24/2023	TG02-MW-14 TG02-MW-14-221221 12/21/2022	TG02-MW-14 TG02-MW-14-230125 1/25/2023	TG02-MW-16 TG02-MW-16-221221 12/21/2022	TG02-MW-16 TG02-MW-16-230126 1/26/2023	TG02-MW-18 TG02-MW-18-221221 12/21/2022	TG02-MW-18 TG02-MW-18-230124 1/24/2023
Volatile Organic Compounds										
Benzene	5	350	21 (0.5)	54 (0.5)	250 (1)	330 (1.2)	1900 (10)	460 (5)	22 (0.5)	49 (1)
Cumene	3500	24000	35 (0.5)	27 (0.5)	70 (1)	59 (1.2)	98 (10)	84 (5)	150 (0.5)	120 (1)
1,2-Dibromoethane	0.05	44	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
1,2-Dichloroethane	5	510	ND (0.5)	ND (0.5)	ND (1)	ND (1.2)	ND (10)	ND (5)	ND (0.5)	ND (1)
Ethyl Benzene	700	860	2.5 (0.5)	4.3 (0.5)	2.6 (1)	2.3 (1.2)	1300 (10)	460 (5)	100 (0.5)	190 (1)
Methyl tert-butyl ether	20	96000	31 (1)	44 (1)	880 (20)	710 (10)	6000 (100)	410 (10)	1.2 (1)	0.77 J (2)
Toluene	1000	430000	3.5 (0.75)	2.2 (0.75)	6.3 (1.5)	6.5 (1.9)	4800 (75)	450 (7.5)	1.5 (0.75)	1.3 J (1.5)
1,2,4-Trimethylbenzene	530	6400	8.7 (2.5)	5.1 (2.5)	24 (5)	17 (6.2)	710 (50)	740 (25)	38 (2.5)	66 (5)
1,3,5-Trimethylbenzene	530	4500	1.9 J (2.5)	1.2 J (2.5)	12 (5)	8.2 (6.2)	210 (50)	270 (25)	7.8 (2.5)	14 (5)
Xylenes (total)	10000	12000	11.2 J (1)	12 J (1)	15.9 J (2)	14 J (2.5)	7500 J (20)	2330 J (10)	170 J (1)	398 J (2)
Semivolatile Organic Compounds										
Anthracene	66	--	0.18 (0.1)	0.08 J (0.1)	0.1 (0.1)	0.05 J (0.1)	0.16 (0.1)	0.1 (0.1)	0.06 J (0.1)	0.03 J (0.1)
Benzo(a)anthracene	3.9	--	0.02 J (0.05)	ND (0.05)	0.15 (0.05)	ND (0.05)	0.04 J (0.05)	ND (0.05)	0.03 J (0.05)	ND (0.05)
Benzo(a)pyrene	0.2	--	ND (0.1)	ND (0.1)	0.06 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Benzo(b)fluoranthene	1.2	--	ND (0.05)	ND (0.05)	0.09 (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)	ND (0.05)
Benzo(g,h,i)perylene	0.26	--	ND (0.1)	ND (0.1)	0.11 (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Chrysene	1.9	--	ND (0.1)	ND (0.1)	0.09 J (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Fluorene	1900	--	3.3 (0.1)	1.5 (0.1)	4.6 (0.1)	2.3 (0.1)	2.1 (0.1)	1.1 (0.1)	0.47 (0.1)	0.3 (0.1)
Indeno(1,2,3-cd)pyrene	2.3	--	ND (0.1)	ND (0.1)	0.11 (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Naphthalene	100	1300	0.88 (0.1)	ND (0.1)	8.2 (0.1)	7.3 (0.1)	66 (0.1)	29 (0.1)	9.3 (0.1)	16 (0.1)
Phenanthrene	1100	--	0.81 (0.05)	0.21 (0.05)	2.2 (0.05)	1.3 (0.05)	2 (0.05)	1 (0.05)	0.39 (0.05)	0.24 (0.05)
Pyrene	130	--	0.08 J (0.1)	0.05 J (0.1)	0.04 J (0.1)	ND (0.1)	0.07 J (0.1)	0.05 J (0.1)	0.07 J (0.1)	0.04 J (0.1)
Metals										
Lead	5	--	ND (1)	ND (1)	0.8013 J (1)	0.9584 J (1)	6.734 (1)	9.963 (1)	ND (1)	ND (1)

Notes:
1. All concentrations reported in ug/L (ppb); detection limits in parentheses.
2. Underlined concentrations exceed the Non-Residential Groundwater Used Aquifer (TDS ≤ 2500).
3. Shaded concentrations exceed the Non-Residential Groundwater Vapor Intrusion Screening Values.

Abbreviations:
ND - Not Detected
J - Estimated Concentration

Table H4
Summary of BDH Groundwater QAQC Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC	QAQC
Field Sample ID	FB-221220	TB-221220-2	TB-221222-1	TB-230124-2	FB-230126-1	FB-230126-2	TB-230126-1	TB-230126-2
Sample Date	12/20/2022	12/20/2022	12/22/2022	1/24/2023	1/26/2023	1/26/2023	1/26/2023	1/26/2023
Comments	Field Blank	Trip Blank	Trip Blank	Trip Blank	Field Blank	Field Blank	Trip Blank	Trip Blank
Volatile Organic Compounds								
Benzene	0.51 (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)	ND (0.5)
Semi-Volatile Organic Compounds								
Benzo(a)anthracene	0.03 J (0.05)	NA	NA	NA	ND (0.05)	ND (0.05)	NA	NA
Naphthalene	0.08 J (0.1)	NA	NA	NA	ND (0.1)	ND (0.1)	NA	NA
Phenanthrene	ND (0.05)	NA	NA	NA	0.03 J (0.05)	ND (0.05)	NA	NA
Metals	ND	NA	NA	NA	ND	ND	NA	NA

Notes:
1 All concentrations reported in ug/L (ppb); detection limits in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Table H5
Summary of BDH LNAPL Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	TG02-MW-03	TG02-MW-04	TG02-MW-05	TG02-MW-06	TG02-MW-08	TG02-MW-09	TG02-MW-10	TG02-MW-11	TG02-MW-12	TG02-MW-15
Field Sample ID	**TG02-MW-03-221220**	**TG02-MW-04-221220**	**TG02-MW-05-221220**	**TG02-MW-06-221219**	**TG02-MW-08-221220**	**TG02-MW-09-221219**	**TG02-MW-10-221220**	**TG02-MW-11-221219**	**TG02-MW-12-221220**	**TG02-MW-15-221220**
Sample Method	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**
Sample Date	**12/20/2022**	**12/20/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/20/2022**
Comments										
Volatile Organic Compounds										
Benzene	4120 (466)	4650 (457)	2100 (471)	5880 (250)	5890 (481)	4940 (485)	1630 (245)	8050 (498)	5770 (494)	6500 (484)
2,3-Benzothiophene	ND (466)	328 J (457)	ND (471)	ND (250)	ND (481)	ND (485)	ND (245)	ND (498)	ND (494)	ND (484)
Butylbenzene	1910 (466)	770 (457)	654 (471)	602 (250)	1280 (481)	1070 (485)	388 (245)	1190 (498)	1010 (494)	1170 (484)
sec-Butylbenzene	834 (466)	432 J (457)	405 J (471)	248 J (250)	613 (481)	400 J (485)	197 J (245)	409 J (498)	397 J (494)	473 J (484)
tert-Butylbenzene	55.9 J (466)	237 J (457)	ND (471)	49.5 J (250)	ND (481)	ND (485)	31.3 J (245)	ND (498)	ND (494)	ND (484)
CIS-1,3-DIMETHYLCYCLOPENTANE	3180 (466)	4750 (457)	2380 (471)	4090 (250)	3440 (481)	5470 (485)	1570 (245)	6360 (498)	5570 (494)	5030 (484)
Cumene	1270 (466)	1030 (457)	698 (471)	367 (250)	852 (481)	1040 (485)	377 (245)	1240 (498)	975 (494)	1100 (484)
Cyclohexane	2380 (466)	5890 (457)	3020 (471)	5200 (250)	3440 (481)	6660 (485)	1980 (245)	8460 (498)	6340 (494)	5630 (484)
Cyclopentane	336 J (466)	1570 (457)	1240 (471)	1340 (250)	1270 (481)	3030 (485)	966 (245)	5260 (498)	2860 (494)	1360 (484)
p-Cymene	503 (466)	615 (457)	201 J (471)	332 (250)	517 (481)	244 J (485)	123 J (245)	251 J (498)	244 J (494)	294 J (484)
m-Diethyl benzene	2210 (466)	918 (457)	797 (471)	646 (250)	1290 (481)	1490 (485)	444 (245)	1640 (498)	1370 (494)	1520 (484)
1,2-Diethylbenzene	485 (466)	218 J (457)	179 J (471)	147 J (250)	310 J (481)	260 J (485)	111 J (245)	292 J (498)	276 J (494)	286 J (484)
1,3-Dimethyl-2-ethylbenzene	648 (466)	318 J (457)	268 J (471)	291 (250)	377 J (481)	319 J (485)	135 J (245)	272 J (498)	328 J (494)	375 J (484)
1,4-Dimethyl-2-ethylbenzene	3900 (466)	1500 (457)	1080 (471)	1190 (250)	2250 (481)	2640 (485)	627 (245)	2850 (498)	2450 (494)	2650 (484)
1,2-Dimethyl-4-ethylbenzene	5570 (466)	2190 (457)	1780 (471)	1710 (250)	3340 (481)	3870 (485)	922 (245)	4220 (498)	3550 (494)	3860 (484)
1,3-Dimethyl-4-ethylbenzene	3590 (466)	1490 (457)	834 (471)	1170 (250)	2200 (481)	2310 (485)	480 (245)	2480 (498)	2150 (494)	2330 (484)
2,2-Dimethylbutane	156 J (466)	451 J (457)	946 (471)	652 (250)	616 (481)	1380 (485)	366 (245)	2260 (498)	1170 (494)	608 (484)
2,3-Dimethyl-butane	1000 (466)	4000 (457)	7850 (471)	3570 (250)	3190 (481)	4660 (485)	1170 (245)	5610 (498)	4410 (494)	3560 (484)
cis-1,2-Dimethylcyclohexane	1000 (466)	1510 (457)	794 (471)	1120 (250)	758 (481)	1230 (485)	426 (245)	1290 (498)	1110 (494)	1100 (484)
trans-1,2-Dimethylcyclohexane	1470 (466)	2130 (457)	1020 (471)	1770 (250)	1350 (481)	ND (485)	744 (245)	1600 (498)	1010 (494)	1690 (484)
trans-1,4-Dimethylcyclohexane	1700 (466)	1990 (457)	1200 (471)	1760 (250)	1140 (481)	1820 (485)	680 (245)	1500 (498)	1090 (494)	1580 (484)
1,1-Dimethylcyclopentane	ND (466)	1130 (457)	478 (471)	ND (250)	ND (481)	ND (485)	ND (245)	ND (498)	ND (494)	ND (484)
2,3-Dimethylheptane	1550 (466)	2130 (457)	1280 (471)	1420 (250)	1330 (481)	1510 (485)	668 (245)	1370 (498)	1220 (494)	1470 (484)
2,5-Dimethylheptane	2490 (466)	2490 (457)	2280 (471)	2170 (250)	1910 (481)	2360 (485)	849 (245)	2360 (498)	2030 (494)	2360 (484)
3,3-Dimethylheptane	254 J (466)	268 J (457)	160 J (471)	245 J (250)	209 J (481)	212 J (485)	86.2 J (245)	177 J (498)	182 J (494)	234 J (484)
3,4-Dimethylheptane	1260 (466)	1210 (457)	845 (471)	1040 (250)	1050 (481)	1020 (485)	429 (245)	1100 (498)	1040 (494)	1120 (484)
3,5-Dimethylheptane	620 (466)	539 (457)	420 J (471)	516 (250)	487 (481)	552 (485)	235 J (245)	580 (498)	525 (494)	612 (484)
2,2-Dimethylhexane	436 J (466)	404 J (457)	ND (471)	489 (250)	394 J (481)	ND (485)	ND (245)	ND (498)	ND (494)	ND (484)
2,3-Dimethylhexane	2320 (466)	3460 (457)	9600 (471)	2170 (250)	2200 (481)	2870 (485)	1090 (245)	2310 (498)	2640 (494)	2790 (484)
2,4-Dimethylhexane	2900 (466)	3710 (457)	11000 (471)	2850 (250)	2780 (481)	3770 (485)	1200 (245)	3140 (498)	3420 (494)	3640 (484)
2,5-Dimethylhexane	2350 (466)	4130 (457)	14900 (471)	2980 (250)	2460 (481)	3200 (485)	1180 (245)	2620 (498)	3010 (494)	3230 (484)
3,3-Dimethyloctane	265 J (466)	460 (457)	133 J (471)	327 (250)	287 J (481)	130 J (485)	121 J (245)	122 J (498)	112 J (494)	155 J (484)
2,2-Dimethylpentane	439 J (466)	444 J (457)	409 J (471)	710 (250)	674 (481)	723 (485)	156 J (245)	687 (498)	623 (494)	833 (484)
2,3-Dimethylpentane	3800 (466)	4800 (457)	7640 (471)	3680 (250)	5220 (481)	5240 (485)	1700 (245)	4290 (498)	4640 (494)	5780 (484)
2,4-Dimethylpentane	1810 (466)	3340 (457)	9370 (471)	2750 (250)	2920 (481)	3170 (485)	871 (245)	2620 (498)	2980 (494)	3560 (484)
3,3-Dimethylpentane	488 (466)	353 J (457)	368 J (471)	462 (250)	612 (481)	657 (485)	123 J (245)	497 J (498)	523 (494)	794 (484)
Ethyl Benzene	13900 (466)	6180 (457)	1860 (471)	4140 (250)	9250 (481)	14500 (485)	3050 (245)	17800 (498)	13600 (494)	14600 (484)
1-Ethyl-3-methyl-benzene	17700 (466)	6080 (457)	3540 (471)	4250 (250)	10700 (481)	16100 (485)	2880 (245)	18200 (498)	14600 (494)	15200 (484)
Ethylcyclopentane	1610 (466)	1920 (457)	1760 (471)	1570 (250)	1360 (481)	2240 (485)	653 (245)	2400 (498)	2050 (494)	2090 (484)
3-Ethylhexane	1400 (466)	908 (457)	793 (471)	1080 (250)	1160 (481)	1320 (485)	387 (245)	1470 (498)	1200 (494)	1420 (484)
5-Ethyl-m-xylene	6340 (466)	2550 (457)	2120 (471)	2110 (250)	3750 (481)	4270 (485)	1270 (245)	4670 (498)	3990 (494)	4350 (484)
3-Ethyl-o-xylene	1410 (466)	610 (457)	490 (471)	481 (250)	903 (481)	898 (485)	217 J (245)	962 (498)	877 (494)	914 (484)
3-Ethylpentane	928 (466)	653 (457)	589 (471)	699 (250)	976 (481)	1030 (485)	234 J (245)	1080 (498)	960 (494)	1190 (484)
4-Ethyltoluene	9010 (466)	3530 (457)	1500 (471)	2490 (250)	5400 (481)	7540 (485)	1480 (245)	8690 (498)	6940 (494)	7500 (484)
Heptane	10600 (466)	14300 (457)	3520 (471)	13600 (250)	11900 (481)	12600 (485)	2930 (245)	14300 (498)	12000 (494)	13700 (484)
cis-2-Heptene	ND (466)	ND (457)	ND (471)	324 (250)	ND (481)	602 (485)	ND (245)	604 (498)	574 (494)	513 (484)
trans-2-heptene	ND (466)	282 J (457)	ND (471)	218 J (250)	248 J (481)	888 (485)	179 J (245)	1080 (498)	951 (494)	765 (484)
trans-3-Heptene	269 J (466)	445 J (457)	ND (471)	ND (250)	251 J (481)	1050 (485)	184 J (245)	1120 (498)	1020 (494)	845 (484)
1-Heptene/trans-1,2-DMCP	3480 (931)	6280 (914)	3920 (942)	5210 (501)	3850 (962)	5490 (971)	1850 (491)	6430 (996)	5910 (987)	5620 (968)
Hexane	5180 (466)	11000 (457)	3000 (471)	12300 (250)	11900 (481)	13700 (485)	3680 (245)	22300 (498)	16100 (494)	12200 (484)
1-Hexene	ND (466)	298 J (457)	ND (471)	202 J (250)	137 J (481)	448 J (485)	107 J (245)	412 J (498)	527 (494)	297 J (484)
cis-2-Hexene	114 J (466)	513 (457)	ND (471)	271 (250)	243 J (481)	921 (485)	210 J (245)	1180 (498)	926 (494)	616 (484)
trans-2-Hexene	78.7 J (466)	829 (457)	ND (471)	489 (250)	419 J (481)	1800 (485)	379 (245)	2070 (498)	1710 (494)	972 (484)
Hexylbenzene	381 J (466)	163 J (457)	207 J (471)	191 J (250)	300 J (481)	178 J (485)	81.7 J (245)	209 J (498)	237 J (494)	226 J (484)
Indane	3260 (466)	3040 (457)	1290 (471)	1000 (250)	1660 (481)	3210 (485)	766 (245)	3760 (498)	2970 (494)	2990 (484)
Indene	350 J (466)	294 J (457)	91.1 J (471)	92.7 J (250)	210 J (481)	235 J (485)	58 J (245)	200 J (498)	190 J (494)	243 J (484)
Isobutylbenzene	627 (466)	323 J (457)	243 J (471)	223 J (250)	447 J (481)	356 J (485)	158 J (245)	379 J (498)	326 J (494)	400 J (484)
Isobutylcyclohexane	ND (466)	ND (457)	ND (471)	ND (250)	ND (481)	ND (485)	156 J (245)	ND (498)	ND (494)	ND (484)

Table H5
Summary of BDH LNAPL Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	**TG02-MW-03**	**TG02-MW-04**	**TG02-MW-05**	**TG02-MW-06**	**TG02-MW-08**	**TG02-MW-09**	**TG02-MW-10**	**TG02-MW-11**	**TG02-MW-12**	**TG02-MW-15**
Field Sample ID	**TG02-MW-03-221220**	**TG02-MW-04-221220**	**TG02-MW-05-221220**	**TG02-MW-06-221219**	**TG02-MW-08-221220**	**TG02-MW-09-221219**	**TG02-MW-10-221220**	**TG02-MW-11-221219**	**TG02-MW-12-221220**	**TG02-MW-15-221220**
Sample Method	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**
Sample Date	**12/20/2022**	**12/20/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/20/2022**
Comments										
Isodecane	2880 (466)	3370 (457)	ND (471)	2750 (250)	2540 (481)	2150 (485)	1260 (245)	2220 (498)	2080 (494)	2160 (484)
Isooctane	6090 (466)	19300 (457)	68400 (1880)	10600 (250)	7970 (481)	13300 (485)	4460 (245)	7810 (498)	13100 (494)	12100 (484)
Isopentane	392 J (466)	11600 (457)	15300 (471)	9920 (250)	4350 (481)	16500 (485)	4990 (245)	28700 (498)	11500 (494)	2620 (484)
Isopropylcyclohexane	542 (466)	ND (457)	ND (471)	ND (250)	ND (481)	ND (485)	ND (245)	ND (498)	ND (494)	ND (484)
Isopropylcyclopentane	264 J (466)	ND (457)	151 J (471)	163 J (250)	ND (481)	314 J (485)	90.2 J (245)	348 J (498)	281 J (494)	310 J (484)
Methyl tert-butyl ether	ND (466)	ND (457)	1090 (471)	ND (250)	280 J (481)	ND (485)	109 J (245)	ND (498)	ND (494)	362 J (484)
2-Methyl-1-butene	ND (466)	1320 (457)	367 J (471)	628 (250)	176 J (481)	1630 (485)	300 (245)	1720 (498)	1130 (494)	231 J (484)
3-Methyl-1-butene	ND (466)	95.5 J (457)	ND (471)	70.9 J (250)	ND (481)	96.8 J (485)	ND (245)	91.1 J (498)	ND (494)	ND (484)
4-Methyl-1-pentene	ND (466)	286 J (457)	ND (471)	142 J (250)	76 J (481)	167 J (485)	50.7 J (245)	170 J (498)	168 J (494)	94.1 J (484)
1-Methyl-2-ethylbenzene	6180 (466)	2440 (457)	1940 (471)	1640 (250)	3690 (481)	5250 (485)	1220 (245)	5960 (498)	4840 (494)	5120 (484)
1-Methyl-2-isopropylbenzene	149 J (466)	136 J (457)	66.6 J (471)	85.9 J (250)	115 J (481)	70.6 J (485)	50.5 J (245)	64.2 J (498)	63.9 J (494)	89.3 J (484)
1-Methyl-2-n-propylbenzene	1990 (466)	819 (457)	694 (471)	622 (250)	1300 (481)	1130 (485)	349 (245)	1210 (498)	1120 (494)	1250 (484)
2-Methyl-2-pentene	541 (466)	1690 (457)	930 (471)	1040 (250)	680 (481)	2400 (485)	585 (245)	3040 (498)	2430 (494)	1540 (484)
1-Methyl-3-isopropylbenzene	1040 (466)	800 (457)	362 J (471)	356 (250)	841 (481)	640 (485)	191 J (245)	655 (498)	599 (494)	680 (484)
1-Methyl-3-n-propylbenzene	4950 (466)	1930 (457)	1020 (471)	1420 (250)	3260 (481)	3400 (485)	662 (245)	3720 (498)	3120 (494)	3300 (484)
1-Methyl-4-n-Propylbenzene	2560 (466)	1040 (457)	772 (471)	838 (250)	1650 (481)	1580 (485)	469 (245)	1750 (498)	1470 (494)	1670 (484)
Methylcyclohexane	8030 (466)	14900 (457)	6180 (471)	14200 (250)	8140 (481)	12300 (485)	4360 (245)	12700 (498)	10500 (494)	11800 (484)
Methylcyclopentane	5320 (466)	9170 (457)	7110 (471)	8960 (250)	8840 (481)	14000 (485)	3860 (245)	18200 (498)	14300 (494)	12200 (484)
2-Methylheptane	7700 (466)	7930 (457)	4660 (471)	7120 (250)	6480 (481)	8150 (485)	2830 (245)	9200 (498)	7390 (494)	8560 (484)
3-Methylheptane	7020 (466)	5250 (457)	3560 (471)	5290 (250)	5520 (481)	7040 (485)	2100 (245)	7700 (498)	6400 (494)	7480 (484)
4-Methylheptane	2940 (466)	2420 (457)	1630 (471)	2740 (250)	2460 (481)	3010 (485)	952 (245)	3240 (498)	2680 (494)	3230 (484)
2-Methylhexane	9020 (466)	6810 (457)	5370 (471)	8470 (250)	10200 (481)	11100 (485)	2590 (245)	11300 (498)	10600 (494)	12600 (484)
3-methylhexane	9810 (466)	7520 (457)	5670 (471)	8710 (250)	10700 (481)	11400 (485)	2740 (245)	11400 (498)	10800 (494)	13200 (484)
1-Methylnaphthalene	4030 (1160)	4760 (1140)	1620 (1180)	1520 (626)	3040 (1200)	2090 (1210)	765 (613)	2230 (1240)	2360 (1230)	2340 (1210)
2-Methylnaphthalene	7400 (1160)	7980 (1140)	2610 (1180)	2460 (626)	5540 (1200)	4460 (1210)	1400 (613)	4700 (1240)	4610 (1230)	4650 (1210)
3-Methylnonane	2690 (466)	2540 (457)	1040 (471)	2280 (250)	2220 (481)	1630 (485)	885 (245)	1890 (498)	1730 (494)	1720 (484)
2-Methyloctane	3620 (466)	3460 (457)	1880 (471)	3210 (250)	2700 (481)	3340 (485)	1280 (245)	3850 (498)	3270 (494)	3670 (484)
3-Methyloctane	4120 (466)	4210 (457)	2260 (471)	3700 (250)	3180 (481)	3530 (485)	1420 (245)	3880 (498)	3220 (494)	3610 (484)
4-Methyloctane	2920 (466)	2870 (457)	1500 (471)	2350 (250)	2300 (481)	2760 (485)	974 (245)	3000 (498)	2290 (494)	2580 (484)
3-methylpentane	4270 (466)	7030 (457)	9020 (471)	8110 (250)	10200 (481)	13100 (485)	3200 (245)	17400 (498)	13200 (494)	11500 (484)
2-Methyl-Pentane	5040 (466)	10200 (457)	11100 (471)	11600 (250)	13900 (481)	18400 (485)	4800 (245)	26800 (498)	19300 (494)	14600 (484)
Naphthalene	4950 (466)	10200 (457)	1520 (471)	1270 (250)	3180 (481)	3610 (485)	956 (245)	4040 (498)	3560 (494)	3580 (484)
Octane	7870 (466)	10900 (457)	1460 (471)	7820 (250)	7590 (481)	9080 (485)	2320 (245)	10700 (498)	7860 (494)	9210 (484)
cis-2-Octene	ND (466)	115 J (457)	ND (471)	77.6 J (250)	ND (481)	301 J (485)	51.8 J (245)	354 J (498)	290 J (494)	260 J (484)
Pentane	413 J (466)	10000 (457)	6960 (471)	9880 (250)	5240 (481)	14800 (485)	5940 (245)	35900 (498)	13900 (494)	3040 (484)
1-Pentene	ND (466)	371 J (457)	ND (471)	205 J (250)	ND (481)	499 (485)	116 J (245)	498 (498)	307 J (494)	ND (484)
cis-2-Pentene	ND (466)	669 (457)	ND (471)	343 (250)	116 J (481)	1090 (485)	285 (245)	1360 (498)	848 (494)	190 J (484)
trans-2-Pentene	ND (466)	1260 (457)	ND (471)	670 (250)	234 J (481)	1970 (485)	562 (245)	2710 (498)	1540 (494)	302 J (484)
Pentylbenzene	453 J (466)	212 J (457)	200 J (471)	165 J (250)	276 J (481)	259 J (485)	97.8 J (245)	311 J (498)	277 J (494)	275 J (484)
Propylbenzene	5250 (466)	2170 (457)	2200 (471)	1540 (250)	3300 (481)	4310 (485)	1220 (245)	5210 (498)	3990 (494)	4370 (484)
Styrene	63.1 J (466)	70.4 J (457)	58.8 J (471)	33.8 J (250)	61.8 J (481)	80.3 J (485)	28.3 J (245)	82.7 J (498)	68.8 J (494)	64.1 J (484)
1,2,3,5-Tetramethylbenzene	5240 (466)	2000 (457)	1510 (471)	1940 (250)	3240 (481)	3460 (485)	928 (245)	3850 (498)	3290 (494)	3570 (484)
1,2,3,4-Tetramethylbenzene	1920 (466)	990 (457)	800 (471)	1240 (250)	1580 (481)	963 (485)	474 (245)	993 (498)	1140 (494)	1070 (484)
1,2,4,5-Tetramethylbenzene	3460 (466)	1350 (457)	1200 (471)	1310 (250)	2190 (481)	2750 (485)	737 (245)	2980 (498)	2310 (494)	2710 (484)
Toluene	1940 (466)	6220 (457)	806 (471)	9800 (250)	12200 (481)	47000 (485)	10400 (245)	62600 (1990)	39600 (494)	38200 (484)
1,2,4-Triethylbenzene	ND (466)	ND (457)	84.5 J (471)	ND (250)	108 J (481)	ND (485)	ND (245)	ND (498)	97.7 J (494)	ND (484)
1,3,5-Triethylbenzene	ND (466)	ND (457)	ND (471)	ND (250)	ND (481)	118 J (485)	ND (245)	ND (498)	ND (494)	ND (484)
1,2,3-Trimethylbenzene	7040 (466)	3700 (457)	2590 (471)	2350 (250)	4450 (481)	5780 (485)	1360 (245)	6460 (498)	5410 (494)	5760 (484)
1,2,4-Trimethylbenzene	32900 (466)	13000 (457)	8150 (471)	9860 (250)	19200 (481)	27700 (485)	5530 (245)	31200 (498)	25400 (494)	27200 (484)
1,3,5-Trimethylbenzene	10700 (466)	4220 (457)	3780 (471)	3350 (250)	6380 (481)	9270 (485)	2060 (245)	10400 (498)	8470 (494)	8960 (484)
2,2,3-Trimethylbutane	138 J (466)	300 J (457)	705 (471)	301 (250)	207 J (481)	236 J (485)	69.3 J (245)	229 J (498)	236 J (494)	262 J (484)
2,2,3-Trimethylpentane	459 J (466)	1380 (457)	5800 (471)	770 (250)	565 (481)	713 (485)	334 (245)	512 (498)	787 (494)	740 (484)
2,3,3-Trimethylpentane	4150 (466)	13400 (457)	45300 (1880)	7040 (250)	5180 (481)	6470 (485)	3300 (245)	4440 (498)	7140 (494)	6430 (484)
2,3,4-Trimethylpentane	3960 (466)	12000 (457)	46500 (471)	5990 (250)	4840 (481)	6540 (485)	3010 (245)	4080 (498)	6890 (494)	6440 (484)
m,p-xylene	56600 (931)	20200 (914)	13600 (942)	16000 (501)	36800 (962)	65200 (971)	12600 (491)	77300 (996)	60400 (987)	62300 (968)
ortho-xylene	17000 (466)	6770 (457)	2460 (471)	4880 (250)	12100 (481)	22300 (485)	4410 (245)	26900 (498)	20800 (494)	21000 (484)
Xylenes (total)	73600 (466)	27000 (457)	16100 (471)	20900 (250)	48900 (481)	87500 (485)	17000 (245)	104000 (498)	81200 (494)	83300 (484)

Table H5
Summary of BDH LNAPL Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	TG02-MW-03	TG02-MW-04	TG02-MW-05	TG02-MW-06	TG02-MW-08	TG02-MW-09	TG02-MW-10	TG02-MW-11	TG02-MW-12	TG02-MW-15
Field Sample ID	**TG02-MW-03-221220**	**TG02-MW-04-221220**	**TG02-MW-05-221220**	**TG02-MW-06-221219**	**TG02-MW-08-221220**	**TG02-MW-09-221219**	**TG02-MW-10-221220**	**TG02-MW-11-221219**	**TG02-MW-12-221220**	**TG02-MW-15-221220**
Sample Method	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**
Sample Date	**12/20/2022**	**12/20/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/20/2022**
Comments										
Semivolatile Organic Compounds										
Acenaphthene	65.2 (2.68)	683 (2.92)	49 (2.52)	36.4 (2.93)	46.2 (2.61)	25 (2.07)	37.5 (2.94)	31.4 (2.92)	62.6 (2.06)	38.6 (2.87)
Acenaphthylene	10.1 (2.68)	56.8 (2.92)	9.3 (2.52)	10.3 (2.93)	12.3 (2.61)	1.99 J (2.07)	7.93 (2.94)	1.64 J (2.92)	6.2 (2.06)	4.83 (2.87)
Anthracene	24.1 (2.68)	484 (2.92)	18.4 (2.52)	19 (2.93)	12.8 (2.61)	7.56 (2.07)	17.7 (2.94)	7.18 (2.92)	25.8 (2.06)	11.2 (2.87)
C1-Anthracenes/Phenanthrenes	350 (2.68)	1090 (2.92)	339 (2.52)	290 (2.93)	258 (2.61)	116 (2.07)	238 (2.94)	74.6 (2.92)	249 (2.06)	202 (2.87)
C2-Anthracenes/Phenanthrenes	292 (2.68)	534 (2.92)	291 (2.52)	237 (2.93)	193 (2.61)	86.6 (2.07)	154 (2.94)	43 (2.92)	187 (2.06)	156 (2.87)
C3-Anthracenes/Phenanthrenes	108 (2.68)	171 (2.92)	128 (2.52)	101 (2.93)	76.4 (2.61)	34.6 (2.07)	65.8 (2.94)	19.5 (2.92)	79 (2.06)	64.1 (2.87)
C4-Anthracenes/Phenanthrenes	36.5 (2.68)	47.8 (2.92)	42.7 (2.52)	35.9 (2.93)	24.7 (2.61)	10.9 (2.07)	25.6 (2.94)	6.36 (2.92)	27.4 (2.06)	22.4 (2.87)
Benzo(a)anthracene	7.68 (2.68)	236 (2.92)	0.75 J (2.52)	2.6 J (2.93)	3.46 (2.61)	1.67 J (2.07)	6.2 (2.94)	1.82 J (2.92)	7.15 (2.06)	1.69 J (2.87)
Benzo(a)fluoranthene	0.888 J (2.68)	24.7 (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	ND (2.94)	ND (2.92)	0.485 J (2.06)	ND (2.87)
Benzo(a)pyrene	6.2 (2.68)	181 (2.92)	ND (2.52)	1.5 J (2.93)	2.2 J (2.61)	1.16 J (2.07)	4.54 (2.94)	1.43 J (2.92)	5.06 (2.06)	0.988 J (2.87)
Benzo(b)fluoranthene	4.1 (2.68)	144 (2.92)	ND (2.52)	1.11 J (2.93)	1.54 J (2.61)	0.646 J (2.07)	3.3 (2.94)	1.46 J (2.92)	4.06 (2.06)	0.866 J (2.87)
Benzo(b)fluorene	6.57 (2.68)	98.7 (2.92)	1.52 J (2.52)	1.76 J (2.93)	2.5 J (2.61)	1.5 J (2.07)	2.94 (2.94)	1.34 J (2.92)	4.41 (2.06)	2.03 J (2.87)
Benzo(e)pyrene	4.19 (2.68)	111 (2.92)	0.653 J (2.52)	1.21 J (2.93)	1.79 J (2.61)	1.07 J (2.07)	3.75 (2.94)	1 J (2.92)	3.61 (2.06)	1.13 J (2.87)
Benzo(g,h,i)perylene	4.08 (2.68)	74.5 (2.92)	ND (2.52)	0.85 J (2.93)	1.71 J (2.61)	1.06 J (2.07)	2.38 J (2.94)	1.2 J (2.92)	2.62 (2.06)	1.31 J (2.87)
Benzo(j+k)fluoranthene	5.62 (2.68)	143 (2.92)	0.514 J (2.52)	1.3 J (2.93)	1.31 J (2.61)	0.838 J (2.07)	2.97 (2.94)	0.98 J (2.92)	4.4 (2.06)	0.72 J (2.87)
1,1-Biphenyl	112 (2.68)	499 (2.92)	34.2 (2.52)	88.7 (2.93)	212 (2.61)	58.2 (2.07)	31.4 (2.94)	46.1 (2.92)	115 (2.06)	98.8 (2.87)
Carbazole	5.17 (2.68)	32.4 (2.92)	5.11 (2.52)	3 (2.93)	4.23 (2.61)	1.27 J (2.07)	3.77 (2.94)	ND (2.92)	4.84 (2.06)	2.51 J (2.87)
Chrysene/Triphenylene	9.8 (2.68)	261 (2.92)	2.29 J (2.52)	3.51 (2.93)	3.83 (2.61)	2.18 (2.07)	8.41 (2.94)	2.8 J (2.92)	9.04 (2.06)	2.65 J (2.87)
C1-Chrysenes	6.93 (2.68)	177 (2.92)	2.89 (2.52)	4.08 (2.93)	5.95 (2.61)	2.07 (2.07)	12 (2.94)	1.87 J (2.92)	6.28 (2.06)	3.34 (2.87)
C2-Chrysenes	3.97 (2.68)	74.5 (2.92)	2.39 J (2.52)	4.11 (2.93)	6.34 (2.61)	1.81 J (2.07)	13.7 (2.94)	ND (2.92)	3.36 (2.06)	3.51 (2.87)
C3-Chrysenes	ND (2.68)	35.6 (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	19.8 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
Dibenz(a,h+a,c)anthracene	0.923 J (2.68)	28.1 (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	ND (2.94)	ND (2.92)	0.586 J (2.06)	ND (2.87)
Dibenzofuran	53.3 (2.68)	273 (2.92)	50.3 (2.52)	40 (2.93)	56.7 (2.61)	14 (2.07)	35.3 (2.94)	10.5 (2.92)	37.6 (2.06)	27.4 (2.87)
Dibenzothiophene	46.6 (2.68)	205 (2.92)	60.6 (2.52)	47.6 (2.93)	48.6 (2.61)	14.8 (2.07)	55.2 (2.94)	7.8 (2.92)	37.7 (2.06)	30.9 (2.87)
C1-Dibenzothiophenes	127 (2.68)	285 (2.92)	186 (2.52)	124 (2.93)	116 (2.61)	46.2 (2.07)	117 (2.94)	15.7 (2.92)	106 (2.06)	91.9 (2.87)
C3-Dibenzothiophenes	76.7 (2.68)	110 (2.92)	146 (2.52)	63.5 (2.93)	61.2 (2.61)	29.7 (2.07)	52.1 (2.94)	13.7 (2.92)	78.4 (2.06)	61.1 (2.87)
C2-Dibenzothiophenes	142 (2.68)	232 (2.92)	237 (2.52)	121 (2.93)	115 (2.61)	49.6 (2.07)	98.8 (2.94)	22.1 (2.92)	128 (2.06)	103 (2.87)
C4-Dibenzothiophenes	28.8 (2.68)	36.1 (2.92)	61.4 (2.52)	22.8 (2.93)	21.5 (2.61)	10.8 (2.07)	19.6 (2.94)	6.13 (2.92)	33.7 (2.06)	23.6 (2.87)
2,6-Dimethylnaphthalene	1900 (2.68)	2070 (2.92)	1280 (2.52)	1300 (2.93)	2020 (2.61)	645 (2.07)	1070 (2.94)	656 (2.92)	1040 (2.06)	1030 (2.87)
Fluoranthene	20.5 (2.68)	647 (2.92)	3.72 (2.52)	7.34 (2.93)	7.18 (2.61)	6.01 (2.07)	14.3 (2.94)	8.14 (2.92)	22.5 (2.06)	5.49 (2.87)
C1-Fluoranthenes/Pyrenes	31.6 (2.68)	468 (2.92)	17.2 (2.52)	15 (2.93)	17.4 (2.61)	11.9 (2.07)	21.7 (2.94)	10.2 (2.92)	28 (2.06)	16.5 (2.87)
C2-Fluoranthenes/Pyrenes	19.3 (2.68)	164 (2.92)	11.9 (2.52)	10.4 (2.93)	12.4 (2.61)	6.39 (2.07)	16.3 (2.94)	4.44 (2.92)	12.3 (2.06)	9.39 (2.87)
C3-Fluoranthenes/Pyrenes	13.2 (2.68)	63.5 (2.92)	7.7 (2.52)	7.95 (2.93)	9.52 (2.61)	3.89 (2.07)	16.3 (2.94)	ND (2.92)	6.96 (2.06)	5.87 (2.87)
C4-Fluoranthenes/Pyrenes	5.66 (2.68)	26.4 (2.92)	4.13 (2.52)	4.67 (2.93)	5.86 (2.61)	ND (2.07)	11.1 (2.94)	ND (2.92)	2.86 (2.06)	3.29 (2.87)
Fluorene	107 (2.68)	699 (2.92)	97.9 (2.52)	74 (2.93)	97.2 (2.61)	37.1 (2.07)	77.8 (2.94)	33.1 (2.92)	85.4 (2.06)	63.5 (2.87)
C1-Fluorenes	206 (2.68)	418 (2.92)	234 (2.52)	152 (2.93)	174 (2.61)	82.2 (2.07)	156 (2.94)	54.6 (2.92)	164 (2.06)	141 (2.87)
C2-Fluorenes	328 (2.68)	387 (2.92)	379 (2.52)	245 (2.93)	238 (2.61)	118 (2.07)	200 (2.94)	72.6 (2.92)	247 (2.06)	210 (2.87)
C3-Fluorenes	228 (2.68)	211 (2.92)	275 (2.52)	175 (2.93)	159 (2.61)	76.7 (2.07)	118 (2.94)	43.6 (2.92)	170 (2.06)	140 (2.87)
Indeno(1,2,3-cd)pyrene	2.81 (2.68)	70.3 (2.92)	ND (2.52)	ND (2.93)	0.836 J (2.61)	ND (2.07)	1.73 J (2.94)	ND (2.92)	1.73 J (2.06)	ND (2.87)
Dimethyl diethyl lead	141 (0.976)	ND (0.971)	0.339 J (0.946)	ND (0.996)	12.9 (0.974)	12.1 (0.978)	NA	0.76 J (0.923)	5.66 (0.972)	21.5 (0.966)
Methyltriethyl lead	188 (0.976)	1.36 (0.971)	12.7 (0.946)	1.38 (0.996)	24.8 (0.974)	24.5 (0.978)	NA	5.57 (0.923)	12.8 (0.972)	36.9 (0.966)
Tetraethyl Lead	129 (0.976)	474 (0.971)	126 (0.946)	130 (0.996)	30.4 (0.974)	43.4 (0.978)	NA	44.6 (0.923)	48.1 (0.972)	58.3 (0.966)
Tetramethyl lead	10.4 (0.976)	ND (0.971)	ND (0.946)	ND (0.996)	1.48 (0.974)	1.1 (0.978)	NA	ND (0.923)	0.621 J (0.972)	2.69 (0.966)
Trimethylethyl lead	47.6 (0.976)	ND (0.971)	ND (0.946)	ND (0.996)	3.65 (0.974)	2.52 (0.978)	NA	ND (0.923)	1.36 (0.972)	5.89 (0.966)
C1-Naphthalenes	4710 (10.7)	5670 (11.7)	2400 (2.52)	2190 (2.93)	3980 (10.4)	3380 (8.29)	2470 (2.94)	3310 (2.92)	3760 (8.25)	4250 (11.5)
C2-Naphthalenes	4100 (2.68)	4660 (2.92)	2880 (2.52)	2850 (2.93)	4220 (2.61)	1370 (2.07)	2300 (2.94)	1360 (2.92)	2310 (2.06)	2240 (2.87)
C3-Naphthalenes	2210 (2.68)	2500 (2.92)	2130 (2.52)	1960 (2.93)	2200 (2.61)	655 (2.07)	1550 (2.94)	478 (2.92)	1360 (2.06)	1250 (2.87)
C4-Naphthalenes	964 (2.68)	1120 (2.92)	1100 (2.52)	955 (2.93)	910 (2.61)	300 (2.07)	888 (2.94)	175 (2.92)	671 (2.06)	591 (2.87)
Perylene	1.43 J (2.68)	34.1 (2.92)	ND (2.52)	4.25 (2.93)	ND (2.61)	ND (2.07)	0.781 J (2.94)	ND (2.92)	0.951 J (2.06)	ND (2.87)
Phenanthrene	192 (2.68)	1820 (2.92)	170 (2.52)	147 (2.93)	150 (2.61)	69.6 (2.07)	178 (2.94)	53.8 (2.92)	167 (2.06)	115 (2.87)
Pyrene	29.3 (2.68)	648 (2.92)	10.4 (2.52)	12.7 (2.93)	12.6 (2.61)	9.42 (2.07)	17.8 (2.94)	9.72 (2.92)	28.2 (2.06)	11.7 (2.87)
14A(H),17A(H)-20S-Cholestane/13B(H),17A(H)-20S-Ethyldiacholestane (S12)	ND (2.68)	1.09 J (2.92)	ND (2.52)	0.753 J (2.93)	0.885 J (2.61)	ND (2.07)	2.39 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14B(H),17B(H)-20R-Cholestane (S14)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.799 J (2.61)	ND (2.07)	1.64 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14B(H),17B(H)-20S-Cholestane (S15)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.78 J (2.61)	ND (2.07)	1.69 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14A(H),17A(H)-20R-Cholestane/13B(H),17A(H)-20R-Ethyldiacholestane (S17)	ND (2.68)	2.12 J (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	3.07 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14A,17A-20S-Methylcholestane (S20)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.36 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14B,17B-20R-Methylcholestane (S22)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.618 J (2.61)	ND (2.07)	1.25 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)

Table H5
Summary of BDH LNAPL Analytical Results
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location	TG02-MW-03	TG02-MW-04	TG02-MW-05	TG02-MW-06	TG02-MW-08	TG02-MW-09	TG02-MW-10	TG02-MW-11	TG02-MW-12	TG02-MW-15
Field Sample ID	**TG02-MW-03-221220**	**TG02-MW-04-221220**	**TG02-MW-05-221220**	**TG02-MW-06-221219**	**TG02-MW-08-221220**	**TG02-MW-09-221219**	**TG02-MW-10-221220**	**TG02-MW-11-221219**	**TG02-MW-12-221220**	**TG02-MW-15-221220**
Sample Method	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**	**Grab**
Sample Date	**12/20/2022**	**12/20/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/19/2022**	**12/20/2022**	**12/20/2022**
Comments										
14B,17B-20S-Methylcholestane (S23)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.957 J (2.61)	ND (2.07)	1.57 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14A,17A-20R-Methylcholestane (S24)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.34 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14A(H),17A(H)-20S-Ethylcholestane (S25)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	2.07 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14B(H),17B(H)-20R-Ethylcholestane (S26)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.814 J (2.61)	ND (2.07)	1.48 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14B(H),17B(H)-20S-Ethylcholestane (S27)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	0.64 J (2.61)	ND (2.07)	1.56 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
14A(H),17A(H)-20R-Ethylcholestane (S28)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.03 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
13B(H),17A(H)-20S-Diacholestane (S4)	ND (2.68)	ND (2.92)	ND (2.52)	1.13 J (2.93)	0.942 J (2.61)	ND (2.07)	1.77 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
13B(H),17A(H)-20R-Diacholestane (S5)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	0.926 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
13B,17A-20S-Methyldiacholestane (S8)	ND (2.68)	2.21 J (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.56 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
18A-22,29,30-Trisnorneohopane-TS (T11)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.44 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
17A(H)-22,29,30-Trisnorhopane-TM (T12)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	1.81 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
30-Norhopane (T15)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	3.06 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
Hopane (T19)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	5.29 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
C23 Tricyclic Terpane (T4)	ND (2.68)	ND (2.92)	4.1 (2.52)	2.22 J (2.93)	2.05 J (2.61)	0.595 J (2.07)	1.66 J (2.94)	ND (2.92)	3.14 (2.06)	ND (2.87)
C24 Tricyclic Terpane (T5)	0.974 J (2.68)	ND (2.92)	2.52 (2.52)	1.48 J (2.93)	1.16 J (2.61)	ND (2.07)	1.54 J (2.94)	ND (2.92)	1.3 J (2.06)	1.22 J (2.87)
C25 Tricyclic Terpane (T6)	ND (2.68)	ND (2.92)	1.27 J (2.52)	ND (2.93)	ND (2.61)	ND (2.07)	2.24 J (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
C26,20R+C27,20S-triaromatic steroid (TAS1)	0.987 J (2.68)	1.27 J (2.92)	1.25 J (2.52)	ND (2.93)	2.92 (2.61)	ND (2.07)	5.98 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
C28,20S-triaromatic steroid (TAS2)	ND (2.68)	0.815 J (2.92)	ND (2.52)	ND (2.93)	1.63 J (2.61)	ND (2.07)	4.48 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
C27,20R-triaromatic steroid (TAS3)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	2.05 J (2.61)	ND (2.07)	3.58 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
C28,20R-triaromatic steroid (TAS4)	ND (2.68)	ND (2.92)	ND (2.52)	ND (2.93)	1.2 J (2.61)	ND (2.07)	4.49 (2.94)	ND (2.92)	ND (2.06)	ND (2.87)
2,3,5-Trimethylnaphthalene	231 (2.68)	264 (2.92)	232 (2.52)	220 (2.93)	242 (2.61)	68.2 (2.07)	166 (2.94)	47.3 (2.92)	127 (2.06)	116 (2.87)
Saturated Hydrocarbons										
Decane	4360 (179)	10100 (194)	ND (168)	5140 (196)	7670 (174)	2490 (138)	2300 (196)	2710 (194)	2760 (138)	3590 (191)
Docosane	84.2 J (179)	109 J (194)	ND (168)	91.9 J (196)	103 J (174)	53.6 J (138)	39.7 J (196)	ND (194)	131 J (138)	119 J (191)
Dodecane	4940 (179)	4530 (194)	369 (168)	5570 (196)	11700 (174)	2730 (138)	1880 (196)	2340 (194)	3860 (138)	4060 (191)
Dotriacontane	ND (179)	ND (194)	ND (168)	ND (196)	ND (174)	ND (138)	32.9 J (196)	ND (194)	ND (138)	ND (191)
Eiscosane	220 (179)	476 (194)	ND (168)	359 (196)	316 (174)	153 (138)	136 J (196)	54.5 J (194)	382 (138)	345 (191)
Heneicosane	145 J (179)	220 (194)	ND (168)	179 J (196)	184 (174)	93.8 J (138)	57.5 J (196)	31.5 J (194)	240 (138)	206 (191)
Heptacosane	ND (179)	27.4 J (194)	ND (168)	ND (196)	ND (174)	ND (138)	ND (196)	ND (194)	ND (138)	ND (191)
Heptadecane	272 (179)	1260 (194)	ND (168)	897 (196)	1220 (174)	424 (138)	432 (196)	149 J (194)	993 (138)	904 (191)
Hexadecane	643 (179)	2440 (194)	344 (168)	1630 (196)	2510 (174)	647 (138)	821 (196)	267 (194)	1610 (138)	1430 (191)
Nonadecane	316 (179)	858 (194)	ND (168)	576 (196)	552 (174)	254 (138)	236 (196)	91 J (194)	587 (138)	571 (191)
Nonane	5650 (179)	8730 (194)	540 (168)	5320 (196)	5500 (174)	6130 (138)	2640 (196)	5960 (194)	5090 (138)	6810 (191)
Octadecane	289 (179)	954 (194)	63.4 J (168)	642 (196)	763 (174)	332 (138)	294 (196)	143 J (194)	759 (138)	709 (191)
Pentacosane	114 JC (179)	156 JC (194)	108 JC (168)	136 JC (196)	115 JC (174)	85.8 JC (138)	130 JC (196)	121 JC (194)	104 JC (138)	151 JC (191)
Pentadecane	1410 (179)	3310 (194)	ND (168)	2820 (196)	5000 (174)	958 (138)	1210 (196)	503 (194)	2340 (138)	2060 (191)
Petroleum Hydrocarbons C9 - C44	593000 (5900)	500000 (6420)	450000 (5550)	557000 (6450)	609000 (5740)	346000 (4560)	418000 (6460)	296000 (6420)	401000 (4540)	441000 (6320)
Phytane	886 (179)	848 (194)	1790 (168)	1430 (196)	973 (174)	347 (138)	1430 (196)	172 J (194)	916 (138)	772 (191)
Pristane	2070 (179)	2000 (194)	3330 (168)	3100 (196)	2760 (174)	702 (138)	3580 (196)	347 (194)	1670 (138)	1570 (191)
Tetracosane	ND (179)	55 J (194)	ND (168)	ND (196)	ND (174)	ND (138)	ND (196)	ND (194)	32.7 J (138)	ND (191)
Tetradecane	1640 (179)	2690 (194)	438 (168)	3210 (196)	7220 (174)	986 (138)	936 (196)	553 (194)	2290 (138)	2060 (191)
Triacontane	ND (179)	28.2 J (194)	ND (168)	ND (196)	ND (174)	ND (138)	37.2 J (196)	ND (194)	ND (138)	ND (191)
Tricosane	45.9 J (179)	127 J (194)	ND (168)	38.1 J (196)	51 J (174)	27.3 J (138)	ND (196)	ND (194)	68 J (138)	60.1 J (191)
Tridecane	3200 (179)	3500 (194)	490 (168)	4490 (196)	10300 (174)	1810 (138)	1330 (196)	1280 (194)	3020 (138)	3010 (191)
2,6,10-Trimethyldodecane (1380)	2520 (179)	1150 (194)	2060 (168)	2880 (196)	3150 (174)	453 (138)	1540 (196)	258 (194)	1070 (138)	1040 (191)
2,6,10-Trimethylpentadecane (1650)	1200 (179)	1210 (194)	1760 (168)	2000 (196)	1540 (174)	369 (138)	2080 (196)	176 J (194)	904 (138)	862 (191)
2,6,10-Trimethyltridecane (1470)	2730 (179)	1700 (194)	2380 (168)	3620 (196)	3720 (174)	579 (138)	1910 (196)	343 (194)	1490 (138)	1450 (191)
Tritriacontane	ND (179)	28.8 J (194)	ND (168)	ND (196)	ND (174)	ND (138)	ND (196)	ND (194)	ND (138)	ND (191)
Undecane	4650 (179)	6340 (194)	1100 (168)	5530 (196)	10400 (174)	2390 (138)	1900 (196)	1860 (194)	3060 (138)	3310 (191)
Total Saturated Hydrocarbons	37400 J (179)	52800 J (194)	14800 J (168)	49700 J (196)	75700 J (174)	22000 J (138)	25000 J (196)	17400 J (194)	33400 J (138)	35100 J (191)
Physical Properties										
Density [g/mL]	0.821 (0.001)	0.792 (0.001)	0.776 (0.001)	0.791 (0.001)	0.808 (0.001)	0.774 (0.001)	NA	0.766 (0.001)	0.787 (0.001)	0.8 (0.001)

Notes:
1 All concentrations reported in mg/kg (ppm); detection limits in parentheses.
2 Only compounds with at least one detection are shown.

Abbreviations:
ND - Not Detected
NA - Not Analyzed
J - Estimated Concentration

Table H6
Quality Control Methodology
Bellwether District Holdings, LLC, Philadelphia, PA

Multiple VOC Runs Data Quality	Solution
If the surrogate recoveries for one run are **within acceptance criteria** and the other run has **3-4 surrogates outside of acceptance criteria**:	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If the surrogate recoveries for one run are **within acceptance criteria** and has some **detections** and the other run has **1-2 surrogates outside of acceptance criteria**:	The run with surrogate recoveries within acceptance criteria is selected as reportable.
If one run has surrogate recoveries **within acceptance critera** but is **non-detect** and the other run has **1-2 surrogates outside of acceptance** criteria but has **detections**:	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have **detections** and **surrogate recoveries outside of acceptance criteria**:	The run with more surrogates recoveries outside acceptance criteria is not reported and the run with fewer surrogate recoveries outside of acceptance criteria is selected as reportable.
If one run has surrogate recoveries **outside of acceptance critera** but is **non-detect** and the other run has **1-2 more surrogates outside of acceptance** criteria but has **detections**:	The run with detections is selected as reportable and the run with non-detects is not reported.
If both runs have the **same number of surrogates** with recovery outside the acceptance criteria:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable .
If two VOC runs are reported and there are no QC issues for both runs:	If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable .

Table H7
Quality Control Checklist
Former Philadelphia Refinery, Philadelphia, PA

	Keyfile-Related		EDD-Related											
							Multiple Results							
Date Sampled	**Check Lab Login and Keyfile**	**Check COC/Field Notes Uploaded**	**Check Sample IDs**	**Check Analyte List Reported**	**Review EDD for Issues**	**Check Dates, Matrix and Sample Type**	**Reported**	**Surrogate Recovery**	**Data Qualifiers**	**Reasonable Limits**	**Other**	**Resolved**	**Check for Concerning Qualifiers**	**Comments**
6/7/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2130480-17 (PB27-01-SS01): VOCs reported for two runs. The IS response(s) for fluorobenzene (232%) and the surrogate recovery for dibromofluoromethane (54%) and 4-bromofluorobenzene (279%) were outside the acceptance criteria. The first dilution is not reportable and the second dilution is reported. L2130480-18 (PB27-02-SS01): VOCs reported for two runs. The internal standard (IS) response(s) for fluorobenzene (204%) and the surrogate recovery for dibromofluoromethane (64%) and 4-bromofluorobenzene (165%)were outside the acceptance criteria. The first dilution is not reportable and the second dilution is reported.
6/8/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2130781-01 (PB27-03-SS01): VOCs reported for two runs. Methyl tert butyl ether was reported twice, everything was within the acceptable criteria so so higher result was reported. L2130781-03 (PB27-05-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (132%), toluene-d8 (145%) and 4-bromofluorobenzene (144%). The second dilution is not reportable and the first dilution is reported. L2130781-04 (PB27-06-SS01): VOCs reported for two runs. Methyl tert butyl ether was reported twice, everything was within the acceptable criteria so higher result was reported. L2130781-06 (PB27-08-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (144%); however, re-analyzed on a larger dilution was required in order to quantitate the sample within the calibration range. The first dilution is not reportable and the second dilution is reported. L2130781-07 (PB27-09-SS01): VOCs reported for two runs. The surrogate recovery was outside the acceptance criteria for 1,2-dichloroethane-d4 (134%). The first dilution is not reportable and the second dilution is reported. L2130781-08 (PB27-10-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (148%), toluene-d8 (156%) and 4-bromofluorobenzene (150%) for the first dilution. The surrogate recovery is outside the acceptance criteria for toluene-d8 (131%) due to coelution with an obvious interference for the second dilution. The first dilution has more surrogates recoveries outside acceptance criteria is not reported while the second dilution has fewer surrogate recoveries outside of acceptance criteria is selected as reportable. L2130781-11 (PB27-11-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (64%), 1,2-dichloroethane-d4 (137%), toluene-d8 (159%) and 4-bromofluorobenzene (192%).The second dilution is not reportable and the first dilution is reported. L2130781-13 (PB27-15-SS01): VOCs reported for two runs. The surrogate recovery is outside the acceptance criteria for toluene-d8 (139%) due to coelution with an obvious interference for the first dilution. The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (67%), 1,2-dichloroethane-d4 (136%), toluene-d8 (175%) and 4-bromofluorobenzene (196%) for the second dilution. The second dilution has more surrogates recoveries outside acceptance criteria is not reported while the first dilution has fewer surrogate recoveries outside of acceptance criteria is selected as reportable. L2130781-19 (PB28-06-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for dibromofluoromethane (62%). The inital run is not reportable and the first dilution is reported. L2130781-23 (PB28-01-SS01): VOCs reported for two runs. The surrogate recovery was outside the acceptance criteria for 4-bromofluorobenzene (138%). The initial run is not reportable and the second dilution is reported.
6/9/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2131108-07 (PB28-21-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
6/10/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2131453-06 (PB29-20-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. L2131453-22 (DUP-5): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
6/11/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2131595-12 (PB33-16-SS01): VOCs reported for two runs. The IS response(s) for fluorobenzene (265%) and the surrogate recoveries for dibromofluoromethane (59%) and 1,2-dichloroethane-d4 (140%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported.
6/21/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2133575-09 (PB35-07-SS01): VOCs reported for two runs. The IS response for fluorobenzene (216%) and the surrogate recoveries for dibromofluoromethane (43%), toluene-d8 (170%) and 4-bromofluorobenzene (702%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. The low run is not reportable and the high run is reported. L2133575-13 (PB34-05-SS01): VOCs reported for two runs. The IS response for fluorobenzene (237%) and the surrogate recoveries for dibromofluoromethane (49%) and 4-bromofluorobenzene (187%) were outside the acceptance criteria in the Low Level analysis due to obvious interferences. The low run is not reportable and the high run is reported.
6/22/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2133823-17 (PB128-02-SS01): VOCs reported for two runs. The internal standard (IS) response(s) for chlorobenzene-d5 (44%), and 1,4-dichlorobenzene-d4 (34%) and the surrogate recovery for 4-bromofluorobenzene (239%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2133823-20 (PB128-05-SS01): VOCs reported for two runs. The surrogate recovery is outside the acceptance criteria for 4-bromofluorobenzene(191%) due to coelution with an obvious interference. The low run is not reportable and the high run is reported.

Table H7
Quality Control Checklist
Former Philadelphia Refinery, Philadelphia, PA

	Keyfile-Related		EDD-Related											
							Multiple Results							
Date Sampled	Check Lab Login and Keyfile	Check COC/Field Notes Uploaded	Check Sample IDs	Check Analyte List Reported	Review EDD for Issues	Check Dates, Matrix and Sample Type	Reported	Surrogate Recovery	Data Qualifiers	Reasonable Limits	Other	Resolved	Check for Concerning Qualifiers	Comments
6/23/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2134200-04 (PB129-02-SS01): VOCs reported for two runs. The internal standard (IS) response(s) for 1,4-dichlorobenzene-d4 (30%) and the surrogate recovery for 4-bromofluorobenzene (184%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2134200-06 (PB129-04-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. L2134200-07 (PB129-05-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
6/24/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2134501-04 (PB84-16-SS01): The sample have surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference for 4-bromofluorobenzene (149%). VOCs reported for two runs. The sample was analyzed as a High Level Methanol based upon screen results. The low run is not reportable and the high run is reported. L2134501-07 (PB84-12-SS01): VOCs reported for two runs. The IS response for chlorobenzene-d5 (325%) and the surrogate recoveries for toluene-d8 (43%) and 4-bromofluorobenzene (3503%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2134501-16 (PB42-09-SS01): VOCs reported for two runs. The sample has surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference for 4-bromofluorobenzene (907%). The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The low run is not reportable and the high run is reported. L2134501-21 (PB42-14-SS01): VOCs reported for two runs. The sample has surrogate recoveries outside the acceptance criteria due to coelution with an obvious interference for 1,2-dichloroethane-d4 (157%), toluene-d8 (149%), and 4-bromofluorobenzene (578%). The low run is not reportable and the high run is reported.
6/25/2021	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
7/12/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2137252-03 (PB85-06-SS01): VOCs reported for two runs. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies. The low run is not reportable and the high run is reported. L2137252-05 (PB85-08-SS01): VOCs reported for two runs. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies. The low run is not reportable and the high run is reported. L2137252-06 (PB85-03-SS01): VOCs reported for two runs. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies. The low run is not reportable and the high run is reported. L2137252-07 (PB85-04-SS01): VOCs reported for two runs. Differences were noted between the results of the Volatile Organics by EPA Method 5035/8260 High and Low Level analyses which have been attributed to vial discrepancies. The low run is not reportable and the high run is reported. L2137252-11 (PB85-13-SS01): VOCs reported for two runs. The IS response(s) for fluorobenzene (201%), chlorobenzene-d5 (291%) and the surrogate recovery for 4-bromofluorobenzene (394%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2137252-12 (PB85-13-SS01): VOCs reported for two runs. The internal standard (IS) response(s) for fluorobenzene (341%), chlorobenzene-d5 (471%) and the surrogate recovery for 1,2-dichloroethane-d4 (184%), toluene-d8 (844%), 4- bromofluorobenzene (1796%) and dibromofluoromethane (135%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported.
7/15/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2138177-07 (PB121-13-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The surrogate recoveries are outside the acceptance criteria for toluene-d8 (132%) and 4-bromofluorobenzene (386%) on the Low Level analysis; however, re-analysis was not performed due to obvious interferences. The low run is not reportable and the high run is reported. L2138177-08 (PB121-14-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. L2138177-10 (PB121-16-SS01): VOCs reported for two runs. The IS response for fluorobenzene (48%) and the surrogate recovery for 4-bromofluorobenzene (725%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2138177-24 (PB39-13-SS01): VOCs reported for two runs. The IS response for fluorobenzene (215%) and the surrogate recoveries for dibromofluoromethane (46%) and 4-bromofluorobenzene (152%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported.
7/16/2021	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
7/26/2021	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	

Table H7
Quality Control Checklist
Former Philadelphia Refinery, Philadelphia, PA

	Keyfile-Related		EDD-Related												
							Multiple Results								
Date Sampled	Check Lab Login and Keyfile	Check COC/Field Notes Uploaded	Check Sample IDs	Check Analyte List Reported	Review EDD for Issues	Check Dates, Matrix and Sample Type	Reported	Surrogate Recovery	Data Qualifiers	Reasonable Limits	Other	Resolved	Check for Concerning Qualifiers	Comments
7/27/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2140301-06 (PB37-15-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. L2140301-07 (PB37-12-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (140%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The low run is not reportable and the high run is reported. L2140301-10 (PB37-02-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for 4-bromofluorobenzene (163%) due to obvious interferences. A copy of the chromatogram is included as an attachment to this report. The sample was analyzed as a High Level Methanol in order to quantitate result(s) within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. The low run is not reportable and the high run is reported.
10/4/2021	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2153851-07 (PB-204-07-SS01): VOCs reported for two runs. The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (42%) due to interference with the IS. The low run is not reportable and the high run is reported. L2153851-11 (PB-204-11-SS01): VOCs reported for two runs. The IS response for fluorobenzene (205%) and the surrogate recoveries for 1,2-dichloroethane-d4 (63%), 4-bromofluorobenzene (226%), and dibromofluoromethane (34%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported.
10/5/2021	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
2/8/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes		L2206606-15 (PB-27-18-0.0-0.5): VOCs reported for two runs. The sample was analyzed as a High Level Methanol based upon screen results. The sample was then analyzed as a Low Level in order to achieve lower reporting limits. The results of both analyses are reported. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
2/8/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2206607-02 (PB-28-08-SS01): VOCs reported for two runs. The surrogate recoveries were outside the acceptance criteria for 1,2-dichloroethane-d4 (68%) and 4-bromofluorobenzene (132%) due to obvious interferences. The low run is not reportable and the high run is reported.
2/9/2022	Pass	Pass	Pass	Pass	Pass	Pass	No							
2/9/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2206907-01 (L2206907-01): VOCs reported for two runs. The surrogate recoveries are outside the method acceptance criteria for 1,2-dichloroethane-d4 (63%) and dibromofluoromethane (63%) due to interference with the IS. The low run is not reportable and the high run is reported. L2206907-10 (FB-220209): 1,2,-Dibromoethane was reported for two runs under methods 8260 and 8011. The 8011 run is reported.
2/10/2022	Pass	Pass	Pass	Pass	Pass	Pass	No							
2/10/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2207185-04 (PB-36-14-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. L2207185-06 (PB-35-09-SS01): VOCs reported for two runs. The surrogate recovery is outside the acceptance criteria for toluene-d8 (158%). The low run is not reportable and the high run is reported. L2207185-07 (PB-35-10-SS01): VOCs reported for two runs. The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (63%) due to interference with the IS. The surrogate recoveries are outside the acceptance criteria for toluene-d8 (134%) and 4-bromofluorobenzene (145%). The low run is not reportable and the high run is reported. L2207185-08 (PB-35-11-SS01): VOCs reported for two runs. The IS response for fluorobenzene (257%) and the surrogate recovery for dibromofluoromethane (31%), toluene-d8 (332%) and 4-bromofluorobenzene (8050%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. L2207185-09 (PB-35-13-SS01): VOCs reported for two runs. The IS response for fluorobenzene (451%) and the surrogate recoveries for 4-bromofluorobenzene (49%), dibromofluoromethane (19%), and toluene-d8 (492%) were outside the acceptance criteria due to obvious interferences. The low run is not reportable and the high run is reported. The low run is not reportable and the high run is reported. L2207185-10 (PB-35-14-SS01): VOCs reported for two runs. The surrogate recoveries are outside the acceptance criteria for toluene-d8 (166%) and 4-bromofluorobenzene (321%). The surrogate recovery is outside the method acceptance criteria for dibromofluoromethane (62%) due to interference with the IS. The low run is not reportable and the high run is reported.
2/11/2022	Pass	Pass	Pass	Pass	Pass	Pass	No							
2/11/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
2/14/2022	Pass	Pass	Pass	Pass	Pass	Pass	No							
2/14/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2207792-02 (PB-43-02-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
2/15/2022	Pass	Pass	Pass	Pass	Pass	Pass	No							
2/15/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	

Table H7
Quality Control Checklist
Former Philadelphia Refinery, Philadelphia, PA

	Keyfile-Related		EDD-Related											
							Multiple Results							
Date Sampled	Check Lab Login and Keyfile	Check COC/Field Notes Uploaded	Check Sample IDs	Check Analyte List Reported	Review EDD for Issues	Check Dates, Matrix and Sample Type	Reported	Surrogate Recovery	Data Qualifiers	Reasonable Limits	Other	Resolved	Check for Concerning Qualifiers	Comments
2/16/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2208279-13 (PB-128-11-SS01): VOCs reported for two runs. The sample was analyzed as a High Level Methanol in order to quantitate results within the calibration range. The result should be considered estimated, and is qualified with an E flag, for any compound that exceeded the calibration on the initial Low Level analysis. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable.
2/7/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
2/23/2022 (2/8/2022)	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
11/21/2022 & 11/22/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
11/23/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
11/28/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
11/30/2011 & 12/1/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/2/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/6/2022 & 12/7/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/7/2022 & 12/8/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/9/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/20/2022	Pass	Pass	Pass	Pass	Pass	Pass	No						Pass	
12/20/2022, 12/21/2022, 12/22/2022	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2272201-03 (FB-221220): VOCs reported for two runs. The Field Blank has a result for Benzene present above the reporting limit. The sample was reanalyzed and did not confirm the original results. If both results are detected, the higher of detections is selected as reportable; if one result is detected and one is non-detect, the detection is selected as reportable; if both results are non-detect, the lower reporting limit is selected as reportable. 12DBA was reported on 8011 and 8260 for all samples. There were no detections and 8011 consistently had lower limits. 12DBA analyzed under 8011 is selected as reportable for all samples.
1/3/2023, 1/4/2023	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	L2300373-21 (PB-847-15R-17.0-17.5): VOCs reported for two runs. The IS response for fluorobenzene (479%) and the surrogate recoveries for dibromofluoromethane (35%) and 4-bromofluorobenzene (675%) were outside the acceptance criteria due to obvious interferences. The run with more surrogates recoveries outside acceptance criteria is not reported and the run with fewer surrogate recoveries outside of acceptance criteria is selected as reportable. The high run is reported and the low run is not reportable.
1/23/2023, 1/24/2023	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes		1,2-Dibromomethane reported for two runs for all samples. If both results are non-detect, the lower reporting limit is selected as reportable.
1/24/2023, 1/25/2023, 1/26/2023	Pass	Pass	Pass	Pass	Pass	Pass	Yes	Yes	Yes	Yes	Yes	Yes	Pass	1,2-Dibromomethane reported for two runs for all samples. If both results are non-detect, the lower reporting limit is selected as reportable.

Table H8
BDH Soil RPD Calculations
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Benzene	71-43-2	T	15%	1.2	1.40E+00		5.30E-02	1.20E+00		4.90E-02	1.30E+00		5.10E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Cumene	98-82-8	T	24%	1.3	1.50E+00		1.00E-01	1.90E+00		9.80E-02	1.70E+00		9.90E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	1,2-Dibromoethane	106-93-4	T	8%	1.1		U	5.30E-02		U	4.90E-02		U	5.10E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	1,2-Dichloroethane	107-06-2	T	2%	1.0		U	1.00E-01		U	9.80E-02		U	9.90E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Ethyl Benzene	100-41-4	T	4%	1.0	5.40E-01		1.00E-01	5.20E-01		9.80E-02	5.30E-01		9.90E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	5%	1.1		U	2.10E-01		U	2.00E-01		U	2.05E-01	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Toluene	108-88-3	T	26%	1.3	1.30E+00		1.00E-01	1.00E+00		9.80E-02	1.15E+00		9.90E-02	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	73%	2.2	3.90E+00		2.10E-01	8.40E+00		2.00E-01	6.15E+00		2.05E-01	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	82%	2.4	1.50E+00		2.10E-01	3.60E+00		2.00E-01	2.55E+00		2.05E-01	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	VOC	Xylenes (total)	1330-20-7	T	8%	1.1	6.23E+00	J	2.10E-01	6.74E+00	J	2.00E-01	6.49E+00	J	2.05E-01	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	SVOC	Naphthalene	91-20-3	T	46%	1.6	1.00E+00		4.20E-01	1.60E+00		3.90E-01	1.30E+00		4.05E-01	mg/kg
PB-128-05	PB-128-05-SS01	6/22/2021	INORG	Lead	7439-92-1	T	31%	1.4	1.07E+03		2.57E+00	1.47E+03		2.55E+00	1.27E+03		2.56E+00	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Benzene	71-43-2	T	141%	5.8	3.70E-03		8.10E-04		U	6.40E-04	2.01E-03	J	7.25E-04	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Cumene	98-82-8	T	21%	1.2		U	1.60E-03		U	1.30E-03		U	1.45E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	1,2-Dibromoethane	106-93-4	T	23%	1.3		U	8.10E-04		U	6.40E-04		U	7.25E-04	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	1,2-Dichloroethane	107-06-2	T	21%	1.2		U	1.60E-03		U	1.30E-03		U	1.45E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Ethyl Benzene	100-41-4	T	119%	3.9	3.30E-04	J	1.60E-03		U	1.30E-03	4.90E-04	J	1.45E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	21%	1.2		U	3.20E-03		U	2.60E-03		U	2.90E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Toluene	108-88-3	T	161%	9.2	1.20E-02		1.60E-03		U	1.30E-03	6.33E-03	J	1.45E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	21%	1.2		U	3.20E-03		U	2.60E-03		U	2.90E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	21%	1.2		U	3.20E-03		U	2.60E-03		U	2.90E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	VOC	Xylenes (total)	1330-20-7	T	62%	1.9	4.93E-03	J	3.20E-03		U	2.60E-03	3.12E-03	J	2.90E-03	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	SVOC	Naphthalene	91-20-3	T	0%	1.0		U	1.70E-01		U	1.70E-01		U	1.70E-01	mg/kg
PB-128-15	PB-128-15-SS01	2/16/2022	INORG	Lead	7439-92-1	T	55%	1.8	1.35E+01		2.04E+00	7.64E+00		2.05E+00	1.06E+01		2.05E+00	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Benzene	71-43-2	T	81%	2.4		U	2.60E-01	1.10E-01		7.00E-02	1.20E-01	J	1.65E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Cumene	98-82-8	T	91%	2.7	6.00E+00		5.20E-01	1.60E+01		1.40E-01	1.10E+01		3.30E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	1,2-Dibromoethane	106-93-4	T	115%	3.7		U	2.60E-01		U	7.00E-02		U	1.65E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Ethyl Benzene	100-41-4	T	49%	1.7	3.20E+01		5.20E-01	5.30E+01		1.40E+00	4.25E+01		9.60E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	113%	3.6		U	1.00E+00		U	2.80E-01		U	6.40E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Toluene	108-88-3	T	89%	2.6	1.30E+01		5.20E-01	3.40E+01		1.40E-01	2.35E+01		3.30E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	16%	1.2	2.80E+02		5.20E+00	3.30E+02		2.80E+00	3.05E+02		4.00E+00	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	42%	1.5	7.20E+01		1.00E+00	1.10E+02		2.80E+00	9.10E+01		1.90E+00	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	VOC	Xylenes (total)	1330-20-7	T	50%	1.7	2.28E+02	J	1.00E+00	3.80E+02	J	2.80E+00	3.04E+02	J	1.90E+00	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	SVOC	Naphthalene	91-20-3	T	18%	1.2	1.20E+01		5.20E-01	1.00E+01		5.20E-01	1.10E+01		5.20E-01	mg/kg
PB-129-06	TG02-MW-18-10.0-10.5	11/21/2022	INORG	Lead	7439-92-1	T	46%	1.6	6.03E+00		3.98E+00	9.64E+00		4.17E+00	7.84E+00		4.08E+00	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Benzene	71-43-2	T	68%	2.0	1.30E+00		3.00E-02	6.40E-01		3.50E-02	9.70E-01		3.25E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Cumene	98-82-8	T	51%	1.7	3.20E+00		6.10E-02	1.90E+00		7.00E-02	2.55E+00		6.55E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	1,2-Dibromoethane	106-93-4	T	15%	1.2		U	3.00E-02		U	3.50E-02		U	3.25E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	1,2-Dichloroethane	107-06-2	T	14%	1.1		U	6.10E-02		U	7.00E-02		U	6.55E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Ethyl Benzene	100-41-4	T	22%	1.2	5.60E-01		6.10E-02	4.50E-01		7.00E-02	5.05E-01		6.55E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	15%	1.2	2.20E-02	J	1.20E-01	1.90E-02	J	1.40E-01	2.05E-02	J	1.30E-01	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Toluene	108-88-3	T	29%	1.3	3.60E-01		6.10E-02	2.70E-01		7.00E-02	3.15E-01		6.55E-02	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	12%	1.1	7.20E+00		1.20E-01	6.40E+00		1.40E-01	6.80E+00		1.30E-01	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	11%	1.1	2.70E-01		1.20E-01	3.00E-01		1.40E-01	2.85E-01		1.30E-01	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	VOC	Xylenes (total)	1330-20-7	T	9%	1.1	1.33E+00	J	1.20E-01	1.21E+00	J	1.40E-01	1.27E+00	J	1.30E-01	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	SVOC	Naphthalene	91-20-3	T	32%	1.4	3.30E+00		2.40E-01	2.40E+00		2.80E-01	2.85E+00		2.60E-01	mg/kg
PB-27-04	PB-27-04-SS01	6/8/2021	INORG	Lead	7439-92-1	T	118%	3.9	3.92E+02		2.32E+00	1.01E+02		2.39E+00	2.47E+02		2.36E+00	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Benzene	71-43-2	T	96%	2.8	1.80E-04	J	5.10E-04		U	5.10E-04	2.18E-04	J	5.10E-04	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Cumene	98-82-8	T	13%	1.1	1.40E-02		1.00E-03	1.60E-02		1.00E-03	1.50E-02		1.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	1,2-Dibromoethane	106-93-4	T	0%	1.0		U	5.10E-04		U	5.10E-04		U	5.10E-04	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	1.00E-03		U	1.00E-03		U	1.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Ethyl Benzene	100-41-4	T	0%	1.0		U	1.00E-03		U	1.00E-03		U	1.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	0%	1.0		U	2.00E-03		U	2.00E-03		U	2.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Toluene	108-88-3	T	40%	1.5		U	1.00E-03	6.70E-04	J	1.00E-03	5.85E-04	J	1.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	0%	1.0		U	2.00E-03		U	2.00E-03		U	2.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	0%	1.0		U	2.00E-03		U	2.00E-03		U	2.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	VOC	Xylenes (total)	1330-20-7	T	6%	1.1	1.64E-03	J	2.00E-03	1.74E-03	J	2.00E-03	1.69E-03	J	2.00E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Anthracene	120-12-7	T	83%	2.4		U	8.30E-03	2.00E-02		8.10E-03	1.21E-02	J	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Benzo(a)anthracene	56-55-3	T	11%	1.1	9.90E-04	J	8.30E-03	1.10E-03	J	8.10E-03	1.05E-03	J	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Benzo(a)pyrene	50-32-8	T	2%	1.0		U	8.30E-03		U	8.10E-03		U	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Benzo(b)fluoranthene	205-99-2	T	164%	10.2		U	8.30E-03	8.10E-04	J	8.10E-03	2.48E-03	J	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Benzo(g,h,i)perylene	191-24-2	T	2%	1.0		U	8.30E-03		U	8.10E-03		U	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Chrysene	218-01-9	T	57%	1.8	1.10E-03	J	8.30E-03	6.10E-04	J	8.10E-03	8.55E-04	J	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Fluorene	86-73-7	T	73%	2.2	2.80E-01		8.30E-03	1.30E-01		8.10E-03	2.05E-01		8.20E-03	mg/kg

Table H8
BDH Soil RPD Calculations
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Naphthalene	91-20-3	T	126%	4.4	4.20E-02		8.30E-03	9.50E-03		8.10E-03	2.58E-02		8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Phenanthrene	85-01-8	T	67%	2.0	3.20E-01		8.30E-03	1.60E-01		8.10E-03	2.40E-01		8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	SVOC	Pyrene	129-00-0	T	64%	1.9	8.70E-03		8.30E-03	4.50E-03	J	8.10E-03	6.60E-03	J	8.20E-03	mg/kg
PB-28-16	PB-28-16-SS01	6/9/2021	INORG	Lead	7439-92-1	T	10%	1.1	7.88E+00		2.41E+00	7.15E+00		2.37E+00	7.52E+00		2.39E+00	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Benzene	71-43-2	T	100%	3.0	1.20E+00		3.00E-02	3.60E+00		2.70E-02	2.40E+00		2.85E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Cumene	98-82-8	T	143%	6.1	1.70E-01		5.90E-02	2.80E-02	J	5.40E-02	9.90E-02	J	5.65E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	1,2-Dibromoethane	106-93-4	T	194%	65.2		U	3.00E-02		U	4.60E-04		U	1.52E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	1,2-Dichloroethane	107-06-2	T	194%	64.1		U	5.90E-02		U	9.20E-04		U	3.00E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Ethyl Benzene	100-41-4	T	86%	2.5	1.30E+00		5.90E-02	5.20E-01		5.40E-02	9.10E-01		5.65E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	74%	2.2	9.20E-01		1.20E-01	2.00E+00		1.10E-01	1.46E+00		1.15E-01	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Toluene	108-88-3	T	107%	3.3	5.30E-01		5.90E-02	1.60E-01		5.40E-02	3.45E-01		5.65E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	181%	19.5	8.60E+00		1.20E-01	4.40E-01		1.10E-01	4.52E+00		1.15E-01	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	178%	16.9	2.70E+00		1.20E-01	1.60E-01		1.10E-01	1.43E+00		1.15E-01	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	VOC	Xylenes (total)	1330-20-7	T	149%	6.8	6.40E+00	J	1.20E-01	9.40E-01	J	1.10E-01	3.67E+00	J	1.15E-01	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Anthracene	120-12-7	T	150%	7.0	1.40E-02	J	4.00E-02	2.00E-03	J	7.50E-03	8.00E-03	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Benzo(a)anthracene	56-55-3	T	158%	8.6	3.10E-02	J	4.00E-02	3.60E-03	J	7.50E-03	1.73E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Benzo(a)pyrene	50-32-8	T	144%	6.2	1.80E-02	J	4.00E-02	2.90E-03	J	7.50E-03	1.05E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Benzo(b)fluoranthene	205-99-2	T	138%	5.5	2.20E-02	J	4.00E-02	4.00E-03	J	7.50E-03	1.30E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Benzo(g,h,i)perylene	191-24-2	T	128%	4.6	1.60E-02	J	4.00E-02	3.50E-03	J	7.50E-03	9.75E-03	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Chrysene	218-01-9	T	144%	6.2	1.80E-02	J	4.00E-02	2.90E-03	J	7.50E-03	1.05E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Fluorene	86-73-7	T	151%	7.1	4.00E-02		4.00E-02	5.60E-03	J	7.50E-03	2.28E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Naphthalene	91-20-3	T	142%	5.9	2.60E+00		4.00E-02	4.40E-01		7.50E-03	1.52E+00		2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Phenanthrene	85-01-8	T	148%	6.6	7.30E-02		4.00E-02	1.10E-02		7.50E-03	4.20E-02		2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	SVOC	Pyrene	129-00-0	T	156%	8.0	4.40E-02		4.00E-02	5.50E-03	J	7.50E-03	2.48E-02	J	2.38E-02	mg/kg
PB-29-11	PB-29-11-SS01	6/10/2021	INORG	Lead	7439-92-1	T	53%	1.7	5.15E+00		2.35E+00	8.85E+00		2.23E+00	7.00E+00		2.29E+00	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Benzene	71-43-2	T	42%	1.5	4.60E+01		1.60E-01	3.00E+01		1.40E-01	3.80E+01		1.50E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Cumene	98-82-8	T	44%	1.6	1.20E+01		3.20E-01	7.70E+00		2.70E-01	9.85E+00		2.95E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	1,2-Dibromoethane	106-93-4	T	13%	1.1		U	1.60E-01		U	1.40E-01		U	1.50E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	1,2-Dichloroethane	107-06-2	T	17%	1.2		U	3.20E-01		U	2.70E-01		U	2.95E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Ethyl Benzene	100-41-4	T	41%	1.5	8.30E+01		3.20E-01	5.50E+01		2.70E-01	6.90E+01		2.95E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	30%	1.4	5.30E-01	J	6.30E-01	3.90E-01	J	5.40E-01	4.60E-01	J	5.85E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Toluene	108-88-3	T	18%	1.2	1.80E+02		1.30E+00	1.50E+02		1.40E+00	1.65E+02		1.35E+00	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	18%	1.2	1.80E+02		2.50E+00	1.50E+02		2.70E+00	1.65E+02		2.60E+00	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	38%	1.5	5.30E+01		6.30E-01	3.60E+01		5.40E-01	4.45E+01		5.85E-01	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	VOC	Xylenes (total)	1330-20-7	T	28%	1.3	4.10E+02	J	2.50E+00	3.10E+02	J	2.70E+00	3.60E+02	J	2.60E+00	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	SVOC	Naphthalene	91-20-3	T	42%	1.5	1.50E+01		1.30E+00	9.80E+00		1.10E+00	1.24E+01		1.20E+00	mg/kg
PB-33-05	PB-33-05-SS01	6/11/2021	INORG	Lead	7439-92-1	T	37%	1.5	1.30E+01		2.37E+00	8.92E+00		2.36E+00	1.10E+01		2.37E+00	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Benzene	71-43-2	T	112%	3.6	7.30E-01		2.60E-02	2.60E+00		4.30E-02	1.67E+00		3.45E-02	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Cumene	98-82-8	T	190%	40.0	3.00E-02	J	5.30E-02	1.20E+00		8.60E-02	6.15E-01	J	6.95E-02	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	1,2-Dibromoethane	106-93-4	T	49%	1.7		U	2.60E-02		U	4.30E-02		U	3.45E-02	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	1,2-Dichloroethane	107-06-2	T	47%	1.6		U	5.30E-02		U	8.60E-02		U	6.95E-02	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Ethyl Benzene	100-41-4	T	197%	126.7	1.50E-01		5.30E-02	1.90E+01		8.60E-02	9.58E+00		6.95E-02	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	88%	2.6	6.60E-02	J	1.00E-01		U	1.70E-01	7.55E-02	J	1.35E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Toluene	108-88-3	T	199%	792.5		U	5.30E-02	4.20E+01		8.60E-01	2.10E+01	J	4.57E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	199%	711.5	5.20E-02	J	1.00E-01	3.70E+01		1.70E+00	1.85E+01	J	9.00E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	197%	130.0		U	1.00E-01	1.30E+01		1.70E-01	6.53E+00	J	1.35E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	VOC	Xylenes (total)	1330-20-7	T	200%	1100.0		U	1.00E-01	1.10E+02	J	1.70E+00	5.50E+01	J	9.00E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	SVOC	Naphthalene	91-20-3	T	131%	4.8	6.20E-01		1.90E-01	1.30E-01	J	1.90E-01	3.75E-01	J	1.90E-01	mg/kg
PB-35-11	PB-35-11-SS01	2/10/2022	INORG	Lead	7439-92-1	T	159%	8.7	1.73E+02		2.29E+00	1.50E+03		1.15E+01	8.37E+02		6.90E+00	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Benzene	71-43-2	T	101%	3.0	1.40E-03		5.10E-04		U	4.60E-04	8.15E-04	J	4.85E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Cumene	98-82-8	T	198%	206.5	1.90E-01		1.00E-03		U	9.20E-04	9.52E-02	J	9.60E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	1,2-Dibromoethane	106-93-4	T	10%	1.1		U	5.10E-04		U	4.60E-04		U	4.85E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	1,2-Dichloroethane	107-06-2	T	8%	1.1		U	1.00E-03		U	9.20E-04		U	9.60E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Ethyl Benzene	100-41-4	T	47%	1.6	5.70E-04	J	1.00E-03		U	9.20E-04	5.15E-04	J	9.60E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	127%	4.5	4.00E-04	J	2.00E-03		U	1.80E-03	6.50E-04	J	1.90E-03	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Toluene	108-88-3	T	98%	2.9	2.70E-03		1.00E-03		U	9.20E-04	1.58E-03	J	9.60E-04	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	11%	1.1		U	2.00E-03		U	1.80E-03		U	1.90E-03	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	121%	4.1	4.40E-04	J	2.00E-03		U	1.80E-03	6.70E-04	J	1.90E-03	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	VOC	Xylenes (total)	1330-20-7	T	105%	3.2	5.80E-03	J	2.00E-03		U	1.80E-03	3.35E-03	J	1.90E-03	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	SVOC	Naphthalene	91-20-3	T	31%	1.4	2.70E-03	J	4.10E-03		U	3.70E-03	2.28E-03	J	3.90E-03	mg/kg
PB-36-08	PB-36-08-SS01	10/5/2021	INORG	Lead	7439-92-1	T	108%	3.3	8.03E+00		2.47E+00	2.68E+01		2.35E+00	1.74E+01		2.41E+00	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Benzene	71-43-2	T	198%	161.3	1.00E-01		6.10E-04		U	6.20E-04	5.02E-02	J	6.15E-04	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Cumene	98-82-8	T	184%	23.3	2.80E-02		1.20E-03		U	1.20E-03	1.43E-02	J	1.20E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	1,2-Dibromoethane	106-93-4	T	2%	1.0		U	6.10E-04		U	6.20E-04		U	6.15E-04	mg/kg

Table H8
BDH Soil RPD Calculations
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	1.20E-03		U	1.20E-03		U	1.20E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Ethyl Benzene	100-41-4	T	123%	4.2	5.00E-03		1.20E-03		U	1.20E-03	2.80E-03	J	1.20E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	4%	1.0	2.40E-03		2.40E-03		U	2.50E-03	1.83E-03	J	2.45E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Toluene	108-88-3	T	170%	12.5	1.50E-02		1.20E-03		U	1.20E-03	7.80E-03	J	1.20E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	84%	2.4	6.10E-03		2.40E-03		U	2.50E-03	3.68E-03	J	2.45E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	85%	2.5	6.20E-03		2.40E-03		U	2.50E-03	3.73E-03	J	2.45E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	VOC	Xylenes (total)	1330-20-7	T	178%	17.2	4.29E-02	J	2.40E-03		U	2.50E-03	2.21E-02	J	2.45E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	SVOC	Naphthalene	91-20-3	T	2%	1.0		U	4.90E-03		U	5.00E-03		U	4.95E-03	mg/kg
PB-38-01	PB-38-01-SS01	7/16/2021	INORG	Lead	7439-92-1	T	48%	1.6	1.10E+02		2.60E+00	1.79E+02		2.20E+00	1.45E+02		2.40E+00	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Benzene	71-43-2	T	198%	159.3	2.70E-03		4.10E-04	4.30E-01		2.90E-02	2.16E-01		1.47E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Cumene	98-82-8	T	200%	1100.0	2.00E-04	J	8.20E-04	2.20E-01		5.80E-02	1.10E-01	J	2.94E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	1,2-Dibromoethane	106-93-4	T	194%	70.7		U	4.10E-04		U	2.90E-02		U	1.47E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	1,2-Dichloroethane	107-06-2	T	194%	70.7		U	8.20E-04		U	5.80E-02		U	2.94E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Ethyl Benzene	100-41-4	T	200%	6500.0	2.00E-04	J	8.20E-04	1.30E+00		5.80E-02	6.50E-01	J	2.94E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	195%	75.0		U	1.60E-03		U	1.20E-01		U	6.08E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Toluene	108-88-3	T	191%	45.1		U	8.20E-04	3.70E-02	J	5.80E-02	1.87E-02	J	2.94E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	200%	8666.7	3.00E-04	J	1.60E-03	2.60E+00		1.20E-01	1.30E+00	J	6.08E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	197%	137.5		U	1.60E-03	2.20E-01		1.20E-01	1.10E-01	J	6.08E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	VOC	Xylenes (total)	1330-20-7	T	200%	1497.3	1.10E-03	J	1.60E-03	1.65E+00	J	1.20E-01	8.24E-01	J	6.08E-02	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	SVOC	Naphthalene	91-20-3	T	200%	3584.9	5.30E-04	J	3.30E-03	1.90E+00		2.30E-01	9.50E-01	J	1.17E-01	mg/kg
PB-40-06	PB-40-06-SS01	6/21/2021	INORG	Lead	7439-92-1	T	157%	8.3	2.47E+02		2.32E+00	2.98E+01		2.20E+00	1.38E+02		2.26E+00	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	Benzene	71-43-2	T	133%	5.0	6.80E-02		3.80E-02	3.40E-01		3.60E-02	2.04E-01		3.70E-02	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	Cumene	98-82-8	T	144%	6.2	7.30E-02	J	7.50E-02	4.50E-01		7.20E-02	2.62E-01	J	7.35E-02	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	Ethyl Benzene	100-41-4	T	128%	4.5	2.20E-01		7.50E-02	1.00E+00		7.20E-02	6.10E-01		7.35E-02	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	7%	1.1		U	1.50E-01		U	1.40E-01		U	1.45E-01	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	Toluene	108-88-3	T	15%	1.2		U	7.50E-02	8.70E-02		7.20E-02	6.23E-02	J	7.35E-02	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	139%	5.6	7.90E-01		1.50E-01	4.40E+00		1.40E-01	2.60E+00		1.45E-01	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	133%	5.0	2.00E-01		1.50E-01	9.90E-01		1.40E-01	5.95E-01		1.45E-01	mg/kg
PB-42-14	PB-42-14-SS01	6/24/2021	SVOC	Naphthalene	91-20-3	T	128%	4.6	2.40E-01	J	3.00E-01	1.10E+00		2.90E-01	6.70E-01	J	2.95E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	Benzene	71-43-2	T	13%	1.1		U	1.50E-01		U	1.70E-01		U	1.60E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	Cumene	98-82-8	T	9%	1.1	6.10E-01		3.10E-01	6.70E-01		3.40E-01	6.40E-01		3.25E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	Ethyl Benzene	100-41-4	T	7%	1.1	4.20E-01		3.10E-01	4.50E-01		3.40E-01	4.35E-01		3.25E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	Methyl tert-butyl ether	1634-04-4	T	8%	1.1		U	6.20E-01		U	6.70E-01		U	6.45E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	Toluene	108-88-3	T	9%	1.1		U	3.10E-01		U	3.40E-01		U	3.25E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	1,2,4-Trimethylbenzene	95-63-6	T	18%	1.2	1.20E+02		1.20E+00	1.00E+02		1.30E+00	1.10E+02		1.25E+00	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	VOC	1,3,5-Trimethylbenzene	108-67-8	T	0%	1.0	3.70E+01		6.20E-01	3.70E+01		6.70E-01	3.70E+01		6.45E-01	mg/kg
PB-84-09	PB-84-09-SS01	6/24/2021	SVOC	Naphthalene	91-20-3	T	7%	1.1	1.30E+01		1.20E+00	1.40E+01		1.30E+00	1.35E+01		1.25E+00	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	Benzene	71-43-2	T	200%	2000.0		U	7.00E-04	1.40E+00		3.80E-01	7.00E-01	J	1.90E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	Cumene	98-82-8	T	199%	772.7	2.20E-02		1.40E-03	1.70E+01		7.60E-01	8.51E+00		3.81E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	Ethyl Benzene	100-41-4	T	200%	13571.4		U	1.40E-03	1.90E+01		7.60E-01	9.50E+00	J	3.81E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	199%	535.7		U	2.80E-03		U	1.50E+00		U	7.51E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	Toluene	108-88-3	T	200%	2000.0		U	1.40E-03	2.80E+00		7.60E-01	1.40E+00	J	3.81E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	200%	189285.7		U	2.80E-03	5.30E+02		7.60E+00	2.65E+02	J	3.80E+00	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	200%	46428.6		U	2.80E-03	1.30E+02		1.50E+00	6.50E+01	J	7.51E-01	mg/kg
PB-84-14	PB-84-14-SS01	2/15/2022	SVOC	Naphthalene	91-20-3	T	52%	1.7		U	2.00E-01	3.40E-01		1.80E-01	2.20E-01	J	1.90E-01	mg/kg

Table H9
BDH Groundwater RPD Calculations
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Benzene	71-43-2	T	9%	1.1	1.00E+01		5.00E-02	9.10E+00		5.00E-02	9.55E+00		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Benzene	71-43-2	T	9%	1.1	1.00E+01		5.00E-02	9.10E+00		5.00E-02	9.55E+00		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Cumene	98-82-8	T	13%	1.1	5.70E-02		5.00E-02	5.00E-02		5.00E-02	5.35E-02		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Cumene	98-82-8	T	13%	1.1	5.70E-02		5.00E-02	5.00E-02		5.00E-02	5.35E-02		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2-Dibromoethane	106-93-4	T	0%	1.0		U	1.00E-05		U	1.00E-05		U	1.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2-Dibromoethane	106-93-4	T	0%	1.0		U	1.00E-05		U	1.00E-05		U	1.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	5.00E-02		U	5.00E-02		U	5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	5.00E-02		U	5.00E-02		U	5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Ethyl Benzene	100-41-4	T	9%	1.1	3.60E-01		5.00E-02	3.30E-01		5.00E-02	3.45E-01		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Ethyl Benzene	100-41-4	T	9%	1.1	3.60E-01		5.00E-02	3.30E-01		5.00E-02	3.45E-01		5.00E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Methyl tert-butyl ether	1634-04-4	T	7%	1.1	1.40E+00		1.00E-01	1.30E+00		1.00E-01	1.35E+00		1.00E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Methyl tert-butyl ether	1634-04-4	T	7%	1.1	1.40E+00		1.00E-01	1.30E+00		1.00E-01	1.35E+00		1.00E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Toluene	108-88-3	T	14%	1.2	1.50E-01		7.50E-02	1.30E-01		7.50E-02	1.40E-01		7.50E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Toluene	108-88-3	T	14%	1.2	1.50E-01		7.50E-02	1.30E-01		7.50E-02	1.40E-01		7.50E-02	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4%	1.0	2.60E-01		2.50E-01	2.50E-01		2.50E-01	2.55E-01		2.50E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4%	1.0	2.60E-01		2.50E-01	2.50E-01		2.50E-01	2.55E-01		2.50E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,3,5-Trimethylbenzene	108-67-8	T	12%	1.1	7.00E-02	J	2.50E-01	6.20E-02	J	2.50E-01	6.60E-02	J	2.50E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	1,3,5-Trimethylbenzene	108-67-8	T	12%	1.1	7.00E-02	J	2.50E-01	6.20E-02	J	2.50E-01	6.60E-02	J	2.50E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Xylenes (total)	1330-20-7	T	4%	1.0	1.08E+00	J	1.00E-01	1.04E+00	J	1.00E-01	1.06E+00	J	1.00E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	VOC	Xylenes (total)	1330-20-7	T	4%	1.0	1.08E+00	J	1.00E-01	1.04E+00	J	1.00E-01	1.06E+00	J	1.00E-01	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Anthracene	120-12-7	T	15%	1.2	2.10E-04		1.00E-04	1.80E-04		1.00E-04	1.95E-04		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Anthracene	120-12-7	T	15%	1.2	2.10E-04		1.00E-04	1.80E-04		1.00E-04	1.95E-04		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(a)anthracene	56-55-3	T	22%	1.3	4.00E-05	J	5.00E-05	5.00E-05		5.00E-05	4.50E-05	J	5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(a)anthracene	56-55-3	T	22%	1.3	4.00E-05	J	5.00E-05	5.00E-05		5.00E-05	4.50E-05	J	5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(a)pyrene	50-32-8	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(a)pyrene	50-32-8	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(b)fluoranthene	205-99-2	T	50%	1.7		U	5.00E-05	3.00E-05	J	5.00E-05	2.75E-05	J	5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(b)fluoranthene	205-99-2	T	50%	1.7		U	5.00E-05	3.00E-05	J	5.00E-05	2.75E-05	J	5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(g,h,i)perylene	191-24-2	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Benzo(g,h,i)perylene	191-24-2	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Chrysene	218-01-9	T	50%	1.7	3.00E-05	J	1.00E-04	5.00E-05	J	1.00E-04	4.00E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Chrysene	218-01-9	T	50%	1.7	3.00E-05	J	1.00E-04	5.00E-05	J	1.00E-04	4.00E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Fluorene	86-73-7	T	0%	1.0	1.40E-03		1.00E-04	1.40E-03		1.00E-04	1.40E-03		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Fluorene	86-73-7	T	0%	1.0	1.40E-03		1.00E-04	1.40E-03		1.00E-04	1.40E-03		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	133%	5.0		U	1.00E-04	2.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Naphthalene	91-20-3	T	0%	1.0	1.70E-01		5.00E-04	1.70E-01		5.00E-04	1.70E-01		5.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Naphthalene	91-20-3	T	0%	1.0	1.70E-01		5.00E-04	1.70E-01		5.00E-04	1.70E-01		5.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Phenanthrene	85-01-8	T	5%	1.1	1.90E-03		5.00E-05	1.80E-03		5.00E-05	1.85E-03		5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Phenanthrene	85-01-8	T	5%	1.1	1.90E-03		5.00E-05	1.80E-03		5.00E-05	1.85E-03		5.00E-05	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Pyrene	129-00-0	T	7%	1.1	1.30E-04		1.00E-04	1.40E-04		1.00E-04	1.35E-04		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	SVOC	Pyrene	129-00-0	T	7%	1.1	1.30E-04		1.00E-04	1.40E-04		1.00E-04	1.35E-04		1.00E-04	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	INORG	Lead	7439-92-1	D	0%	1.0		U	1.00E-03		U	1.00E-03		U	1.00E-03	MG/L
TG02-MW-01	TG02-MW-01-230123	1/23/2023	INORG	Lead	7439-92-1	D	0%	1.0		U	1.00E-03		U	1.00E-03		U	1.00E-03	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Benzene	71-43-2	T	5%	1.1	2.00E+00		1.00E-02	2.10E+00		1.00E-02	2.05E+00		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Benzene	71-43-2	T	5%	1.1	2.00E+00		1.00E-02	2.10E+00		1.00E-02	2.05E+00		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Cumene	98-82-8	T	10%	1.1	4.00E-02		1.00E-02	4.40E-02		1.00E-02	4.20E-02		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Cumene	98-82-8	T	10%	1.1	4.00E-02		1.00E-02	4.40E-02		1.00E-02	4.20E-02		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2-Dibromoethane	106-93-4	T	0%	1.0		U	1.00E-05		U	1.00E-05		U	1.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2-Dibromoethane	106-93-4	T	0%	1.0		U	1.00E-05		U	1.00E-05		U	1.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	1.00E-02		U	1.00E-02		U	1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2-Dichloroethane	107-06-2	T	0%	1.0		U	1.00E-02		U	1.00E-02		U	1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Ethyl Benzene	100-41-4	T	4%	1.0	2.30E-01		1.00E-02	2.40E-01		1.00E-02	2.35E-01		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Ethyl Benzene	100-41-4	T	4%	1.0	2.30E-01		1.00E-02	2.40E-01		1.00E-02	2.35E-01		1.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	2%	1.0	6.40E-02		2.00E-02	6.50E-02		2.00E-02	6.45E-02		2.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Methyl tert-butyl ether	1634-04-4	T	2%	1.0	6.40E-02		2.00E-02	6.50E-02		2.00E-02	6.45E-02		2.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Toluene	108-88-3	T	4%	1.0	2.30E-01		1.50E-02	2.40E-01		1.50E-02	2.35E-01		1.50E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Toluene	108-88-3	T	4%	1.0	2.30E-01		1.50E-02	2.40E-01		1.50E-02	2.35E-01		1.50E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4%	1.0	9.60E-01		5.00E-02	1.00E+00		5.00E-02	9.80E-01		5.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,2,4-Trimethylbenzene	95-63-6	T	4%	1.0	9.60E-01		5.00E-02	1.00E+00		5.00E-02	9.80E-01		5.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	8%	1.1	2.50E-01		5.00E-02	2.70E-01		5.00E-02	2.60E-01		5.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	1,3,5-Trimethylbenzene	108-67-8	T	8%	1.1	2.50E-01		5.00E-02	2.70E-01		5.00E-02	2.60E-01		5.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Xylenes (total)	1330-20-7	T	4%	1.0	4.60E+00	J	2.00E-02	4.80E+00	J	2.00E-02	4.70E+00	J	2.00E-02	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	VOC	Xylenes (total)	1330-20-7	T	4%	1.0	4.60E+00	J	2.00E-02	4.80E+00	J	2.00E-02	4.70E+00	J	2.00E-02	MG/L

Table H9
BDH Groundwater RPD Calculations
Tank Group 02
Bellwether District Holdings, LLC, Philadelphia, PA

Location Code	Sample Name	Sample Date	Chem Group	PARAMNAME	CASRN	Total or Dissolved	RPD	Ratio	Primary Result	Primary Qualifier	Primary Limit	Duplicate Result	Duplicate Qualifier	Duplicate Limit	Average Result	Average Qualifier	Average Limit	Result Unit
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Anthracene	120-12-7	T	32%	1.4	8.00E-05	J	1.00E-04	1.10E-04		1.00E-04	9.50E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Anthracene	120-12-7	T	32%	1.4	8.00E-05	J	1.00E-04	1.10E-04		1.00E-04	9.50E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(a)anthracene	56-55-3	T	22%	1.3	4.00E-05	J	5.00E-05	5.00E-05	J	5.00E-05	4.50E-05	J	5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(a)anthracene	56-55-3	T	22%	1.3	4.00E-05	J	5.00E-05	5.00E-05	J	5.00E-05	4.50E-05	J	5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(a)pyrene	50-32-8	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(a)pyrene	50-32-8	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	0%	1.0		U	5.00E-05		U	5.00E-05		U	5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(b)fluoranthene	205-99-2	T	0%	1.0		U	5.00E-05		U	5.00E-05		U	5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Benzo(g,h,i)perylene	191-24-2	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Chrysene	218-01-9	T	108%	3.3	3.00E-05	J	1.00E-04		U	1.00E-04	4.00E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Chrysene	218-01-9	T	108%	3.3	3.00E-05	J	1.00E-04		U	1.00E-04	4.00E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Fluorene	86-73-7	T	34%	1.4	1.20E-03		1.00E-04	1.70E-03		1.00E-04	1.45E-03		1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Fluorene	86-73-7	T	34%	1.4	1.20E-03		1.00E-04	1.70E-03		1.00E-04	1.45E-03		1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Indeno(1,2,3-cd)pyrene	193-39-5	T	0%	1.0		U	1.00E-04		U	1.00E-04		U	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Naphthalene	91-20-3	T	18%	1.2	1.50E-01		5.00E-04	1.80E-01		5.00E-04	1.65E-01		5.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Naphthalene	91-20-3	T	18%	1.2	1.50E-01		5.00E-04	1.80E-01		5.00E-04	1.65E-01		5.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Phenanthrene	85-01-8	T	29%	1.3	1.20E-03		5.00E-05	1.60E-03		5.00E-05	1.40E-03		5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Phenanthrene	85-01-8	T	29%	1.3	1.20E-03		5.00E-05	1.60E-03		5.00E-05	1.40E-03		5.00E-05	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Pyrene	129-00-0	T	29%	1.3	3.00E-05	J	1.00E-04	4.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	SVOC	Pyrene	129-00-0	T	29%	1.3	3.00E-05	J	1.00E-04	4.00E-05	J	1.00E-04	3.50E-05	J	1.00E-04	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	INORG	Lead	7439-92-1	D	4%	1.0	3.57E-03		1.00E-03	3.43E-03		1.00E-03	3.50E-03		1.00E-03	MG/L
TG02-MW-02	TG02-MW-02-221220	12/20/2022	INORG	Lead	7439-92-1	D	4%	1.0	3.57E-03		1.00E-03	3.43E-03		1.00E-03	3.50E-03		1.00E-03	MG/L

Appendix I

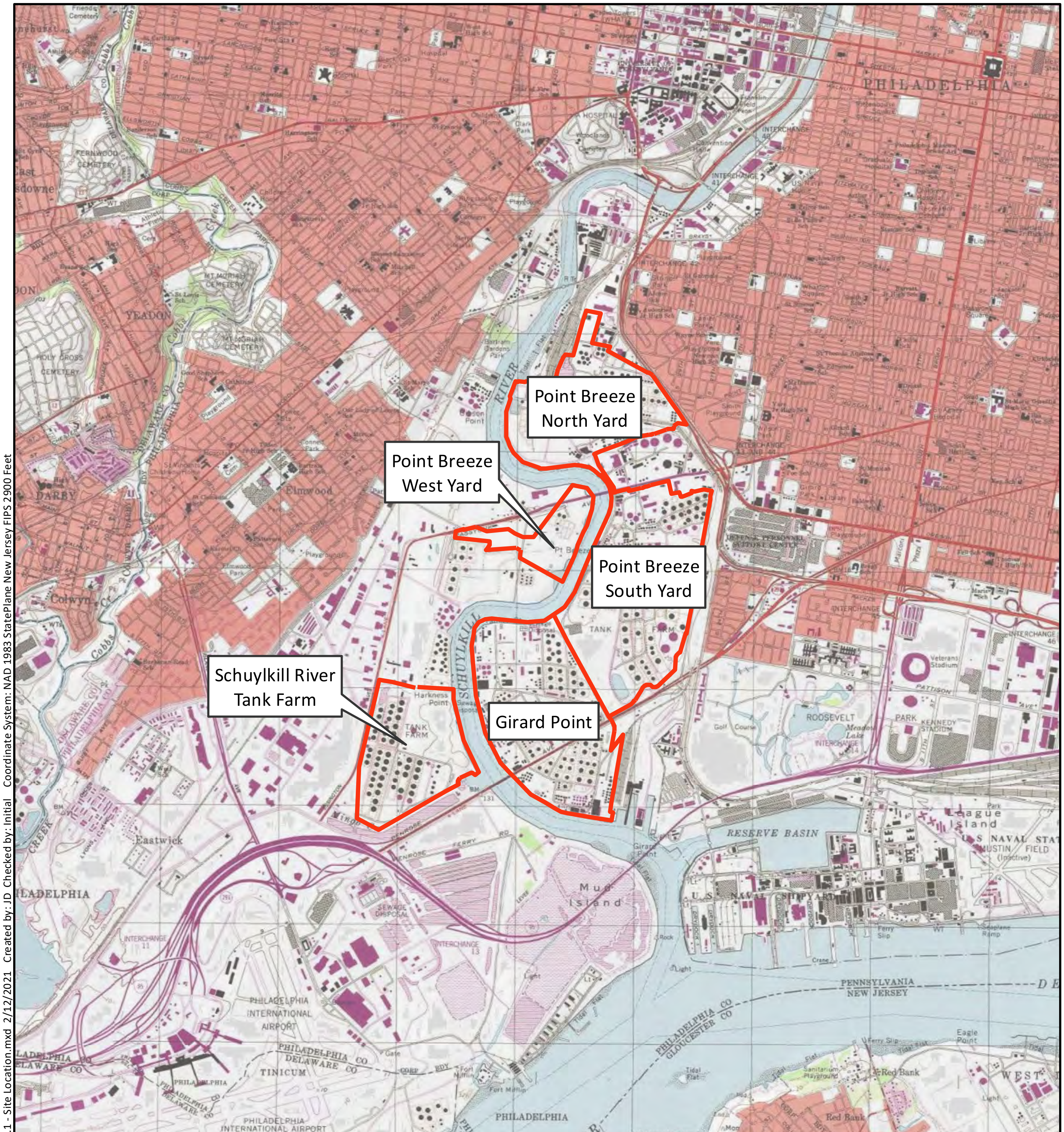
PNDI and NWI

Project Description – PNDI-757963

Terraphase Engineering Inc. (Terraphase) is supporting Philadelphia Energy Solutions Refining and Marketing LLC (PESRM), with the closure of several Aboveground Storage Tanks (ASTs) in accordance with the Storage Tank and Spill Prevention Act (Act 32) and 25 Pa. Code 245, that will be emptied, cleaned, dismantled, and removed during the demolition and redevelopment of the Point Breeze Terminal (Facility ID 51-33620) and Girard Point (Facility ID 51-33624) at the former Philadelphia Energy Solutions (PES) Refinery located at 3144 West Passyunk Avenue, Philadelphia, PA (Site) (Figure 1.1).

The Site is a 1,300-acre former refinery that is being repurposed and redeveloped into a state of the art, multimodal industrial park with ancillary rail infrastructure, energy infrastructure, marine capabilities, and commercial uses. To facilitate redevelopment, existing infrastructure at the Site, including the ASTs, will be demolished. Demolition is anticipated to progress generally from north to south with AST removal to be completed for Point Breeze and Girard Point between 2020 and 2024. Terraphase will prepare reports for submission to the Pennsylvania Department of Environmental Protection (PADEP) as the work progresses by Tank Group (Figure 1.2).

This PNDI review request (757963) is associated with Tank Group 02. Tank Group 02 is located approximately 1,500 feet east of the Schuylkill River. No wetlands or other potential sensitive receptors are in or adjacent to the Site. The Tank Group consists of approximately 34-acre area within the former PES refinery.



0 1,400 2,800 4,200 5,600
Feet

1 inch = 4,000 feet

N

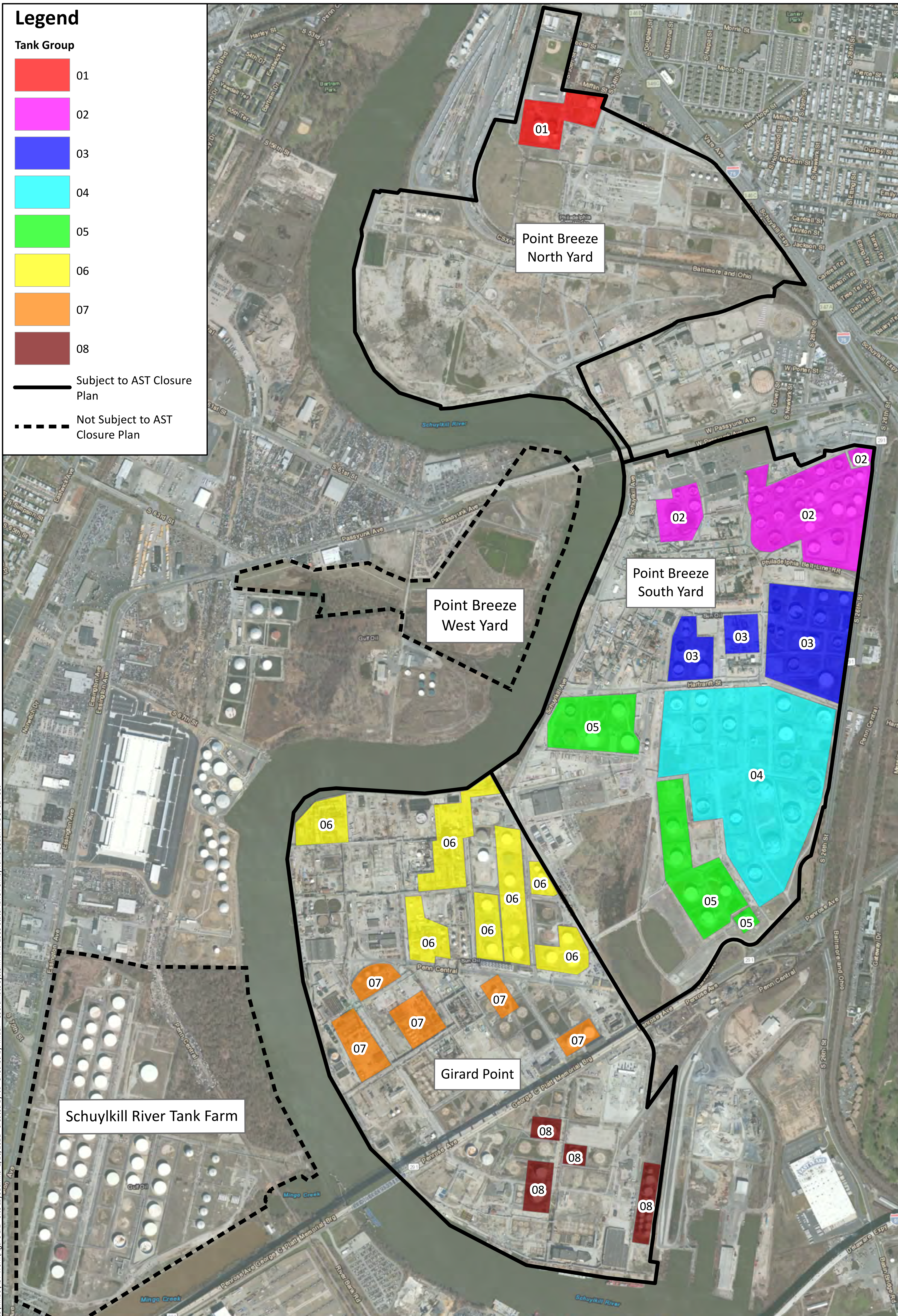
Legend

Property Boundary

Base Map: USGS Philadelphia 1994 7.5 Minute Quadrangle.

SAFETY FIRST	CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC	**Site Location**
terraphase engineering	PROJECT: Aboveground Storage Tank Closure	
	PROJECT NUMBER: P044.001.002	**FIGURE 1.1**

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Figure 1.1 - Site Location.mxd 2/12/2021 Created by: JD Checked by: Initial Coordinate System: NAD 1983 StatePlane New Jersey FIPS 2900 Feet



Notes: Aerial imagery source Maxar 10/19/2019

0 300 600 900 1,200 Feet

1 inch = 1,000 feet

DRAFT

SAFETY FIRST

terraphase engineering

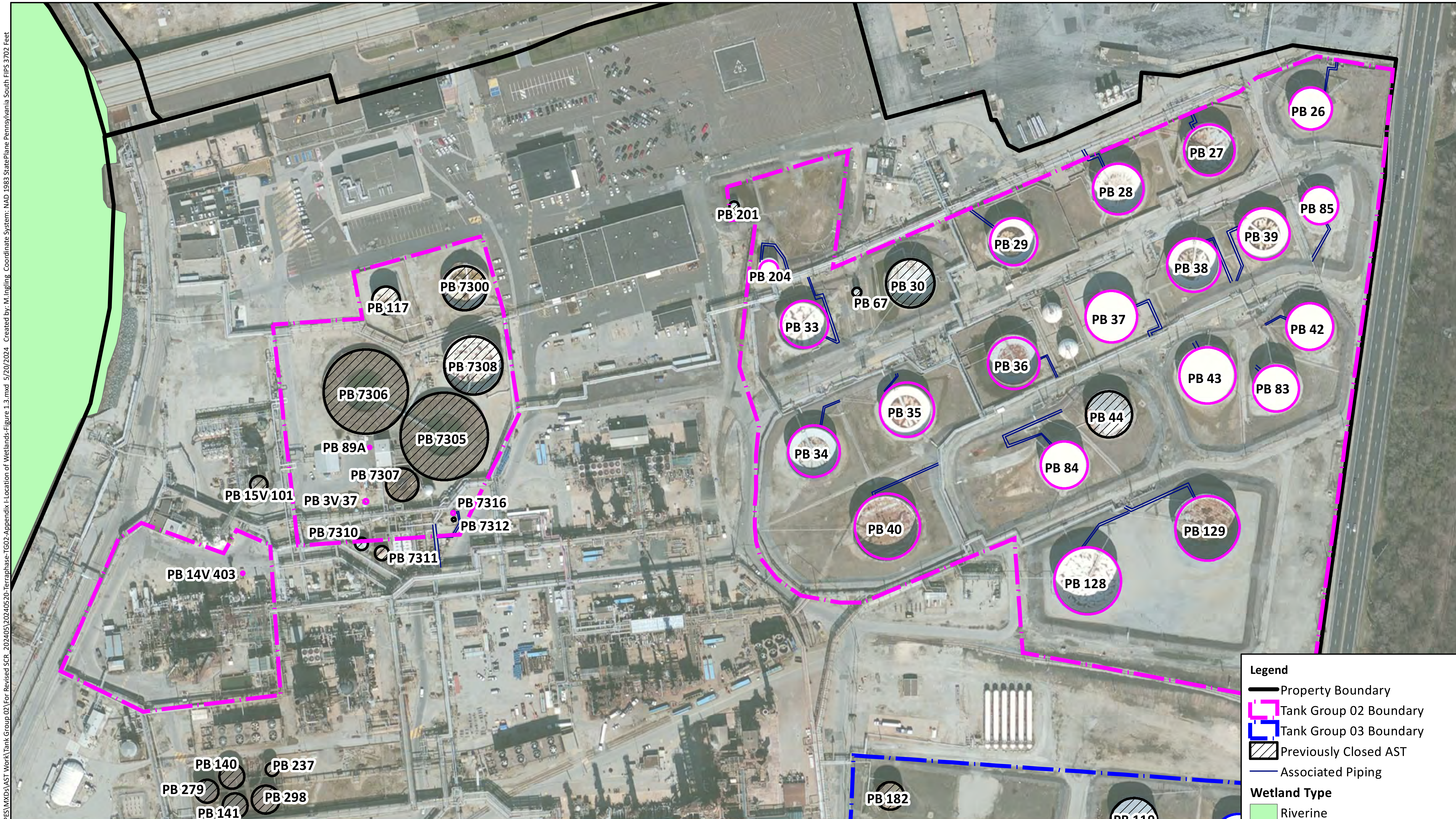
CLIENT: Philadelphia Energy Solutions Refining and Marketing LLC

PROJECT: Aboveground Storage Tank Closure

PROJECT NUMBER: P044.001.002

Site Layout and AST Closure Phase

FIGURE 1.2



Note:
Aerial imagery source Maxar 10/19/2019

0 200 400 Feet
1 inch = 200 feet

N

SAFETY FIRST

terraphase engineering

CLIENT:	Philadelphia Energy Solutions Refining and Marketing LLC
PROJECT:	Aboveground Storage Tank Closure
PROJECT NUMBER:	P044.001.002

Location of Wetlands Tank Group 02

Figure 1.3

File: N:\GIS\Prj\P044.001_PESRM-PES\MXDs\AST Work\Tank Group 02\For Revised SCR_202405\20240520-Teraphase-TG02-Appendix I-Location of Wetlands-Figure 1.3.mxd 5/20/2024 Created by: M.Ingling Coordinate System: NAD 1983 StatePlane Pennsylvania South FIPS 3702 Feet

1. PROJECT INFORMATION

Project Name: **PESRM -Tank Group 02**
Date of Review: **4/27/2022 12:19:54 PM**
Project Category: **Hazardous Waste Clean-up, Site Remediation, and Reclamation, Spill (e.g., oil, chemical)**
Project Area: **33.95 acres**
County(s): **Philadelphia**
Township/Municipality(s): **PHILADELPHIA**
ZIP Code:
Quadrangle Name(s): **PHILADELPHIA**
Watersheds HUC 8: **Schuylkill**
Watersheds HUC 12: **City of Philadelphia-Schuylkill River**
Decimal Degrees: **39.918126, -75.193596**
Degrees Minutes Seconds: **39° 55' 5.2528" N, 75° 11' 36.9471" W**

2. SEARCH RESULTS

Agency	Results	Response
PA Game Commission	No Known Impact	No Further Review Required
PA Department of Conservation and Natural Resources	No Known Impact	No Further Review Required
PA Fish and Boat Commission	**Potential Impact**	**FURTHER REVIEW IS REQUIRED, See Agency Response**
U.S. Fish and Wildlife Service	No Known Impact	No Further Review Required

As summarized above, Pennsylvania Natural Diversity Inventory (PNDI) records indicate there may be potential impacts to threatened and endangered and/or special concern species and resources within the project area. If the response above indicates "No Further Review Required" no additional communication with the respective agency is required. If the response is "Further Review Required" or "See Agency Response," refer to the appropriate agency comments below. Please see the DEP Information Section of this receipt if a PA Department of Environmental Protection Permit is required.

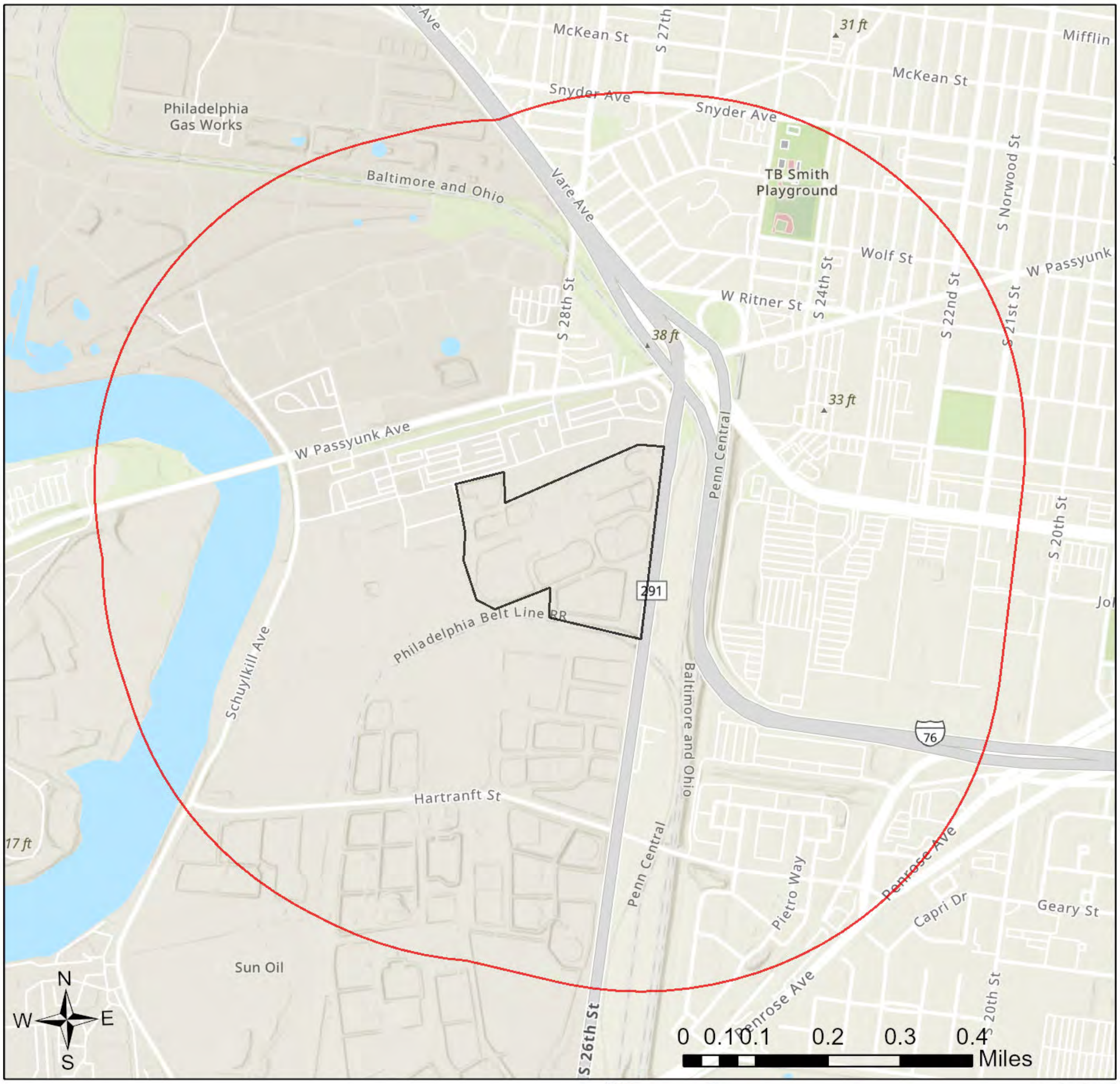
PESRM -Tank Group 02

Buffered Project Boundary

Project Boundary

Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community
Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland,

PESRM -Tank Group 02



Buffered Project Boundary

Project Boundary

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community

RESPONSE TO QUESTION(S) ASKED

Q1: Aquatic habitat (stream, river, lake, pond, etc.) is located on or adjacent to the subject property and project activities (including discharge) may occur within 300 feet of these habitats?
Your answer is: No

3. AGENCY COMMENTS

Regardless of whether a DEP permit is necessary for this proposed project, any potential impacts to threatened and endangered species and/or special concern species and resources must be resolved with the appropriate jurisdictional agency. In some cases, a permit or authorization from the jurisdictional agency may be needed if adverse impacts to these species and habitats cannot be avoided.

These agency determinations and responses are **valid for two years** (from the date of the review), and are based on the project information that was provided, including the exact project location; the project type, description, and features; and any responses to questions that were generated during this search. If any of the following change: 1) project location, 2) project size or configuration, 3) project type, or 4) responses to the questions that were asked during the online review, the results of this review are not valid, and the review must be searched again via the PNDI Environmental Review Tool and resubmitted to the jurisdictional agencies. The PNDI tool is a primary screening tool, and a desktop review may reveal more or fewer impacts than what is listed on this PNDI receipt. The jursidictional agencies **strongly advise against** conducting surveys for the species listed on the receipt prior to consultation with the agencies.

PA Game Commission
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Department of Conservation and Natural Resources
RESPONSE:

No Impact is anticipated to threatened and endangered species and/or special concern species and resources.

PA Fish and Boat Commission
RESPONSE:

Further review of this project is necessary to resolve the potential impact(s). Please send project information to this agency for review (see WHAT TO SEND).

U.S. Fish and Wildlife Service
RESPONSE:

No impacts to **federally** listed or proposed species are anticipated. Therefore, no further consultation/coordination under the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531 et seq. is required. Because no take of federally listed species is anticipated, none is authorized. This response does not reflect potential Fish and Wildlife Service concerns under the Fish and Wildlife Coordination Act or other authorities.

WHAT TO SEND TO JURISDICTIONAL AGENCIES

If project information was requested by one or more of the agencies above, upload* or email the following information to the agency(s) (see AGENCY CONTACT INFORMATION). Instructions for uploading project materials can be found here. This option provides the applicant with the convenience of sending project materials to a single location accessible to all three state agencies (but not USFWS).
*If information was requested by USFWS, applicants must email, or mail, project information to IR1_ESPenn@fws.gov to initiate a review. USFWS will not accept uploaded project materials.

Check-list of Minimum Materials to be submitted:
____Project narrative with a description of the overall project, the work to be performed, current physical characteristics of the site and acreage to be impacted.
____A map with the project boundary and/or a basic site plan(particularly showing the relationship of the project to the physical features such as wetlands, streams, ponds, rock outcrops, etc.)
In addition to the materials listed above, USFWS REQUIRES the following
____**SIGNED** copy of a Final Project Environmental Review Receipt

The inclusion of the following information may expedite the review process.
____Color photos keyed to the basic site plan (i.e. showing on the site plan where and in what direction each photo was taken and the date of the photos)
____Information about the presence and location of wetlands in the project area, and how this was determined (e.g., by a qualified wetlands biologist), if wetlands are present in the project area, provide project plans showing the location of all project features, as well as wetlands and streams.

4. DEP INFORMATION

The Pa Department of Environmental Protection (DEP) requires that a signed copy of this receipt, along with any required documentation from jurisdictional agencies concerning resolution of potential impacts, be submitted with applications for permits requiring PNDI review. Two review options are available to permit applicants for handling PNDI coordination in conjunction with DEP's permit review process involving either T&E Species or species of special concern. Under sequential review, the permit applicant performs a PNDI screening and completes all coordination with the appropriate jurisdictional agencies prior to submitting the permit application. The applicant will include with its application, both a PNDI receipt and/or a clearance letter from the jurisdictional agency if the PNDI Receipt shows a Potential Impact to a species or the applicant chooses to obtain letters directly from the jurisdictional agencies. Under concurrent review, DEP, where feasible, will allow technical review of the permit to occur concurrently with the T&E species consultation with the jurisdictional agency. The applicant must still supply a copy of the PNDI Receipt with its permit application. The PNDI Receipt should also be submitted to the appropriate agency according to directions on the PNDI Receipt. The applicant and the jurisdictional agency will work together to resolve the potential impact(s). See the DEP PNDI policy at https://conservationexplorer.dcnr.pa.gov/content/resources.

5. ADDITIONAL INFORMATION

The PNDI environmental review website is a preliminary screening tool. There are often delays in updating species status classifications. Because the proposed status represents the best available information regarding the conservation status of the species, state jurisdictional agency staff give the proposed statuses at least the same consideration as the current legal status. If surveys or further information reveal that a threatened and endangered and/or special concern species and resources exist in your project area, contact the appropriate jurisdictional agency/agencies immediately to identify and resolve any impacts.

For a list of species known to occur in the county where your project is located, please see the species lists by county found on the PA Natural Heritage Program (PNHP) home page (www.naturalheritage.state.pa.us). Also note that the PNDI Environmental Review Tool only contains information about species occurrences that have actually been reported to the PNHP.

6. AGENCY CONTACT INFORMATION

PA Department of Conservation and Natural Resources
Bureau of Forestry, Ecological Services Section
400 Market Street, PO Box 8552
Harrisburg, PA 17105-8552
Email: RA-HeritageReview@pa.gov

U.S. Fish and Wildlife Service
Pennsylvania Field Office
Endangered Species Section
110 Radnor Rd; Suite 101
State College, PA 16801
Email: IR1_ESPenn@fws.gov
NO Faxes Please

PA Fish and Boat Commission
Division of Environmental Services
595 E. Rolling Ridge Dr., Bellefonte, PA 16823
Email: RA-FBPACENOTIFY@pa.gov

PA Game Commission
Bureau of Wildlife Management
Division of Environmental Review
2001 Elmerton Avenue, Harrisburg, PA 17110-9797
Email: RA-PGC_PNDI@pa.gov
NO Faxes Please

7. PROJECT CONTACT INFORMATION

Name:____
Company/Business Name:____
Address:____
City, State, Zip:____
Phone:(____)________________________Fax:(_____)________________
Email:____

8. CERTIFICATION

I certify that ALL of the project information contained in this receipt (including project location, project size/configuration, project type, answers to questions) is true, accurate and complete. In addition, if the project type, location, size or configuration changes, or if the answers to any questions that were asked during this online review change, I agree to re-do the online environmental review.

____ ___________________________
applicant/project proponent signature date

Division of Environmental Services
Natural Diversity Section
595 E Rolling Ridge Dr.
Bellefonte, PA 16823
814-359-5237

May 17, 2022

IN REPLY REFER TO
SIR# 56128

Terraphase Engineering, Inc.
Nicholas Scala
100 Canal Pointe Blvd
Princeton, New Jersey 08540

RE: Species Impact Review (SIR) – Rare, Candidate, Threatened and Endangered Species
PNDI Search No. 757963_1
PESRM -Tank Group 02
PHILADELPHIA County: Philadelphia City

Dear Nicholas Scala:

This responds to your inquiry about a Pennsylvania Natural Diversity Inventory (PNDI) Internet Database search "potential conflict" or a threatened and endangered species impact review. These projects are screened for potential conflicts with rare, candidate, threatened or endangered species under Pennsylvania Fish & Boat Commission jurisdiction (fish, reptiles, amphibians, aquatic invertebrates only) using the Pennsylvania Natural Diversity Inventory (PNDI) database and our own files. These species of special concern are listed under the Endangered Species Act of 1973, the Wild Resource Conservation Act, and the Pennsylvania Fish & Boat Code (Chapter 75), or the Wildlife Code.

An element occurrence of a rare, candidate, threatened, or endangered species under our jurisdiction is known from the vicinity of the proposed project. However, given the nature of the proposed project, the immediate location, or the current status of the nearby element occurrence(s), no adverse impacts are expected to the species of special concern.

This response represents the most up-to-date summary of the PNDI data and our files and is valid for two (2) years from the date of this letter. An absence of recorded species information does not necessarily imply species absence. Our data files and the PNDI system are continuously being updated with species occurrence information. Should project plans change or additional information on listed or proposed species become available, this determination may be reconsidered, and consultation shall be re-initiated.

If you have any questions regarding this review, please contact Kathy Gipe at 814-359-5186 and refer to the SIR # 56128. Thank you for your cooperation and attention to this important matter of species conservation and habitat protection.

Sincerely,

Christopher A. Urban, Chief
Natural Diversity Section

CAU/KDG/dn